

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA : CIVIL ACTION
: :
v. : :
: :
UNION CORP.; METAL BANK OF : NO. 80-1589
AMERICA; IRVIN G. SCHORSCH, : :
JR.; and JOHN B. SCHORSCH : :
: :
v. : :
: :
CONSOLIDATED EDISON CO. OF : :
NEW YORK; PUBLIC SERVICE : :
ELECTRIC & GAS CO. OF NEW : :
JERSEY; and MONSANTO CO. : :

MEMORANDUM

Giles, C.J.

January 21, 2003

CONTENTS

I.	INTRODUCTION	3
II.	FINDINGS OF FACT AND CONCLUSIONS OF LAW	4
A.	Location and Description of the Site	4
1.	The Courtyard Area	5
2.	The Southern Area	5
3.	The River Sediments Area	6
B.	Ownership and Early Use of the Property	8
C.	Summary of Investigative and Enforcement History	14
D.	Unsuccessful Remediation Attempt	17
E.	Nature of the Contamination	24
1.	PCBs	24
2.	PAHs	27
3.	Other Contaminants	28
F.	Migration of Contaminants	28
G.	Health and Environmental Risks	32
1.	Risks to the Ecosystem	32
2.	Risks to Human Health	38
III.	ANALYSIS	42
A.	CERCLA Liability	42
1.	Factual Basis for Finding Union Corporation is a "Covered Person"	43

a.	Under Corporate Veil Piercing	43
a-1.	Legal Analysis	50
b.	As Owner/Operator (Judicial Estoppel)	54
b-1.	Legal Analysis	55
c.	As an “Arranger”	56
c-1.	Legal Analysis	57
d.	As Lessee/ <u>De Facto</u> Owner	60
d-1.	Legal Analysis	61
2.	Factual Basis for Finding Metal Bank is a “Covered Person”	62
a.	As Owner/Operator	62
a-1.	Legal Analysis	63
b.	As an “Arranger”	64
b-1.	Legal Analysis	64
3.	Factual Basis for John B. and Irvin G. Schorsch, Jr. are “Covered Persons”	64
a.	As Owners/Operators	64
a-1.	Legal Analysis	65
4.	Factual/Legal Basis for Finding Site is a “Facility”	65
5.	Actual or Threatened Release	66
a.	Factual Basis	66
a-1.	Legal Analysis	68
6.	Response Costs	69
a.	Factual Basis for finding EPA has Incurred	69
a-1.	Legal Analysis	69
B.	RCRA Liability	70
1.	Imminent and Substantial Endangerment	71
a.	Factual Basis	71
a-1.	Legal Analysis	72
2.	Endangerment Stemming from Handling, Storage, Treatment, Transportation or Disposal of Solid or Hazardous Waste	74
a.	Factual Basis	74
a-1.	Legal Analysis	74
3.	Factual Basis for Liability of the Schorsch Brothers	79
a.	As Owners/ Operators and Corporate Decision- makers who Contributed to the Contamination	79
a-1.	Legal Analysis	79
4.	Factual Basis for Liability of Metal Bank	81
a.	As Owner/ Operator who Contributed	81
a-1.	Legal Analysis	82
5.	Factual/Legal Basis for Liability of Union Corporation as Owner/ Operator who Contributed to the Contamination	82
IV.	CONCLUSION	85

I. INTRODUCTION

The United States (“Plaintiff” or “the Government”) sues individual defendants Irvin G. Schorsch, Jr. and John B. Schorsch (“the Schorsch brothers”), and corporate defendants Union Corporation (“Union”) and Metal Bank of America, Inc. (“Metal Bank”), seeking reimbursement for past and future response costs to investigate the Cottman Avenue Superfund site in Philadelphia and for enforcement pursuant to section 107 of the Comprehensive Environmental, Response, Compensation and Liability Act (“CERCLA”), 42 U.S.C. § 9607. The Government also seeks injunctive relief and remediation of the site pursuant to section 7003 of the Resource Conservation and Recovery Act (“RCRA”), 42 U.S.C. § 6973.

Defendants have filed a third party complaint against Baltimore Gas & Electric Company, Jersey Central Power & Light, Long Island Lighting Company, Metropolitan Edison Company, Orange and Rockland Utilities Corporation, PECO Energy Company, Potomac Electric Power Company, PP & L Electric Utilities Corporation Virginia Power Company, Consolidated Edison of New York, Public Service Electric & Gas Company of New Jersey, (collectively “the utilities”), The Monsanto Company (“Monsanto”) and against the City of Philadelphia (“the City”).

Filed in 1980, this matter was placed in suspense in 1983 pending attempted remediation of the site but was restored to the court’s active trial docket in 1998, upon the Government’s claim that remediation had failed or had not addressed all contamination concerns. Following extensive discovery and pre-trial proceedings, trial was phased as follows: Phase One would determine whether defendants were liable and whether response costs were incurred by the Government; Phase Two would determine whether the Government’s response costs, if any,

were reasonable and recoverable, as well as the scope of any further remedial action; and Phase Three would determine the liability, if any, of the third-party defendants. Trial of Phase One issues commenced August 19, 2002. This memorandum explains the court's disposition of Phase One issues in favor of the Government.

This court has jurisdiction pursuant to section 113(b) of CERCLA, 42 U.S.C. § 9613(b) and section 7003 of RCRA, 42 U.S.C. § 6973, as well as under 28 U.S.C. § 1331 as a civil action arising under the laws of the United States and under 28 U.S.C. § 1345 as a civil action commenced by the United States.

II. FINDINGS OF FACT AND CONCLUSIONS OF LAW

A. Location and Description of the Site

The Metal Bank Superfund site (“the Site” or “the Property”) is a former industrial property located on the Delaware River at 7301 Milnor Street in Philadelphia, Pennsylvania. The property is bordered by Cottman Avenue on the west, Milnor Street on the north, Safe Disposal Systems (an appliance recycling company) and Morris Iron & Steel Company (a metal salvage yard) on the east, and the Delaware River on the south and southwestern edge. The Site also includes the mudflat in the shallow embayment to the west. (Gov. Ex. 488 at 4, Gov. Ex. 481 at 2-1).

A six-foot high fence surrounds part of the property, but the fence is not sufficient to exclude trespassers. There is also a gate for vehicular access from Cottman Avenue and the property is also accessible from the river and mudflats to the south and southwest. Graffiti evidences that trespassers have recently entered the property. (T. Tr. at IV – 111, V – 236-238; Gov. Ex. 481 at 2-1). The Site is generally divided into three areas of concern: the Courtyard

Area, the Southern Area, and the River Sediments area. (See Gov. Ex. 488 at 14; Gov. Ex. 481 at 2-1 to 2-2).

1. The Courtyard Area

The Courtyard Area consists of an open area at the northern section of the property near Milnor Street. The buildings near the Courtyard Area were demolished in 1998. (Gov. Ex. 481 at 2-2).

2. The Southern Area

The Southern Area is an open area bordering the Delaware River where transformer processing operations once took place. Historical aerial photos show that most of the Southern Area is located in what was once part of the Delaware River and was gradually filled in beginning in approximately 1950. Heterogeneous fill material, most of which was placed before 1968, is about 15 feet thick. Its origin is unknown, but it contains construction debris, including chunks of concrete, brick, lumber, cloth and metal. The Southern Area sits approximately 10 feet above Mean Sea Level, and most of it is located within the 100-year floodplain. The outer edge of the Southern Area is steeply sloped, with large concrete blocks of material apparently placed for erosion control along approximately 550 feet of shoreline of the present-day Delaware River. (Gov. Ex. 488 at 11-14; Gov. Ex. 481 at 2-1 through 2-2; see also T. Tr. at II-248; Gov. Ex. 494 at 1-3). This is the area known as the “upper rip rap.”

There is also a “lower rip rap” area sometimes referred to as the “beach.” It consists of small heterogeneous fill material placed there as part of a clean up response ordered by the United States Coast Guard following an “oil spill” in that area that occurred in 1972.

3. The River Sediments Area

The River Sediments Area, located adjacent to the southern and western boundaries of the Property, includes both mudflat and river bottom. The Delaware River is tidal in the vicinity of the Cottman Avenue Property, with six to seven foot tides that reach maximum and minimum water levels every twelve hours. To the immediate west of the Property, the River forms a shallow embayment, which is completely submerged at high tide and which forms an exposed mudflat five to seven acres in size at low tide. The mudflat consists primarily of fine silts and clays, with some occasional gravel in the subsurface, with the amount of gravel increasing closer to the border with the Property. The river bottom is composed of gravelly and sandy material, and it slopes gradually away from the Property. (T. Tr. at II – 247-249; Gov. Ex. 488 at 14; Gov. Ex. 481 at 2-2).

The embayment is bordered to the north by St. Vincent’s School – a former orphanage currently serving as a day care center and an emergency shelter for at-risk children from the City of Philadelphia -- and to the west by the Quaker City Yacht Club, which serves as a boat launch for recreational boaters. (Gov. Ex. 488 at 4). A municipal combined stormwater/sewer outfall (“CSSO”) owned by the City of Philadelphia is located at the foot of Cottman Avenue and empties into the northeastern corner of the embayment during and following periods of heavy rain. (See Gov. Ex. 488 at 4; Gov. Ex. 481 at 2-1). Groundwater underneath the Site flows into the Delaware River, generally from north to south. Depth of groundwater varies from seven to sixteen feet. (See Gov. Ex. 488 at 13).

Recreational and subsistence fishing takes place in the Delaware River approximately 200 yards south of the Site from a public access ramp that was formerly used for boat access but

is now open only for fishing. (T. Tr. at III – 195, 210). On April 11, 2001, the Commonwealth of Pennsylvania issued a general statewide fish advisory for recreationally caught sport fish which advises the public to eat no more than one meal (approximately one half pound) of sport fish caught in the state’s waterways. In addition, the Commonwealth has issued a more protective advisory for the Delaware River south of Yardley advising the public to limit or avoid consumption of white perch, striped bass, carp, channel catfish, and american eel due to PCB contamination and to limit consumption of smallmouth bass due to mercury contamination. (Gov. Ex. 467A at 37-38; see also T. Tr. at III – 188).

The fish advisory is posted on the Fish and Boat Commission’s website and is contained in a summary of fishing regulations and laws provided to holders of a Pennsylvania fishing license. Persons under the age of sixteen are not required to have fishing licenses and would not likely become aware of the warnings through the license application’s procedures and documents. The brochure is published only in English, although many of the people who regularly fish the Delaware River in that area are of Asian descent who profess not to speak English when approached by fishing authorities. (T. Tr. at III – 188, 192-93). An enforcement officer with the Pennsylvania Fish and Boat Commission testified at trial that she has seen people fishing in the Delaware River and then cooking and eating their catch along the shore. (T. Tr. at III -- 196). The Commonwealth of Pennsylvania has cited merchants in some Asian markets in Philadelphia for selling illegally *Corbicula* clams that may have come from the Delaware River. (T. Tr. at III -- 203).

B. Ownership and Early Use of the Property

In the early 1960's, the Property was owned by L. Goldstein Sons, Inc. ("LGS"), a Pennsylvania Corporation. Irvin G. Schorsch and John B. Schorsch (collectively "the Schorsch brothers") were LGS's executive officers and sole shareholders. At some point in the 1960's, LGS began doing business as the Metal Bank of America, Inc. (T. Tr. at XII – 23-24; see also Gov. Ex. 62 at 1-2). On December 4, 1968, LGS agreed to sell its business assets, except for its real estate at 6801 State Road (the "State Road Property") and the Cottman Avenue property, to Defendant Union Corporation ("Union"), a New Jersey corporation. Union paid all the consideration for the LGS assets. As a result, the Schorsch brothers received 170,612 shares of Union common stock valued at an average of \$12.24 per share (or \$2,087,547), and \$4,891,028 in cash and notes for an aggregate value of \$6,978,575. Union agreed to (1) provide the Schorsch brothers with employment contracts to continue as Metal Bank's executive officers; (2) provide them with incentive compensation in the form of more Union stock to be paid in the future; and (3) assume all of LGS's liabilities. (T. Tr. at XII – 25-28; see also Gov. Ex. 25, Gov. Ex. 144, Gov. Ex. 758).

On December 4, 1968, Union formed a wholly-owned subsidiary, MBA, Inc. ("Metal Bank"), a Pennsylvania corporation, to complete the LGS purchase. Union has been Metal Bank's sole shareholder at all times since its creation. On or about December 9, 1968, Metal Bank changed its formal corporate name from MBA, Inc. to the Metal Bank of America, Inc., and then to U.C.O.-M.B.A., Inc. in 1985. (See Gov. Ex. 62 at 1). Union assigned its interest in the LGS purchase contract to Metal Bank, which closed on the transaction on or about December 27, 1968. Metal Bank continued the same metals recycling business it had conducted before the

sale to Union. (T. Tr. at XII – 28-29; see also Gov. Ex. 62 at 1).

Irvin Schorsch was President of Metal Bank from 1968 until at least 1980, when his title changed to Metals Investment Supervisor. He was a member of Metal Bank’s board of directors from 1969 until 1978. John Schorsch was Executive Vice President and a director of Metal Bank from 1968 until 1974, when he left Metal Bank to work in another of Union’s subsidiaries. (T. Tr. at XII – 87; see also Gov. Ex. 144, Gov. Ex. 758 at 34-35).

LGS leased the Cottman Property to Metal Bank from December, 1968, until 1970. (See Gov. Ex. 198). In about March 1969, LGS liquidated and distributed its remaining assets, including the Cottman Avenue Property and the State Road Property, to its shareholders, the Schorsch brothers. They leased both properties to Union Corporation from 1970-72 and from June, 1972 through September, 1980. (See Gov. Ex. 199). Under the June 1972 lease, Union agreed to lease the Cottman Avenue Property “for refining, processing, conversion, separation of ferrous and non-ferrous metals and alloys, sales and administrative offices and uses and occupation necessary or desirable” thereto. (Gov. Ex. 199 at ¶ 2). Through the lease, Union assumed responsibility for keeping the Property clean and in good repair (Id. at ¶ 8(b)) and for any damage to “any. . . person” caused by “breakage or leakage” from “the drains, pipes, or plumbing works” at the properties (Id. at ¶ 11(a)). A rider attached to the lease expressly committed the lessors, Schorsch brothers, to provide “oil storage tanks” to lessee, Union. (Id. at ¶ 30).

In late 1968 or early 1969, Metal Bank began recycling electrical transformers at the Property. It reclaimed the iron castings and copper cores from the transformers. Most of the transformers contained transformer oil which had to be drained from them before the metal

reclamation could occur. An underground storage tank (“UST”), with a capacity of approximately 4,000 gallons, was installed underneath a bermed concrete pad in the Southern Area of the Property, and was located approximately 25 to 30 feet from the bank of the Delaware River. (Gov. Exs. 16, 722; T. Tr. at XII – 151). Metal Bank operated the Property as a scrap metal and transformer reclamation facility from some time shortly after the sale to Union until at least the summer of 1973. While the Property was in operation, all of Metal Bank’s transformer operations were conducted there. (T. Tr. at XII – 147-49; see also Gov. Ex. 439A at ¶ 5). Irvin Schorsch established business relationships with several major electric utility companies along the East Coast and arranged to purchase from them their scrap electrical transformers for recycling. (T. Tr. at XII – 32). Metal Bank processed many thousands of transformers at the Site. (See, e.g., Gov. Exs. 520, 521A, 757, 763).

An electrical transformer generally has an iron or steel casing, within which a core of wound copper wire is immersed in a dielectric fluid or oil that is used for insulation and cooling purposes. Dielectric fluids used included mineral oil, as well as fluids consisting primarily of polychlorinated biphenyls (“PCBs”). From 1968 or 1969 until 1973, the scrap electrical transformers processed by Metal Bank frequently contained PCBs, polycyclic aromatic hydrocarbons (“PAHs”) and other semi-volatile organic compounds (“SVOCs”), volatile organic compounds (“VOCs”), metals and other hazardous substances. (T. Tr. at II– 7-68; Gov. Ex. 718 at v-vi; Gov. Ex. 494 at 1-3).

Metal Bank’s procedure was to leave its trailers at the utility facilities. When the trailers were filled with scrap transformers, Metal Bank would send its trucks to pick up the trailers and bring them to the State Road site for weighing before driving them to the Site for processing. (T.

Tr. at XII – 147-149). The trailers were then driven to an area near the concrete disassembling pad near the river. A crew of employees would take the tops off the transformers using hand-held power tools and would tip the transformers over on their sides. Oil from the transformers drained onto the concrete pad and flowed down the drain into the UST. Periodically, the oil was pumped out of the UST by a private contractor and was hauled from the Site and sold for industrial fuel purposes.

When the transformers had finished draining, they were stacked to the side, away from the pad. After their copper coils were pulled out and recovered, and the steel canisters were loaded by crane onto trucks adjacent to the pad. (T. Tr. at XII – 147-149, 188-190; Gov. Ex. 16).

The Cottman Avenue reclamation operations were very sloppy. Photographs of the Site amply demonstrate this. (See Def. Ex. 786-1). Moreover, the Site operators did not regard the oil as posing any health risks and were not careful about the transformer draining and storage procedures. (T. Tr. at XII – 153-54). Oil dripped or spilled from leaking transformers as they were first unloaded at the Property. “Clam buckets” used to unload the transformers from the trucks, several at a time, sometimes ruptured transformers filled with oil that splashed onto the ground. Oil dripped from the stacks of transformers piled next to the pad as they awaited further processing. Transformers stacked on the pad for draining toppled off of the pad and the oil spilled into the ground rather than onto the pad. Rainwater sometimes got into the tank, forcing oil from the tank onto the ground. The ground near the UST became saturated with oil and was stained black. Sometimes, rivulets of oil ran across the surface of the property and down the riverbank into the Delaware River. (T. Tr. at I – 46, V – 253, XII – 188-190; Gov. Ex. 425 at 4-5; Gov. Ex. 16).

At some time prior to August 3, 1972, a significant leak or rupture developed in the UST at the Site resulting in PCB-laden oil being released into the groundwater and thereby into the Delaware River. (Gov. Ex. 439A at ¶ 5; see also Gov. Exs. 16, 670). Then Metal Bank employee Roosevelt Thornton observed oil floating in the river near the tank. He noticed that the level of oil in the tank would change at times when oil had neither been added nor pumped out. For example, if employees ceased work on Friday and capped the tank, they would return on Monday to find the tank overflowing if it had rained over the weekend. When they then lowered a pump hose deep into the tank, they would pump water out of the bottom. The levels in the tank also rose when the tide was in, even if the tank was capped. (See T. Tr. at IX – 175-76). The volume of oil observed entering the river at the Property evidenced to the United States Coast Guard (“USCG”) and to Pennsylvania environmental inspectors that oil was flowing from the Site into the river, principally as a result of a leaking UST.

In subsequent litigation with its insurance companies over clean-up costs, Metal Bank asserted and admitted that the UST was ruptured and leaking. Witnesses who were present at the Site at the time corroborated that the tank leaked. (Gov. Ex. 16; Gov. Ex. 425; Gov. Ex. 439A; Gov. Ex. 475; T. Tr. at XII – 149-151).

Following the Coast Guard’s identification of the UST as the source of the oil spill into the Delaware River in August of 1972, Metal Bank had the tank inspected. In this record, there is no documentation of a leak being found or repaired. However, Metal Bank would not have admitted in litigation with its insurance company that the tank was ruptured and leaking if it had not been convinced by its own investigation that this was so. By inference, the court finds by a preponderance of the evidence that the tank did leak and was repaired during the tank inspection

process. Defendants claim that the tank shows no evidence of leaking at this time.

Metal Bank frequently received scrap capacitors mixed in with the bulk shipments of transformers from the various utility companies. The scrap capacitors contained extremely concentrated mixtures of PCBs. Metal Bank did not process these capacitors because they had no salvage value. However, some of the capacitors arrived broken or crushed, or were broken and crushed after delivery, such that dielectric fluids containing high concentrations of PCBs were released onto and into the Property. (T. Tr. at IV – 46; T. Tr. at V – 162-169, 177-190). Capacitors were strewn about the Property, in whole or in parts. Dr. Edward W. Kleppinger, Defendants' environmental consultant, observed scrap capacitors on the mudflat adjacent to the Cottman Avenue Property in 1980-81. Dr. John D. Schell, Defendants' expert on environmental risk assessment, observed capacitors or parts of capacitors in the lower rip-rap and on the mudflat adjacent to the Property during his work at the Site in 2000 and afterwards. (T. Tr. at V – 177-190; T. Tr. at VII – 108, 112-113).

Along with the transformer processing business, Metal Bank conducted other scrap metal operations at the Site. These operations included receiving cans of cobalt residue, which was stored on Site prior to re-sale. Marvin Dayno, a former Metal Bank officer, testified that Metal Bank received shipments of cobalt residue from DuPont in five-gallon containers. He described the cobalt residue as a thick, black, tar-like, coal-type material. Metal Bank stored the cobalt residue outside on the grounds of the Property and resold the cobalt residue to its customers. Metal Bank shipped approximately two to three truckloads of cobalt residue per year. (T. Tr. at XII – 155-156; see generally Gov. Ex. 494 at 1-7 through 1-10).

At the Site, Metal Bank also recovered copper from insulated copper wiring. Dr. Kleppinger testified that Metal Bank burned insulation off of copper wires in small furnaces known as “sputniks.” (T. Tr. at V – 153-54). Ash residue from the furnaces was spread upon the ground. (T. Tr. at IV – 37-38).

In addition to the UST, there were four other underground storage tanks located on the Site. A storage tank registration form prepared by Metal Bank for submission to Pennsylvania’s Department of Environmental Resources identified four underground storage tanks at the Site: the UST (identified as a 6,000 gallon capacity tank), two 10,000 gallon tanks, and one tank with an estimated capacity of 15,000 gallons. Dr. Kleppinger, who assisted in the preparation of this form, testified that one of these tanks was used for the storage of heating oil. The contents and use of the other two tanks are not known at this time. Dr. Kleppinger also testified that there is another 35,000 gallon tank that is bisected by the Metal Bank property line. It has tested positive for benzene, a volatile organic compound, although its use and contents are also presently unknown. (Gov. Ex. 772; T. Tr. at V -- 193-200). Whether tanks other than the UST ever leaked has not been determined.

C. Summary of Investigative and Enforcement History

On the morning of August 3, 1972, the USCG and Pennsylvania Environmental Inspectors responded to an oil spill in the Delaware River in the vicinity of the Quaker City Yacht Club and traced its origin to the Property. Numerous dead fish were reported. An inspection four days later revealed that the entire area near the bank of the Delaware River was saturated with oil, and areas were visible where oil had seeped through and poured over the bank of the Site into the river. (Gov. Exs. 670, 263; see also Gov. Ex. 439A at ¶ 5, Gov. Ex. 16 at ¶

5). The court finds that this oil spill related solely to the Site and cannot be attributed to Bunker “C” oil from vessels passing the site in the Delaware River, as defendants contend.

Various technical consultants estimated that the amount of oil released into the Site range from 11,700 gallons to 46,750 gallons. (Gov. Ex. 151 at 7; see also T. Tr. at II-41; V – 8-9, 131). Although these estimates assume that all of the oil came from Metal Bank’s operations, even if a substantial portion came from upgradient sources as defendants contend, the defendants’ spills became commingled with all of the other oil, making any responsible defendant responsible for the entire clean up.

During 1972 and 1973, the USCG collected samples from the Site, including samples of the soil and of the oil spill. Initially, the USCG did not detect PCBs in the oil samples. In late 1972 and 1973, in response to recommendations made by the USCG, Metal Bank took limited actions to clean up its property. It performed some surficial clean up of the southern portion of the property where the concrete pad was located, placed “booms” out to contain and collect oil in the river and along the shoreline, installed cylindrical caissons to capture the oil as requested by the USCG, and covered the ground with clean soil. However, Metal Bank did not undertake any efforts at that time to clean up subsurface contamination or to prevent subsurface oil from migrating into the river. (See Gov. Ex. 62 at 4).

In the mid-1970s, in response to a USCG request that Metal Bank armor the shore, Metal Bank installed the lower rip rap, consisting of smaller pieces of rubble, broken bricks and concrete. (T. Tr. at IX – 126). The lower rip rap was designed to stabilize the lower portion of the upper rip rap and to act as a buffer both for oil spills coming from the land toward the water and for oil that might come from the River toward the land. Thus, the lower rip rap likely was

placed on top of oil that had not been recovered by the methodologies utilized by Metal Bank. At trial, although defense expert Dr. Kirk Brown did not agree that oil or oil residue is currently seeping from the Property through the lower rip rap, he opined that some oil could have been trapped by the lower rip rap installation and that the perceived oil sheens could be extractions of the oil deposit that are coming to the surface rather than seepage of oil trapped in subsurface areas of the Property bordered by the upper rip rap. (T. Tr. at IX – 141).

In September 1977, in response to continuing concerns, the USCG and other government agencies re-analyzed the 1972 samples using more sophisticated analytical technology and detected the presence of PCBs in concentrations over 800 parts per million (“ppm”). (See Def. Ex. 53 at 1-4; Gov. Ex. 62 at 5; see also T. Tr. at I – 67). Analyses of soils and liquids samples at the Site detected the presence of PCBs at levels up to 1579 ppm. (See Def. Ex. 53 at 1-1 – 1-4). Based on these findings, EPA hired Roy F. Weston, Inc. (“Weston”), to define more fully the nature and extent of PCB contamination at the Site. Weston conducted an investigation and documented its findings in two reports dated October 1978 and March 1980. (Def. Exs. 53 and 63). The 1978 Report showed that as many as 21,000 gallons of PCB-contaminated oil had pooled in the subsurface of the Cottman Avenue Property. The report concluded that this oil was releasing PCBs to the underlying groundwater and that PCBs from the Property were contaminating the Delaware River through oil and groundwater discharges. (See Def. Ex. 53 at 4-1).

At Metal Bank’s request, Energy and Environmental Analysis, Inc. (“EEA”) also investigated conditions at the Property. In its May 8, 1979 report, EEA estimated that the extent of the oil spill from the ruptured UST affected an area of approximately 75,000 square feet and

contained about 11,700 to 46,750 gallons of oil, and involved 115 to 460 pounds of PCBs. The EEA report also estimated that groundwater transporting oil to the Delaware River moved at the rate of 17,053 gallons per day. (See Gov. Ex. 151 at 6-7, 11, 23). On April 23, 1980, the United States filed suit seeking injunctive relief and costs. Based on a Hazard Ranking System score of 33.23, EPA listed the Site on the Superfund National Priorities List (“NPL”) in 1983. See 48 Fed. Reg. 40669, 40673 (Sept. 8, 1983).

D. Unsuccessful Remediation Attempt

On December 13, 1983, the court approved a Stipulation between the United States and Defendants that required Metal Bank to install and operate an oil recovery system until all recoverable oil was removed from the subsurface of the Site. Defendants hired Dr. Kleppinger to implement the system. The system consisted of three recovery wells, several oil separation units, and several 55-gallon drums containing activated carbon to treat groundwater. (T. Tr. at IV – 40-48). The system removed most, but not all, of the subsurface oil at the Site. (T. Tr. at V – 8, 260-261). In the late 1980s, defendants shut down the system and dismantled it, placing approximately one to two feet of clean fill material over the surface of the Southern Area. (T. Tr. at I – 91; IV – 109). After eight years of remedial efforts, defendants took the position that all feasible remediation had occurred and that the clean-up had been successful in that all remaining oil was permanently trapped and posed no risk of migration to the Delaware River or to the area of the embayment.

However, the Government did not agree that the Site no longer posed a substantial hazard to human health or the environment. EPA monitoring in 1989 showed that despite eight years of groundwater pump and treat operations at the Site, a layer of PCB-contaminated oil at least three

inches thick was still floating on the groundwater at some portions of the Site. (Gov. Ex. 644 at 9; Gov. Ex. 494 at 1-13 – 1-14; Gov. Ex. 488 at 9). PCB concentrations measured in the oil layer were 1,539 ppm in 1977 prior to the oil recovery operation and almost the same, 1,540 ppm, in 1989 when the oil recovery operation was being terminated. (Gov. Ex. 488 at 17). On May 1991, EPA signed an Administrative Order by Consent with ten utilities, which had sent transformers to the Site and organized themselves as the Cottman Avenue PRP Group (“PRP Group”). Pursuant to the Administrative Order, the PRP Group conducted a Remedial Investigation/Feasibility Study (“RI”) to define the nature, extent, and sources of contamination at the Site and to estimate the health and environmental risks associated with the contaminants at the Site.

The RI Final Report, dated October 14, 1994, documented widespread contamination by PCBs, TPH, PAHs and other hazardous substances at the Site. (Gov. Ex. 494). Pockets or layers of oil beneath the ground surface were found to contain PCBs at concentrations in the range of 520 ppm to 1,090 ppm. Courtyard Area soils at the ground surface and to a depth of approximately two feet were found during the RI to contain PCBs at concentrations up to 140 ppm. Southern Area surface soils were found during the RI to contain hazardous substances such as:

- arsenic at concentrations up to 6.8 ppm;
- copper at concentrations up to 149 ppm;
- lead at concentrations up to 220 ppm;
- PCBs at concentrations up to 4.7 ppm;
- total SVOCs at concentrations up to 11.8 ppm.

(Gov. Ex. 494 at Tables 4-3 to 4-5). Southern area subsurface soils were found during the RI to contain the following hazardous substances:

- PCBs at concentrations up to 42 ppm;
- the pesticide 4,4'-DDD at concentrations up to 11 ppm;
- total VOCs at concentrations up to 907 ppm;
- total SVOCs at concentrations up to 2,008 ppm;
- arsenic at concentrations up to 21.1 ppm;
- lead at concentrations up to 227,000 ppm (or 22.7% of the sample);
- Mercury at concentrations up to 10.5 ppm.

(Gov. Ex. 494 at 4-17 to 4-48 & Tables 4-6 to 4-10).

Southern Area subsurface soils were found during the Pre-Design Investigation (“PDI”) to contain PCBs at concentrations up to 680 ppm. Twenty-one sample locations contained PCBs in excess of ppm; fifteen sample locations contained PCBs in excess of 50 ppm; and seven locations contained PCBs in excess of 100 ppm. A majority of the samples in excess of 100 ppm were located near the UST in the southwest corner of the Site. (Gov. Ex. 481 at 5-3 & Tables 5-3 to 5-5).

Groundwater at the Site was found during the RI to contain the following hazardous substances:

- PCBs at concentrations in water up to 25.6 parts per billion (“ppb”), and at a concentration in a floating oil sample of 1,090 ppm;
- total VOCs at concentrations up to 5.6 ppm;
- total SVOCs at concentrations up to 22.7 ppm;
- total pesticides at concentrations up to 61.3 ppb;

- arsenic at concentrations up to 369 ppb in unfiltered samples, and up to 67 ppb in filtered samples;
- chromium at concentrations up to 288 ppb in unfiltered samples, and up to 102 ppb in filtered samples;
- lead at concentrations up to 1,382 ppb in unfiltered samples, and up to 7.6 ppb in filtered samples;
- mercury at concentrations up to 22.2 ppb in unfiltered samples and up to 0.9 ppb in filtered samples.

(Gov. Ex. 494 at 4-53 to 4-70 & Tables 4-13, 4-15 to 4-17).

Sediments in the Delaware River adjacent to the Site were found during the RI to contain the following hazardous substances:

- PCBs at concentrations up to 6.8 ppm;
- total SVOCs at concentrations up to 244 ppm;
- lead at concentrations up to 2,030 ppm.

(Gov. Ex. 494 at 4-70 to 4-79 & Tables 4-20 to 4-23).

Sediments in the mudflat and Delaware River were found during the PDI to contain PCBs at concentrations up to 6.1 ppm. Out of a total of 45 samples, 11 contained PCBs at concentrations exceeding 1 ppm. (Gov. Ex. 481 at 5-5 & Table 5-10). Sediments in the mudflat area were found during a January 2002 sampling event to contain PCBs at concentrations up to 22.1 ppm. (Gov. Ex. 499 at 9-10 & Table 3).

Sheens of oil originating from the sediments adjacent to the Site were witnessed as recently as December 2001. (T. Tr. at IV – 17-18, 19-20). Defendants' trial experts opined that sheens present in the waters adjacent to the Site are biological in nature. The court credits the witnesses who concluded that the sheens are oil. They testified that the sheens come from pockets of oil that can be produced upon digging shallow depths in the beach or lower rip rap.,

and that what looked and smelled like oil, is oil.

Manufacturers of PCB-containing transformers used PCB Aroclor 1260 as the principal component of the transformers' dielectric fluid. (Defs. Ex. 534 at 5). Aroclor 1260 has been found on-site, in the rip rap area, in the beach area and in the Delaware River sediments adjacent to the Site. (Gov. Ex. 494 at Ch. 4; Gov. Ex. 481 at 5-3 to 5-5). Similarly, before 1971, manufacturers of PCB-containing capacitors used Aroclor 1242 as a principal component of capacitor dielectric fluid. (Defs. Ex. 534 at 5). Aroclor 1242 has also been found on-site, in the rip rap area, in the beach area and in the Delaware River sediments adjacent to the Site. (Gov. Ex. 494 at Ch. 4; Gov. Ex. 481 at 5-3 to 5-5).

Transformers manufactured during the period from approximately 1950 to 1970 contained polycyclic aromatic hydrocarbons ("PAHs"), including naphthalene, phenanthrene, and 2-methylnaphthalene. (Gov. Ex. 718 at Table 3-7, pp. 3-8 to 3-9). Naphthalene, phenanthrene and 2-methylnaphthalene are among the PAHs that have been found in the soils and sediments at the Site. (Gov. Ex. 494 at Ch. 4).

Based on the results obtained in the RI, EPA prepared a Proposed Plan for remediation at the Site, which it circulated for public comment in 1995. (Gov. Ex. 488 at 10). Following review of the comments received, EPA issued a Record of Decision ("ROD") in December, 1997. The ROD established PCB cleanup action levels at the Site – 10 ppm in surface soils, 25 ppm in subsurface soils, and 1 ppm in mudflat sediments – and documented selection of the remedial action to be implemented. (Id. at 1-3). On June 26, 1998, the EPA issued an Administrative Order for Remedial Design and Remedial Action to the Defendants and the members of the PRP Group. In accordance with the Administrative Order, the PRP Group

conducted a Pre-Design Investigation (“PDI”) to collect engineering data in support of the design for the remedy and to further determine the scope of contamination. (Gov. Ex. 481).

The PDI final report, issued on January 21, 2000, confirmed the existence of a layer of oil floating on the groundwater table beneath the Southern Area and further delineated the extent of PCB contamination at the Site. (Id. at 1-1 to 1-2). A measurable layer of oil ranging in thickness from 0.125 inches to 5.75 inches was detected in the southwest corner of the property. (Id. at 4-7). In the Courtyard Area, PCBs were detected in two of eleven samples, one of them at a concentration of 8.2 ppm and the other at 190 ppm. (Id. at 5-1). In the three areas of concern delineated within the Southern Area, PCBs at concentrations above the EPA cleanup action level of 25 ppm were detected in 38 out of 231 subsurface borings. (Id. at 5-2 to 5-3). The highest concentration (680 ppm) was found in a soil sample taken from near the UST. (Id.). Sediment samples taken from 45 locations in the River Sediments Area, including the mudflats, had total PCB concentrations ranging from non-detect to 6.1 ppm. (Id. at 5-5). As part of the PDI, the combined sewer system located underneath Cottman Avenue was inspected and seven sediment samples were collected from inlet pipes leading into the sewer. (Id. at 3-12 to 3-14). Only one of them had a PCB concentration higher than the EPA cleanup action level of 1 ppm for sediments, and that concentration was 1.3 ppm. (Id. at 5-5).

During the summer of 2000, Defendants conducted a field study to look for the presence of Light Non-Aqueous Phase Liquids (“LNAPL”) at the Site, issuing a report in September, 2000, entitled “Data Report, Cottman Site Investigation, July 2000” (“2000 Trench Study”). (Gov. Ex. 103; see also T. Tr. at I – 88-109). As part of that study, Defendants opened up seventeen previously installed monitoring wells and piezometers to check for the presence of oil

over the course of about four weeks. (Gov. Ex. 103 at 3). During this time, they found measurable oil in 10 of the wells and piezometers, with the thickest measurement being 15 inches of oil in one of the piezometers. (Id. at Table 1). Defendants also excavated five trenches using a trackhoe and observed oil in all of the trenches except for Trench # 3, which was not fully excavated due to the presence of a gas line. (Id. at 36-43). A layer of oil approximately four inches thick was found floating on the groundwater in one of the trenches. (Id. at 38). In addition to measuring the oil thickness, Defendants tested for PCBs in the groundwater and oil underneath the property, as well as in a groundwater “seep” discharging at the base of the upper rip-rap into the mudflat area. (Id. at 6, 34-35). PCBs in groundwater were measured at levels up to 7.2 ppm; PCBs in oil were measured at levels up to 530 ppm; and PCBs in the groundwater seep were measured at a concentration of 0.22 ppb. (Id. at Tables 2 and 3).

In January 2002, EPA’s consultants returned to the Site to sample mudflat sediments in the area on the western edge of the Site. Sediment samples yielded PCB concentrations up to 22.1 ppm, and samples of oily liquid that pooled in small holes excavated in the mudflat yielded PCB concentrations up to 360 ppb. (Gov. Ex. 499 at 10 (Table 3), 12 (Table 5)). Both the sediment and groundwater samples also showed significant levels of PAHs. (Id. at 11 (Table 4) and at 13 (Table 6); see also T. Tr. at I – 102-04). All Government (EPA) witnesses present during the January 2002 sampling event described a strong, oily, petroleum smell coming from the shallow holes dug to gather sediment samples. (Gov. Ex. 499 at 6; T. Tr. at I – 105, 106-07).

EPA’s consultants again sampled mudflat sediments and groundwater on June 19, 2002. Analysis of these samples indicated the presence of dioxin-like PCB congeners, PAHs, volatile organic compounds (“VOCs”), semivolatile organic compounds (“SVOCs”), dioxins, and furans.

(Gov. Exs. 688 and 642A; T. Tr. at I – 116-24).

E. Nature of the Contamination

The Metal Bank Site is contaminated with PCBs, PAHs, SVOCs, VOCs, petroleum hydrocarbons (“TPH”), metals, dioxins, furans, pesticides and other hazardous substances.

(Gov. Ex. 494 at Table 6-1; Gov. Ex. 488 at 14-27; T. Tr. at I– 63-65). The levels and scope of contamination have been documented in the RI / FS, the ROD, the PDI, the 2000 Trench Study and the mudflat data collected during 2002. (Gov. Ex. 717; T. Tr. at I–52-66).

1. PCBs

PCBs are a group of synthetic organic chemicals which were widely used in the United States because of their chemical stability and low reactivity. (Gov. Ex. 725 at 1; Gov. Ex. 644 at 19). Each PCB molecule consists of a chlorinated biphenyl – two hexagonal rings of carbon atoms connected by a carbon-carbon bond – containing from one to ten chlorine atoms attached in various locations. (Gov. Ex. 725 at 1). There are 209 different types – or “congeners” -- of PCBs, based upon the number of chlorine atoms and their positions on the carbon rings. (T. Tr. at I– 123, II– 0).

PCBs were manufactured in the United States between 1929 and 1977 as complex mixtures of individual congeners known as “Aroclors.” (Gov. Ex. 725 at 1; T. Tr. at II–50). Each Aroclor mixture has a product number, the last two digits of which generally refer to the average percent of chlorine by weight. “Aroclor 1260,” for example, contains 60% chlorine by weight. (T. Tr. at II– 50). The individual congeners that make up Aroclors have different physical properties, including different rates of solubility, volatilization and degradation. (T. Tr. at II–51). These differences can affect each congener’s persistence in the environment and its

rate of migration, with higher chlorine congeners tending to be more stable in the environment. (Id. at II- 1-52). As PCB mixtures move through the environment, the absolute and relative concentrations of individual congeners change over time due to differences in their physical properties as well as differences in the rate of bioaccumulation by living organisms. (Gov. Ex. 725 at 1).

The low reactivity and high chemical stability of PCBs made them useful for a number of industrial purposes, including as a constituent of insulating fluid used in electrical transformers and capacitors. (Gov. Ex. 725 at 1). “Askarel transformers,” used a fluid containing 60 percent or more PCBs by weight. (T. Tr. at II – 26-27, 67; T. Tr. at V – 170). “Mineral oil transformers” contained a grade of mineral insulating oil that was frequently contaminated with PCBs through recycling operations or reuse of contaminated mineral oil. (Gov Ex. 527 at 1-2; Gov. Ex. 113 at ¶ 15; T. Tr. at I-67-71, II-27).

PCBs can cause a variety of adverse health effects. They are classified as suspected human carcinogens and may damage the immune system, may cause developmental problems in children and impair reproductive systems. (T. Tr. at III – 113; Gov. Ex. 488 at 15). PCBs have been shown to cause severe effects on exposed aquatic organisms and wildlife, including suppression of immune responses, impairment of reproduction and development, disruption of endocrine function, cancer, and organ enlargement and malfunction. (Gov. Ex. 647 at 31). Most PCBs do not degrade very quickly in the environment, and they can persist for many years in sediments, where they can cause adverse effects, not only to individual organisms, but also to entire aquatic populations or ecosystems. (Gov. Ex. 725 at 18).

The most common way to test for PCBs in the environment is to perform Aroclor testing by using a gas chromatograph instrument to detect the pattern of PCBs that is currently present in a sample. (T. Tr. at II – 53, 57-58). Where chromatograms, which are print-outs from the chromatograph, match the pattern of a known formula, the presence of a particular Aroclor can be confirmed. (T. Tr. at II – 53-57, 243-244). Aroclor testing has its shortcomings because as PCB mixtures are exposed to the environment, the concentration of individual congeners can change over time. (T. Tr. at II – 53-55, III – 115). In addition, the presence of a contaminant in a sample can interfere with analysis, causing inaccuracies in interpreting chromatograms. (T. Tr. at II – 61, 243-244). Although Aroclor testing is helpful for screening a site, it may be insufficient to characterize risk fully. (T. Tr. at III – 117). The more accurate, but more expensive and less frequently used, means of measuring PCBs in the environment is congener testing. (T. Tr. at II – 64, III – 117; see also Gov. Ex. 647 at 31).

Dr. Allen Medine, an expert witness for the United States in the field of analytical chemistry and environmental engineering, reviewed chromatograms from various Aroclor testing at the Site, including chromatograms from the Remedial and Pre-Design Investigations, and determined that PCB contamination at the Site has been consistently under-reported due to problems inherent in Aroclor analysis. (T. Tr. at II – 57-63, 241-246). PCBs are known to be present in surface soils in the Courtyard Area at concentrations up to 190 ppm (Gov. Ex. 481 at 5-1), in subsurface soils in the Southern Area at concentrations up to 680 ppm (Id. at 5-3), in oil underneath the Southern Area at concentrations up to 530 ppm (Gov. Ex. 103 at Table 2), and in the mudflat sediments at concentrations up to 22.1 ppm. (Gov. Ex. 499 at 10 (Table 3)).

2. PAHs

Polycyclic aromatic hydrocarbons (“PAHs”) are a group of semi-volatile organic compounds formed during the incomplete combustion of organic substances. (Gov. Ex. 644 at 21). PAHs are components of the raw material that is used to make various grades of oil, including mineral insulating oil. (T. Tr. at II – 67). Research has shown that mineral insulating oil contains a high percentage of PAHs. (T. Tr. at II – 26; see generally Gov. Ex. 718). PAHs tend to persist in the environment for a long time, where they pose a risk to both humans and aquatic life. (T. Tr. at II – 240; T. Tr. at III– 1-52; see also Gov. Ex. 647 at 36-38, Gov. Ex. 488 at 15). Exposure to high doses of PAHs can be acutely toxic to aquatic life. The harmful effects from lower doses may include immune system dysfunction, organ failure and physiological impairment. (T. Tr. at III–51-52; Gov. Ex. 647 at 36). In addition, some types of PAHs, including benzo(a)pyrene, are known to be carcinogenic. (T. Tr. at II – 240; Gov. Ex. 488 at 15).

The National Oceanic and Atmospheric Administration has determined the toxicity threshold level for PAHs (that is, the level at or above which an organism exposed to a hazardous substance would be expected to suffer a toxic effect) to be 44.8 ppm. (T. Tr. at III – 53-54; see also T. Tr. at II - 234-235). The toxicity threshold for benzo(a)pyrene is 7 ppm. (T. Tr. at III – 56-58).

Total PAHs and benzo(a)pyrene have been measured in the mudflats adjacent to the Property at levels well above the toxicity thresholds. In January 2002, total PAHs were detected at concentrations as high as 869 ppm, and benzo(a)pyrene was measured at concentrations of up to 46.6 ppm. (Gov. Ex. 499 at Table 4). In the early 1990's, the Delaware River Basin Commission (“DRBC”) studied PAH concentrations in the Delaware River at locations both

upstream and downstream from the Metal Bank Site. (T. Tr. at III – 33-34). Samples taken from the mudflats at the Site had PAH concentrations ranging from ten to sixteen times greater than the concentrations reported by DRBC at other locations in the Delaware River. (T. Tr. at III – 33-34).

3. Other Contaminants

Various metals – including arsenic, cadmium, copper, lead, and mercury – have been detected in the mudflats at the Site in concentrations above the toxicity threshold level. (Gov. Ex. 488 at Table 9). Arsenic is of particular concern at the Site because it was detected in the mudflats at a concentration up to 290 ppm when the screening level (i.e., toxicity threshold) is only 8.2 ppm. (T. Tr. at II – 237-238). Arsenic exposure at this level poses a threat to the aquatic ecosystem. (T. Tr. at II– 238).

Dioxins and furans were also found at the Site. Dioxins and furans are halogenated aromatic hydrocarbons whose molecules, like PCBs, consist of two benzene rings with variable amounts of chlorine attached. (Gov. Ex. 644 at 20; T. Tr. at II – 69). Dioxins are naturally produced through the incomplete combustion of organic materials and are extremely toxic to human health. (T. Tr. at II – 71, III – 112; Gov. Ex. 644 at 20). Furans are inadvertent contaminants present in PCB mixtures. (T. Tr. at II – 71).

F. Migration of Contaminants

The evidence shows that contaminants from the Property have migrated, and are continuing to migrate, into the Delaware River and mudflats adjacent to the Property. (T. Tr. at II – 12; see also T. Tr. at III – 25, 28). Thousands of gallons of transformer oil are still present at the Site, and some of that oil is continuing to migrate from the Property into the River and

mudflats. (T. Tr. at II – 22). Oil has been observed in the subsurface of the Southern Area within the past two years. (Gov. Ex. 103 at Table 1). Because of the heterogeneous nature of the fill and uncertainty as to the amount of oil that was originally released at the Site, it is difficult to quantify precisely how much oil remains. (T. Tr. at II – 41). Oil has been visually observed in the mudflats. Linda Dietz, EPA Senior Remedial Project Manager, and Drs. Jerome Diamond and Allen Medine, two expert witnesses for the United States, all testified that they have seen oil sheens coming from the mudflats in the area near the rip-rap at the southwest corner of the Property. (T. Tr. at I – 120-121, II – 17, III – 6). All three testified that when they dug down a few inches into this area of the mudflats, they saw a dark, oily-looking and oil-smelling liquid percolate into the holes. (T. Tr. at I -- 113, II -- 18, III -- 6). The experts testified that they did not see or smell this oily material in areas of the mudflat further away from the southwest corner of the property. (T. Tr. at II – 19, III – 6).

Another way to measure oil is to look for Total Petroleum Hydrocarbons (“TPH”), which are derived from oil. (T. Tr. at II – 34-35, III – 29-30). Concentrations of TPH in the range of 10,000 ppm and greater have been measured at the Property. (T. Tr. at II -- 35). The highest concentrations have been measured in the southwest corner of the Property, in the vicinity of the underground storage tank. (T. Tr. at II – 35). TPH has also been measured in the mudflats near the southwest corner in the range of 1,000 to 6,000 ppm. (T. Tr. at II – 36).

Contaminant concentrations decrease in a gradient from the southwest corner of the Property westward across the mudflats. (T. Tr. at II – 12-13, 32-36). While TPH concentrations in the mudflats are highest adjacent to the southwest corner of the Property, (T. Tr. at II – 36), TPH concentrations further away from the southwest corner, both toward the CSSO and towards

the Yacht Club, are much lower. (T. Tr. at II – 36-39). Similarly, in the mudflats, PCBs are found in the highest concentration in the area adjacent to the southwest corner of the Property, and the concentrations decrease with distance away from the southwest corner. (T. Tr. at II – 65, III – 23-24, 34; Gov. Ex. 644 at Map 2). Most PAH hotspots in the mudflats – those with total PAH concentrations of 40 ppm or greater – are located in the area of the mudflats adjacent to the southwest corner of the Property. (T. Tr. at III – 26-28; Gov. Ex. 137.06 - 137.09). During the June 2002 mudflat sampling, the concentrations of PCBs, PAHs, volatile organic compounds, dioxins and furans detected in the samples from near the yacht club were from ten to one hundred times lower than the samples from near the Property. (T. Tr. at II – 32-33; see generally Gov. Ex. 688).

In addition, the same group or suite of contaminants can be found on the Property and in the adjacent mudflats and river sediments. (T. Tr. at II – 49). This suite includes PCBs, PAHs, dioxins, furans, and volatile organic chemicals. (T. Tr. at II – 49). The similarities between the contamination found in the two areas demonstrates by a preponderance of the evidence that the contamination in the mudflats came from the Site. (See T. Tr. at II – 40, 49).

The subsurface oil at the Property, groundwater flow and tidal actions account for transformer oil containing PCBs and other contaminants leaching into the mudflat. (T. Tr. at II – 12). The lower rip rap installation was over oil residue that now has found pathways through the fill to the surface as sheens and to areas beneath the beach that are subject to disturbance. In addition, the historical evidence shows that there was an oil pathway to the embayment through or under the upper rip rap in 1972 when the underground oil leaked from the UST. The lower rip rap installation did not close off that pathway entirely, inasmuch as the contamination in the

mudflats at the southwestern portion of the Property is consistent with the suite of contaminants found on, and under, the Site in the vicinity of the UST.

The court credits Dr. Allen Medine's opinion that ". . . oil can find ways to migrate, regardless of whether or not you have a thick layer floating on the groundwater environment." Dr. Medine explained that where there are pockets of oil, "we just need to move little bits of it and carry those contaminants with it." Thus, "[t]here would be opportunities, that may be affected by tides, . . . precipitation . . . or drought conditions, that can cause some of that [oil thought to be trapped] to move." (T. Tr. at II – 43-45). Groundwater at the Property generally flows in a southwesterly direction from the Southern Area to the mudflats. (T. Tr. at II – 28). Because the bulk of the Southern Area is constructed on artificial fill, the specific flow pathways for the groundwater and oil flow are difficult to characterize. (T. Tr. at II – 29-30). The presence of chunks of concrete, bricks, wire, pipe and other material in the heterogeneous fill may offer preferential pathways for the migration of contaminants. (T. Tr. at II – 30). The court finds that the oil has found, and continues to find, pathways from the ground and groundwater through the rip rap, upper and lower and into the beach and mudflat areas.

Defendants have failed to show that the pollution in the mudflats was caused exclusively by a source other than the Cottman Avenue Site. A lampblack factory was in operation on a neighboring property from 1849 until 1970. Lampblack is a fine powdery material produced by burning low grade oils, creosote, coal tar, anthracene oil and crude oil. During operations, coal tar and crude oils were stored in tanks on the property. Due to the absence of waste product controls, discharges of lampblack ,and raw materials used to manufacture it, possibly may have occurred into the area surrounding the factory, although there are no records of spills. However,

the court finds that this possibility does not account for the PCBs, PAHs, and petroleum hydrocarbons at the Site and in the adjacent mudflat and river sediments. The topography of the area makes it improbable that contaminants from the lampblack factory migrated to the Site. An historic channel running southeast past the lampblack property would have provided a natural pathway to the Delaware River for any discharges from the factory and would not account for contamination of the southwest portion of the Site or for groundwater contamination thereunder. (T. Tr. at II – 86-88, 93-94, 99-100; Gov. Exs. 688, 688-A, 470.03, 470.04; Defs. Ex. 1102).

Similarly, the court finds that the CSSO is not a significant source of contamination to the mudflats. (T. Tr. at II – 74-75; see also Gov. Ex. 647 at 15). If it were, the PCBs and other contaminants would be distributed across the mudflats and would not be concentrated in the area adjacent to the southwest corner of the property. (Id. at II– 76). Given the overwhelming evidence tracing the contamination of the Metal Bank Site to its own operations, the court is unpersuaded by Defendants’ argument that background chemicals (naturally-occurring or other non-site related chemicals) account for the contamination at the Site.

G. Health and Environmental Risks

1. Risks to the Ecosystem

The mudflat in the embayment adjacent to the Property is located in a relatively undisturbed and environmentally sensitive area, with the mudflat providing attractive habitat for a wide diversity of aquatic organisms, including plant life, invertebrates, fish and birds. (T. Tr. at II – 248-54). A number of contaminants have been detected in the River Sediment Area at levels well above EPA’s screening toxicity levels (that is, at levels likely to cause toxic effects to aquatic organisms). (T. Tr. at II – 234-35). These contaminants include PCBs, PAHs (such as

benzo[a]pyrene, fluoranthene, fluorene, and pyrene), heavy metals (such as arsenic, cadmium, lead and mercury), and pesticides (such as DDT and its derivatives). (T. Tr. at II – 234-235; Gov. Ex. 488 at Table 9).

The upper mudflat area furthest from the Property supports a community of aquatic emergent plants. The lower mudflat area furthest from the Property supports filamentous algae. These plants offer potential habitats and food sources for various invertebrate, fish and bird species in the Delaware River. (T. Tr. at II – 251-254; Gov. Ex. 647 at 23).

The combination of rocky substrate and fine sediments at the mudflat provide habitat for a number of invertebrate species, including the Asiatic clam *Corbicula*, amphipods, midge larvae, snails and various species of freshwater worms. (Gov. Ex. 494 at 3-24; Gov. Ex. 647 at 24). These organisms fill an important niche by feeding on sediments and recycling nutrients and energy in the mudflat ecosystem. (T. Tr. at III – 13-14). They also serve as valuable food sources for fish and birds species. (T. Tr. at III – 14).

During the RI, *Corbicula* sampled at and near the Site were found to have total PCB concentrations ranging from 0.23 to 1.03 ppm. After normalizing for lipids (accounting for the increased solubility of PCBs in fatty tissue), the PCB concentration in *Corbicula* on a lipid-basis ranged from 17.4 ppm to 75.8 ppm. (Gov. Ex. 494 at 4-108).

In the early 1990s, the DRBC conducted a study of PCB concentrations in mollusks at four different locations in the Delaware River downstream from the Site. (T. Tr. at III – 36-38; Gov. Ex. 647 at 27; Gov. Ex. 137.11). PCB concentrations in *Corbicula* collected from the mudflats near the southwest corner of the Property were approximately 2 to 6 times higher than PCB concentrations in mollusks from the DRBC study. (Gov. Ex. 647 at 27). *Corbicula* are

filter feeders, so their primary exposure to PCBs is through the water column as opposed to through sediment particles. (T. Tr. at III – 36; Gov. Ex. 647 at 26). Because PCBs favor sediments over water, worms and other organisms that feed in the sediments will likely show higher PCB concentrations than filter feeders. (T. Tr. at III – 36-37, Gov. Ex. 647 at 26). PCB concentrations observed in *Corbicula* are environmentally conservative estimates of bioaccumulation by aquatic species near the Metal Bank Site. (Gov. Ex. 647 at 26).

Because PCBs bioaccumulate in the environment by building up in the tissues of living organisms over time, low concentrations of PCBs in invertebrates and other lower trophic level organisms can result in higher concentrations in organisms higher up the food chain. (Gov. Ex. 647 at 32; T. Tr. at I – 66, II – 232-3, 242).

Oil seeps and oily sediments along the edge of the Property and in the adjacent mudflat have adversely impacted amphipods and other invertebrate species. When Dr. Jerome Diamond, the Government's expert on aquatic toxicology, visited the Site, he observed an inverse correlation between the presence of oil and the presence of amphipods. When he turned over rocks along the shore in areas where no oil was found, he found amphipods. When he turned over rocks where oil was found, the amphipods were missing. Dr. Diamond concluded that the area of the mudflat contaminated with oil was not conducive to aquatic life. (T. Tr. at III – 6-7, 11). The court credits his observations and opinions as to environmental stresses and impacts resulting from the contamination at the Site.

Up to 50 species of fish, including both resident species and seasonal migrants, are known to use the 54-mile stretch of the Delaware River encompassing Philadelphia and environs. (Gov. Ex. 494 at 3-24 and 3-29). During the RI, striped bass, catfish, silvery minnow and sunfish

were collected in gill nets near the shore of the Cottman Avenue property. (Id. at 4-108).

Forage fish, such as the silvery minnow, have ecological value because they feed on algae and detritus and help recycle nutrients and energy in the mudflat ecosystem. They also serve as an important source of food for larger fish and aquatic birds. (T. Tr. at III – 15-17). The silvery minnow has a relatively small home range and tends to spend nearly all its time in the mudflats and shoreline areas. (Gov. Ex. 647 at 23). Silvery minnow are bottom feeders, so they will tend to accumulate any PCBs found in the sediments when they are feeding. (T. Tr. at III – 16). Piscivorous fish, such as adult catfish, bass and sunfish, prey upon the silvery minnow and other forage fish in the vicinity of the Site. (Gov. Ex. 647 at 23). These larger fish are ecologically valuable because they provide a source of food for birds and other fish as well as for humans. (T. Tr. at III – 16-18).

During the RI, silvery minnow and channel catfish were collected from at or near the Site and analyzed for PCBs. The total PCB concentrations in the fish ranged from 0.4 to 4 ppm. On a lipid-normalized basis, PCB concentrations ranged from 5.67 to 45.7 ppm in whole-body minnows, 5.37 to 57.5 ppm in whole-body catfish, and 11.9 to 84.7 ppm in catfish fillets. (Gov. Ex. 494 at 4-108; Gov. Ex. 647 at 29). During the early 1990s, the DRBC collected data on PCB concentrations in catfish sampled at other locations in the Delaware River. (T. Tr. at III – 39-40; Gov. Ex. 137.12). The highest PCB concentration detected in a catfish caught near the Site during the RI was 4 ppm, which is almost twice as much as the highest concentration reported by the DRBC in catfish taken from other locations in the Delaware River. (T. Tr. at III – 40; Gov. Ex. 137.12). The PCB concentrations measured in silvery minnow and channel catfish at or near the Site are high enough to cause impairment in these species. (T. Tr. at III – 42).

Bird species that have been observed using the mudflat include the Double-crested cormorant (*Phalacrocorax auritus*), the Black Duck (*Anas rubripes*), the Killdeer (*Charadrius vociferus*), the Spotted Sandpiper (*Actitis macularia*), the Great Black-backed Gull (*Larus marinus*), the Ring-billed Gull (*Larus delawarensis*), the Laughing Gull (*Larus atricilla*), the Forster's Tern (*Sterna forsteri*), the Barn Swallow (*Hirundo rustica*), and the Common Crow (*Corvus brachyrhynchos*). (Gov. Ex. 494 at Table 3-3; T. Tr. at III – 5). PCBs are likely to bioaccumulate in aquatic birds through the ingestion of contaminated sediments, plants, invertebrates and fish. (Gov. Ex. 647 at 32-33).

EPA has established a PCB cleanup action level of 1 ppm in the sediment areas because even very low concentrations of PCBs are extremely toxic to aquatic life. (T. Tr. at I – 81-84, II – 242; see also Gov. Ex. 647 at 34). The harmful effects of PCBs can be measured in terms of acute toxicity (the concentration that will kill an exposed organism in a relatively short period of time) and chronic toxicity (the concentration that will induce sublethal effects in an exposed organism over a long period of time). (T. Tr. at II – 235-36). For PCBs in water, EPA has established an acute toxicity threshold of 2 ppb and a chronic toxicity threshold of 0.2 ppb. (T. Tr. at II – 242; Gov. Ex. 647 at 35). PCBs have been detected in liquid samples at the mudflat in concentrations well above the acute and chronic toxicity thresholds. (See Gov. Ex. 647 at Table 6). In January 2002, an liquid sample obtained from the mudflat in 2002 had a PCB concentration of 244 ppb. (T. Tr. at III – 44-46; Gov. Ex. 647 at Table 6).

PCB-contaminated sediments also pose hazards to aquatic life. Recent peer-reviewed research has established that sediment concentrations of PCBs above 0.4 ppm are likely to have an adverse effect on aquatic life, and concentrations above 1.7 ppm will definitely have an

adverse effect. (T. Tr. at III – 47-48; Gov. Ex. 137.14; Gov. Ex. 647 at 34). Other research has shown that several species of fish that were exposed to sediment concentrations of less than 1.5 ppm PCBs suffered physiological impairment and reduced reproductive success. (Gov. Ex. 647 at 35). In January of 2002, total PCBs were detected in mudflat sediments at concentrations as high as 22.1 ppm. (Gov. Ex. 499 at 10 (Table 3)). In addition, because PCBs are lipophilic, they tend to concentrate in reproductive organs and eggs, where they are more likely to impair reproduction. When reproduction is successful, the PCBs are likely to be passed on to the offspring. (Gov. Ex. 647 at 33-34).

PCBs, PAHs and other SVOCs, and heavy metals released at the Site represent an acute and chronic toxicity threat to aquatic organisms. (T. Tr. at II – 59, 227, 238-239; Gov. Ex. 647 at 35-36). Because multiple hazardous substances are found at the mudflat, the toxic effects of individual contaminants may be compounded. (T. Tr. at III – 60). At trial, Defendants presented experts in the area of ecology (Dr. David Ludwig) and toxicology (Dr. John Schell) to address ecological endangerment at the Site. (T. Tr. at VI – 3, 183). In reaching their opinions that the Site does not pose an imminent and substantial endangerment to the aquatic environment, both experts relied on limited data sets. Dr. Ludwig limited his opinion to data that was available in the year 1994. He conceded that his analysis did not reflect current ecological risks to the mudflat. (T. Tr. at VI – 16, 18-19, 108-109). Dr. Schell used only data from a set of eleven sampling points that was collected in 1999, and he admitted that his reliance on such limited data introduced "significant" uncertainty into his analysis. (T. Tr. at VII – 37-38, 46-47). Dr. Schell acknowledged that if he had designed the sampling program for his risk assessment, he would have collected data from three times as many locations. (T. Tr. at VII – 57). Neither Dr. Ludwig

nor Dr. Schell evaluated the risks posed by any hazardous substances other than PCBs and did not consider the risks to the aquatic environment posed by PAHs, metals and other contaminants at the Site. (T. Tr. at VI – 75-76, VII – 34). Dr. Schell characterized ecological risk by selecting three receptor species at high trophic levels – the osprey, the black duck and the shortnose sturgeon. His opinions did not embrace the risks posed to invertebrate species that have been actually observed at the Site. (T. Tr. at VII – 3).

2. Risks to Human Health

There are approximately a dozen PCB congeners which are referred to as “dioxin-like” PCBs because they behave similarly and are molecularly related to dioxin, a highly toxic chemical. Dioxin-like PCBs have a very high potential for causing tumors, making them more toxic than other PCB congeners. (T. Tr. at III – 112-15, 119-20; Gov. Ex. 719; see also Gov. Ex. 642A.001). Once PCB mixtures have been released into the environment, they begin to weather and degrade. Because lower-chlorinated PCB congeners are more water soluble and likely to evaporate than higher-chlorinated PCB congeners, the latter persist longer in the environment. As a result, PCB mixtures in the environment tend to be more toxic than the original commercial Aroclor mixtures used in transformers and other devices. (T. Tr. at III – 121-22). Also, due to their resistance to degradation, the more highly chlorinated PCB congeners are more likely to bioaccumulate in the tissues of plants, animals, and human beings. The higher up the food chain that PCBs bioaccumulate, the greater their toxicity becomes. PCBs can remain in the environment, as well as in the human body, for decades. (T. Tr. at III – 122-23).

EPA performed a health risk assessment on the basis of the existing contaminant data from the Site. This risk assessment evaluated cancer risks in light of EPA guidelines developed

for the Superfund program, which specify that cancer risks greater than 10^{-4} (or a risk that one person out of 10,000 will contract cancer from exposure to site contamination) are “unacceptable,” and risks between 10^{-4} and 10^{-6} fall within a discretionary action range in which EPA may require remedial action at a site. (Gov. Ex. 664; Def. Ex. 532; Def. Ex. 1170). EPA’s risk assessment determined that contamination at the Site poses an unacceptable risk to the health of two human populations who may come into contact with the Site: (1) future construction workers, primarily through potential contact with PCBs in oil exposed by excavation of Site soils, and (2) recreational boaters, primarily through the consumption of fish caught near the Site. (Gov. Ex. 488 at 31-33). EPA also determined that health risks to future industrial workers (due mainly to contact with PCB-contaminated soils) and nearby off-site residents (due to inhalation of contaminated dust from the Site) were high enough to come within the discretionary action range permitted under the guidelines. (Gov. Ex. 488 at 31-32).

The results of the risk assessment performed by defense expert, Dr. Elizabeth Anderson, show aggregate health risks to future construction workers and industrial workers at the Site that come within the discretionary action range. (Def. Ex. 532 at C-15). Although her risk assessment opinion is that non-cancer risks from PCBs do not constitute an unacceptable hazard, her assumptions are based on construction workers spending 25% of their time in the most contaminated southeast quadrant of the Site. However, if the Property were subdivided in the future, and the southwestern quadrant were developed, the non-cancer risks to construction workers who remained in that quadrant 100% of the time would be significant. (T. Tr. at VIII – 114-129).

Dr. Anderson did opine that at least two types of limited affirmative action are more appropriate at the Site. First, she stated that it would be wise to remove a “hotspot” of heavily contaminated soil in the Courtyard Area of the Property. Second, her risk assessment assumed the imposition of certain institutional controls on future Site activities, for example, sturdy fencing to prevent trespasser access, and deed restrictions to prevent any future residential development of the Site. (Def. Ex. 532 at 2; T. Tr. at VIII – 69-84). Dr. Anderson’s risk assessment did not include analysis of the following potential risks posed by the Site: (1) risks from consumption of *Corbicula* clams, which are known to be harvested from the Delaware River and sold in local markets, and samples of which were discovered adjacent to the Property and determined to be contaminated with PCBs, dioxins, and furans; (2) risks to Site trespassers, who are known to have entered the Site in the past; and (3) risks to people from exposure to capacitors that have been observed at the Site. (T. Tr. at VIII – 57-61, 66).

Finally, Dr. Anderson’s quantitative risk assessment is likely to have underestimated the health risks from PCBs at the Site. Her risk calculations were based on existing data that reports PCBs in terms of commercial Aroclor mixtures, such as Aroclor 1254 and 1260. As explained by Government expert, Dr. Richard DeGrandchamp, and by other record evidence, there is an emerging scientific consensus that Aroclor analysis is prone to error in detecting PCBs found in the environment. (T. Tr. at III – 111, 126; Gov. Ex. 642A at 6; Def. Ex. 1132 at 4, 38; Gov. Ex. 725 at 336).

The Aroclor testing does not account for the likely presence of dioxin-like PCB congeners at the Site. Limited sampling in the mudflat sediments adjacent to the Site in June 2002 revealed the presence of dioxin-like PCBs along with Aroclor 1260. The fact that Aroclor

1260 also occurs throughout the soils and LNAPL layer strongly suggests that dioxin-like PCBs, if tested for, would be found there as well. (T. Tr. at III – 128-29; Gov. Ex. 642A at 7-8).

Additionally, Aroclor testing tends to under-report PCB mixtures that have been exposed over time to weathering and degradation in the environment. The Aroclor testing of soils on the Property thus resulted in numerous “non-detect” samples, which, upon closer analysis by Dr. Medine, were found to contain highly chlorinated PCB congeners. (T. Tr. at II – 60-63; III – 126-27; Gov. Ex. 644A at 11-14; Def. Ex. 1132 at 4, 38; Gov. Ex. 725 at 336).

As with PCBs, the data regarding dioxins and furans at the Site was also deficient and may have resulted in an underestimation of the risks from these highly toxic chemicals. Dioxins and furans, which may have been produced by the burning of PCB-contaminated materials in the “Sputniks” at the Site, were detected at elevated levels in soils, mudflats, and in *Corbicula* clams at the Site. (T. Tr. at III – 129, 172-73; Gov. Ex. 642A at 4, 9). Dr. DeGrandchamp concluded that he could not reliably perform a quantitative health risk assessment due to the gaps in the existing data concerning the Site. However, on the basis of the existing data, especially the June 2002 sampling results that detected the presence of dioxin-like PCB congeners in the mudflats, he opined to a reasonable degree of scientific certainty, an opinion the court credits, that the Site contamination presents, or may present, a significant potential threat to the health of two human populations: (1) people who consume fish caught in the Delaware River near the Site, and (2) future workers at the Site who may, if the Property is developed and PCB-contaminated soil is brought to the surface during excavation of foundations for new buildings, come into contact with the disturbed PCB-contaminated soil. (T. Tr. at III – 110, 130, 133-39).

III. ANALYSIS

A. CERCLA Liability

CERCLA was enacted in 1980 in response to serious environmental and health risks resulting from industrial pollution, U.S. v. Bestfoods, 524 U.S. 51, 55 (1998), and grants the President of the United States broad power to command government agencies and private parties to clean up hazardous waste sites. Id. (quoting Key Tronic Corp. v. United States, 511 U.S. 809, 814 (1994)). Most of this authority has been delegated to the EPA. Atlantic Richfield Co. v. Blosenski, 847 F. Supp. 1261, 1269 (E.D. Pa. 1994) (citing United States v. Alcan Aluminum Corp., 964 F.2d 252, 258 (3d Cir. 1992)). Where certain statutory conditions are satisfied, the United States may use the "Hazardous Substance Superfund" to finance cleanup efforts, see 42 U.S.C. §§ 9601(11), 9604; 26 U.S.C. § 9507, which it may then replenish by suits such as this one brought under § 107 of the Act.

Specifically, CERCLA imposes strict liability where: 1) the defendant is a "covered person" pursuant to 42 U.S.C. § 9607(a); 2) the site is a "facility" within the meaning of 42 U.S.C. § 9601(9)(B); 3) there is a "release" or "threatened release" of hazardous substances into the environment within the meaning of 42 U.S.C. § 9601(14) or (22); and 4) as a result of the release or threatened release, the United States has incurred some response costs. 42 U.S.C. § 9607. CERCLA is a remedial statute and must be construed liberally to effectuate its goals. Alcan, 964 F.2d at 258. Thus, "a CERCLA plaintiff need not establish a direct causal connection between the defendant's hazardous substances and the release or the incurrence of response costs." Id. at 265. "[T]he Government must simply prove that the defendant's hazardous substances were deposited at the site from which there was a release and that the release caused

the incurrence of response costs.” *Id.* at 266; United States v. Wade, 577 F. Supp. 1326, 1332-33 (E.D. Pa. 1983). For the reasons that follow, the court finds each of the named defendants liable under CERCLA.

A defendant is a covered person within the meaning of CERCLA if the defendant is: 1) the current *owner* and *operator* of the site, 2) a person who *owned* or *operated* the site at the time of disposal of the hazardous substance, 3) a person who by contract, agreement, or otherwise *arranged* for disposal or treatment of hazardous substances, or 4) a person who transported hazardous substances to the site. 42 U.S.C. § 9607(a)(1)-(4). “Person” is defined by CERCLA to include corporations and other business organizations as well as individuals. See 42 U.S.C. § 9601(21).

1. Factual Basis for Finding Union Corporation is a “Covered Person”

a. Under Corporate Veil Piercing

Three former presidents of Metal Bank – Irvin Schorsch, Phillip Levin and Marvin Dayno – all testified that the board of directors of Metal Bank generally did not meet and did not direct the actions of the corporation’s officers. Irvin Schorsch testified that during his tenure as president, he did not know that he was a director, was never given notice of any meetings, and that from the beginning, Union contemplated that defendant Schorsch would buy and sell metal, but that Union would control all other aspects of the business. (See T. Tr. at XII – 32, 35-36, 40, 62-63). Metal Bank’s next president, Phillip Levin, also testified at his deposition that he reported to Union Corporation officers rather than to Metal Bank’s board, (see generally Gov. Ex. 745 at Att. 269, 273, 277, 279-81, 291-92, 297-99, 560-68), and that he, like defendant Schorsch, did not know he was a director of the company. When Union shut down the

subsidiary, Mr. Levin was not consulted on numerous matters, although he was the company's president at the time. (Dep. of Philip Levin, Dec. 20, 2001, at 11). He specifically denied being consulted regarding his termination and that of Marvin Dayno. (Gov. Ex. 745 at 203, 289, Att. 302). Marvin Dayno similarly testified that he knew of no meetings of the Metal Bank board during his tenure as an officer and that he never received any direction or any other communication from the board. (T. Tr. at XII – 174). The foregoing testimony is credited.

Metal Bank's board failed to maintain adequate corporate records. The few records that exist are silent as to company operations, (see generally Gov. Ex. 736A), and the accuracy of the minutes themselves is questionable. Corporate Secretary Raymond Royko, who prepared minutes for both corporations, admitted that he sometimes prepared them for meetings that had not taken place. (Gov. Ex. 750 at 76, 77). The purpose of these records was to legitimize decisions made by Union executives serving on Metal Bank's board.

In 1984, Union named John Murphy, a Vice President of Union, as Chairman of the Board of Directors and CEO of Metal Bank. (See T. Tr. at XIV – 13-14). Metal Bank's corporate records give no indication that the office of Chief Executive Officer existed in the corporation. This would typically have been set forth in the by-laws, but Metal Bank had no by-laws at that time. Although Mr. Murphy had previously worked on the executive committee of Union and traveled from one subsidiary to the next making suggestions, as of 1984, he was exclusively assigned to Metal Bank but continued to be compensated exclusively by Union. (Id. at 15, 40). One of Mr. Murphy's goals was to "get more cash" out of Metal Bank. (Id. at 19). To this end, he directed that everyone in a management capacity at the plant get involved in an inventory reduction program. (Id. at 20). Following Mr. Murphy's appointment, Philip Levin,

then president of Metal Bank, was required to obtain approval from Mr. Murphy before purchasing raw materials for the subsidiary. (Id. at 16, 18-19). Mr. Murphy had no prior experience in the scrap metals industry. (Id. at 21). He and another member of Union hired a new accountant for Metal Bank. No representative of Metal Bank was involved in the selection. (Id. at 19). Thereafter, Mr. Beacha of Union brought in Mr. Terrence Brown of Versatile Metals to “broker materials for Metal Bank.” (Id. at 24). Again, Metal Bank was not consulted. At trial, Mr. Murphy testified that the “function [of Messrs. Levin and Dayno] as brokers of material was replaced by Mr. Brown.” Id. at 27. Mr. Brown advised Mr. Murphy that Messrs. Levin and Dayno should be “let go.” (Id. at 31). At the direction of Ray Beacha, Mr. Murphy fired both men. (Id. at 28). Thereafter, Metal Bank’s active operations were shut down, its inventory sold off, and a buyer sought for its business assets. Corporate records for Metal Bank do not show that the subsequent asset sale to Versatile Metals was ever submitted to the board of Metal Bank for consideration.

Metal Bank has been insolvent since 1984. The proceeds of the 1984 asset sale were deposited in Union’s accounts. None of the funds was earmarked for payment of Metal Bank’s potential liability in this proceeding. Similarly, the sum ultimately recovered on the basis of the verdict awarded jointly to Union and Metal Bank in the Versatile Metals litigation was deposited solely in Union’s account.

Union’s dealings with Metal Bank were not conducted at arm’s length. Union consistently made decisions for Metal Bank and negotiated agreements that significantly impacted the subsidiary without consultation. Examples of these are: 1) the 1968 agreement to acquire the LGS business; 2) the 1971 agreement to acquire the Hirtz Bros. assets; 3) the 1980

agreement to buy the Cottman Avenue and State Road properties; and 4) the 1984 asset sale to Versatile Metals. Union paid all or most of the consideration in each transaction.

The record further demonstrates that Metal Bank had to request approval from Union before incurring any debt, including through the use of a line of credit arranged by Union. (T. Tr. at XII – 60-61). Metal Bank was required to guarantee Union’s bank loans, (see, e.g., Gov. Ex. 736A, Minutes of Special Meetings of the Board of Directors of Metal Bank, May 20, 1974, July 29, 1976), and on at least one occasion, Union borrowed money from Metal Bank and then refused to re-pay it as agreed. (Gov. Ex. 288).

In addition, Union assigned officers to work closely with its subsidiaries, including Metal Bank, and directed those officers to make weekly visits. (T. Tr. at XII – 38). They would then communicate any problems to Union’s operating committee, which was comprised of Union officers, for resolution. The operating committee in turn made decisions that the subsidiary was required to “be responsive to.” (Dep. of Robert Sabel, Feb. 19, 2002 at 23). At one point, Union required Metal Bank to replace its long-time attorney, Maurice Stern, with an attorney chosen by Union. (T. Tr. at XII – 42-43).

Testimony at trial established that following the appointment of John Murphy of Union as Chairman of the Board of Directors and CEO of Metal Bank, Union participated extensively in the day-to-day operations of the Cottman Site. Peter Early, former Corporate Vice President of Union, testified that day-to-day operational advice was given by Union to then Metal Bank President Philip Levin and reported back by Mr. Levin to Mr. Early in his capacity as vice president of Union. (T. Tr. at XIV – 129). This advice pertained to operational details, including inter alia, sufficiency of manpower to provide material feed to chopping lines, alignment cable

strippers inside the plant building by size in parallel lines to provide continuous unreeling of cable spools, repair of an overhead crane in the production building, (id. at 125), elimination of a conveyor incline feed input, clearing of ramp debris between chopper lines, disposal of permanently inoperative mobile cranes, management of traffic flow within the facility, (id. at 126), relocation of certain furnaces, changes to hourly personnel time reporting procedures, and keeping a bench stock of spare equipment parts. (Id. at 127).

Since Metal Bank's incorporation in 1968, Union's officers were also officers of Metal Bank. Apart from the Schorsch brothers and later Phillip Levin (1984), Metal Bank's Board of Directors has consisted solely of Union's officers. (Gov. Exs. 52, 112 at ¶¶ 17, 19). Presently, the board of directors of Union and Metal Bank are comprised of a single person, Mr. Timothy Beffa, who is also the President of Outsourcing Solutions, Inc. ("OSI"), which has been the sole shareholder of Union Corporation since at least 1998. (T. Tr. at XIII – 10, 25-26). Mr. Beffa is the president of all three corporations. All Union and Metal Bank officers are also employees of OSI. (Id.)

In 1972, Union entered into a 10-year lease for the Property in order to use it for transformer recycling operations. The agreement obligated Union to pay for all taxes and property improvements. Despite its attempts to distance itself from legal ownership of the Property and any accompanying liability, Union exhibited numerous indicia of ownership and control of the property and specifically represented itself as the owner of both the Cottman Avenue and State Road properties at various times, including the shutdown of Metal Bank in 1984.

The record shows that Union commingled its corporate accounts with those of Metal Bank. The two entities routinely guaranteed each others' transactions. Over the years, Union loaned Metal Bank a total of \$4,660,310.00. (Gov. Ex. 730 at Table 2). In January 1985, certain inventory and equipment belonging to Metal Bank were sold to Versatile Metals for \$302,500.00, of which \$252,500.00 was deposited directly in a Union Corporation cash account. The equipment was sold for a total of \$701,000.00, which was also deposited directly in a Union Corporation bank account. At the same time, Versatile Metals paid \$7,430.00 in rent and \$51,649.32 for expenses relating to a Metal Bank invoice and these funds were also deposited in a Union bank account. (See Gov. Ex. 730 at 5). At the conclusion of the Versatile Metals case, Union and Metal Bank were jointly awarded a verdict and judgment against Versatile for \$1,107,489. When Versatile filed bankruptcy, Union filed a proof of claim and ultimately collected \$770,000. None of this amount went to Metal Bank.

Metal Bank never paid dividends to its sole shareholder, Union, but Union systematically transferred funds directly from Metal Bank to Union through "corporate charges." Metal Bank's board was never consulted regarding their imposition. (Dep. of Robert Sabel, Feb. 19, 2002 at 44, 234-37; Dep. of Robert Sabel, June 7, 2002 at 43-45). Corporate charges typically allocate to a subsidiary a portion of the parent's administrative overhead costs in exchange for certain benefits flowing from the parent to the subsidiary. (T. Tr. at XII – 101-02). However, if the subsidiary is being charged an amount in excess of that needed to cover the parent's administrative costs, "it would be very similar to [a] dividend." (Id. at 102). While the declaration of a dividend must be done in accordance with general accounting principles and pursuant to a resolution by the subsidiary's board, that is not required with respect to the

imposition of a corporate charge.

The charges set by Union for Metal Bank were among the highest levied as to Union's thirty subsidiaries. (Gov. Ex. 538 at Bates #UCO0010546). The amount was not calculated according to any particular formula, but rather, on the basis of "basically what we [at Union] thought they could pay and what we needed and how we could get it." (Dep. of Robert Sabel, June 7, 2002 at 45). The record shows that while Metal Bank's corporate charges in 1970 and 1971 were \$527,600 and \$613,800 respectively, from 1972 until 1984 the amount of the charge was consistently \$627,600, regardless of Metal Bank's income. (Defense Expert Report of Jerome M. Staller, Ph.D., Center for Forensic Economic Studies, April 2002, at 6).

In profitable years, the charges ranged from 19.97% to 244.69% of Metal Bank's net income. Between 1972 and 1984, the corporate charges were more than the company's entire net income, and in 10 of those years, the corporate charges exceeded 50% of its net income. For the 15 years from 1970 to 1984, the corporate charges amounted to 72.85% of Metal Bank's total net income. From 1968 to 1984, Metal Bank had a total net income of \$12,767,037. During that period, it paid \$9,300,200 to Union in corporate charges. (Gov. Ex. 732). During that same period, Metal Bank's share of Union's income taxes was \$2,311,566. (T. Tr. at XII – 103-104). Corporate charges and income taxes totaled \$11,611,766, or 90.95% of Metal Bank's net income before corporate charges and income tax. (Gov. Ex. 730 at 2). Government expert, Robert Harris, a certified public accountant, testified that the amount of Union's corporate charges would have caused Metal Bank to be short of cash, unable to grow its business, and unable to make timely payments to suppliers. (T. Tr. at XII – 104-16). Imposition of excessive corporate charges allowed Union to circumvent general accounting principles and funnel cash from Metal

Bank to the parent at times when the subsidiary could not have declared a dividend.

Metal Bank is without sufficient funds to satisfy its CERCLA liability. Its insolvency is the direct result of the corporate actions of Union Corporation.

a-1. Legal Analysis

The corporate form typically protects shareholders, directors and officers from personal liability for the acts of the corporation. This is true even where there is a parent-subsidary relationship between two corporations. Pearson v. Component Technology Corp., 247 F.3d 471, 484 (3d Cir. 2001) (citing Bestfoods, 524 U.S. at 69; American Bell Inc. v. Federation of Tel. Workers of Pennsylvania, 736 F.2d 879, 887 (3d Cir.1984)). Thus, “mere ownership of a subsidiary does not justify the imposition of liability on the parent.” Id. Similarly, liability may not be imposed merely on the grounds that directors of the parent corporation also serve as directors of the subsidiary. See Bestfoods, 524 U.S. at 69.

However, courts may disregard the corporate entity and hold a parent derivatively liable for the acts of a subsidiary to prevent abuse of the corporate form. Pearson, 247 F.3d at 484; Publicker Indus., Inc. v. Roman Ceramics Corp., 603 F.2d 1065, 1069 (3d Cir. 1979). Equity requires that courts pierce the corporate veil where necessary to “prevent fraud, illegality, or injustice, or when recognition of the corporate entity would defeat public policy or shield someone from liability for a crime,” Pearson, 247 F.3d at 484 (quoting Zubik v. Zubik, 384 F.2d 267, 272 (3d Cir.1967)), or when “the parent so dominated the subsidiary that it had no separate existence.” Id. (quoting New Jersey Dep't. of Env'tl. Prot. v. Ventron Corp., 468 A.2d 150, 164 (N.J. 1983)).

Corporate veil-piercing has been approved in the context of CERCLA actions. Best Foods, 524 U.S. at 63-64; Pearson, 247 F.3d at 484; Lansford-Coaldale Joint Water Authority v. Tonolli Corp., 4 F.3d 1209, 1220 (3d Cir. 1993). The contours of alter ego liability in this context are determined by federal common law. Atlantic Richfield Co. v. Blosenski, 847 F. Supp. 1261 (E.D. Pa. 1994); Mobay Corp. v. Allied-Signal, Inc., 761 F. Supp. 345, 349-51 (D.N.J. 1991); United States v. Nicolet, Inc., 712 F. Supp. 1193, 1201-02 (E.D. Pa. 1989).¹ The third circuit alter ego test requires that the court consider the following factors: 1) gross undercapitalization, 2) failure to observe corporate formalities, 3) nonpayment of dividends, 4) insolvency of debtor corporation, 5) siphoning of funds from the debtor corporation by the dominant stockholder, 6) non-functioning of officers and directors, 7) absence of corporate records, and 8) whether the corporation is merely a facade for the operations of the dominant stockholder. Pearson, 247 F.3d at 484 -485 (citing American Bell, 736 F.2d at 886)). This is not an exclusive list and a finding of liability does not require that all of the elements be satisfied, but rather, that under a totality of the circumstances, the evidence demonstrate that the parent exercised such pervasive control over the subsidiary that the subsidiary was merely the alter ego of the parent. See Atlantic Richfield, 847 F. Supp. at 1280-81; see also Tonolli, 4 F.3d at 1222.

In addition, the test requires an element of “injustice or fundamental unfairness.” DeWitt Truck Brokers, Inc. v. W. Ray Flemming Fruit Co., 540 F.2d 681, 687 (3d Cir. 1976);

¹Analysis under Pennsylvania law would be quite similar. See Ashley v. Ashley, 393 A.2d 637, 641 (1978) (“Th[e] legal fiction of a separate corporate entity was designed to serve convenience and justice . . . and will be disregarded whenever justice or public policy demand and where rights of innocent parties are not prejudiced nor the theory of the corporate entity rendered useless We have said that whenever one in control of a corporation uses that control, or uses the corporate assets, to further his or her own personal interests, the fiction of the separate corporate entity may properly be disregarded.”).

Atlantic Richfield, 540 F.2d at 687. A number of these factors can be sufficient to show such unfairness. United States v. Pisani, 646 F.2d 83, 88 (3d Cir.1981) (citing DeWitt, 540 F.2d at 687) (holding that “undercapitalization, coupled with disregard of corporate formalities, lack of participation on the part of the other stockholders, and the failure to pay dividends while paying substantial sums, whether by way of salary or otherwise, to the dominant stockholder, all fitting into a picture of basic unfairness, has been regarded fairly uniformly to constitute a basis for an imposition of individual liability under the doctrine.”)).

The court finds that the control exercised by Union Corporation over the affairs of its subsidiary, Metal Bank, is sufficiently pervasive to justify piercing the corporate veil. Moreover, it would be fundamentally unfair to allow Union to circumvent liability for the environmental contamination that it helped to create, merely by shutting down its subsidiary. See United States v. Carolina Transformer Co., 978 F.2d 832, 840 (4th Cir. 1992) (“We are unwilling to hold that merely by splitting off the particular part of its operations that resulted in its environmental problems and shifting the remainder of its assets, employees, management, customers accounts and production methods to another corporation, an otherwise responsible corporation could all but completely wash its hands of its environmental liability.”); see also Board of Trustees of Teamsters Local 863 Pension Fund v. Doodtown, Inc., 296 F.3d 164, 171 (3d Cir. 2002) (purpose of alter ego liability doctrine is, inter alia, to prevent an independent corporation from being used “to defeat the ends of justice” or “otherwise to evade the law.”).

When Union bought Metal Bank’s non-realty business assets in 1968, Union knew the nature of Metal Bank’s metal recycling operations and business. Union purchased the assets, correctly anticipating that Metal Bank would be a profitable company. Union systematically

transferred funds from Metal Bank for the benefit of Union, through corporate charges and asset sale, ultimately weakening the subsidiary to the point where Union shut down its active operations, sold off its valuable assets, and paid off its creditors. In 1970 and 1971, Metal Bank contributed 55.39% and 78.58% respectively of Union's total net income.

Although it was Union's policy to own the properties on which its subsidiaries operated, (Dep. of Robert Sabel, Feb. 15, 2002 at 15 (policy of Union to own properties)), in the case of Metal Bank, Union deliberately distanced itself from ownership of the Cottman property, initially leasing the property from LGS and then assigning its rights under the 1980 purchase agreement to the subsidiary. When Union shut down the subsidiary, nearly all of the proceeds from the sale of its assets was deposited into Union's bank account; none of the assets was set aside for payment of the United States' claims in this case. Additionally, although Union guaranteed RCRA financial assurance requirements for the Cottman Site, (Letter from A.P. Spagnol to Helen Beggun (Sept. 7, 1984)), it now seeks to avoid that liability.

Where the conduct of a dominant corporation is deliberate, "with the specific intent to escape liability for a specific tort or class of torts," corporate veil piercing is justified. See Zubik, 384 F.2d at 273. The court finds that Union's actions were a deliberate attempt to evade anticipated liability for contamination of the Cottman Property. Because it would defeat the ends of justice under these circumstances to permit Union to avoid this financial responsibility, the court finds that Metal Bank was the alter ego of Union Corporation and that piercing the corporate veil is justified. Union Corporation is derivatively liable under CERCLA.

b. As Owner/Operator (Judicial Estoppel)

In Versatile Metals Co. v. The Union Corp., 693 F. Supp. 1563, 1570 (E.D. Pa. 1989), then defendants Metal Bank and Union Corporation sought contribution under CERCLA §113(f)(1) from the plaintiffs in that case on the grounds that “as owners and past operators of the [State Road] facility . . . they [were] entitled to contribution for clean up costs.” In that case, the court recognized Union and Metal Bank as owners and operators under CERCLA and found them jointly and severally liable for response costs. Id. at 1571. Based on a jury verdict, Union and Metal Bank were awarded \$1,107,489 as contribution for clean-up costs incurred by Metal Bank which were attributable to the actions of Versatile Metals. Union’s ownership interests in the State Road and Cottman Avenue properties were identical and were obtained through the same set of transactions.

In Golen Partnership v. The Union Corporation, Ct. Com. Pleas Phil. Cnty., Pa. filed May 12, 1995) (No. 305) (U.S. Ex. 756), in defending an economic damages claim asserted by a neighboring property owner, Union filed documentation with the state trial court in which it held itself out as the owner of the Cottman Avenue property. In a letter of intent from Raymond Beacha, an officer of Union Corporation, it was stated, “This letter formalizes and confirms that it is Union Corporation’s (hereinafter ‘Seller’) intent to enter into an Agreement for the sale and eventual transfer of ownership to Hancock Industries or its nominee (hereinafter ‘Buyer’) of that certain property known as 7301 Milnot Street” Exhibit Q-6 to “Motion of Defendants The Union Corporation and U.C.O.-M.B.A., Inc. for Summary Judgment Against Plaintiffs Golen and Golen Partnership” and “Memorandum in Support of Defendants [sic] Motion for Summary Judgment.”

Union also held itself out as the owner of the Cottman Avenue property for the purpose of providing financial assurances for RCRA obligations applicable to hazardous waste treatment, storage or disposal activities at the Site, stating, “The owner identified above [Union] is the owner of the following facilities . . . Metal Bank of America, Philadelphia, Pennsylvania . . .” (Letter from A.P. Spagnol of Union Corporation to H. Beggun of EPA (Sept. 7, 1984) (U.S. Ex. 209)) (emphasis added). Based on the above, the doctrine of judicial estoppel bars Union Corporation from denying ownership of the Property in this proceeding.

b-1. Legal Analysis

Union Corporation is judicially estopped from denying ownership of the Property. The doctrine of judicial estoppel prevents a litigant from asserting a position that is inconsistent with one previously taken before a court or agency. See Ryan Ops. G.P. v. Santiam-Midwest Lumber Co., 81 F.3d 355, 360 (3d Cir. 1996). Judicial estoppel is concerned solely with the integrity of the courts. See Klein v. Stahl GMBH & Co., 185 F.3d 98, 109 (3d Cir. 1999). “Where a party assumes a certain position in a legal proceeding, and succeeds in maintaining that position, he may not thereafter, simply because his interests have changed, assume a contrary position.” Fleck v. KDI Sylvan Pools, Inc., 981 F.2d 107, 121 (3d Cir. 1992). Moreover, judicial estoppel prevents a litigant from advocating a different and inconsistent position in a separate, later case even if the same issue was not previously litigated to conclusion. See Anjelino v. New York Times Co., 200 F.3d 73, 100 (3d Cir. 2000).

Principles of judicial estoppel apply equally to assertions of “operator” status. Thus, Union’s assertion in the Versatile Metals case, that it “operated the Cottman Avenue site” beginning in 1968 bars Union from denying its status as operator of the facility before this court.

See *Versatile Metals, Inc. v. The Union Corporation*, No. Cir. A. 85-4085 (E.D. Pa.), Closing Argument by John Mattioni, Esq., T. Tr. at XXXVI – 34-35 (“Union Corporation purchased the assets of Metal Bank, other than the real estate . . . the evidence is fairly substantial, that it’s really 1968, that they operated the State Road site and *they operated the Cottman Avenue site* from that period.”) (emphasis added).

The court finds that Union Corporation is judicially estopped from denying that it was an owner/operator of the Cottman Avenue Site within the meaning of CERCLA.

c. As an “Arranger”

In 1971-72, Union had a substantial interest in the profitability of Metal Bank. Among its subsidiaries, Metal Bank was one of the principle money producers. Union had specific knowledge of the nature of Metal Bank’s recycling operations at Cottman. As of the subsidiary’s incorporation in 1968, Union’s officers were also officers of Metal Bank. In addition, Union officers made weekly visits to the Cottman Site (T. Tr. at XII – 38) to assess Metal Bank’s operations and make recommendations. (Dep. of Robert Sabel, Feb. 19, 2002 at 23). Thus, Union knew that Metal Bank’s operations were dependent upon the reclamation of copper cores from scrap electrical transformers and knew the manner in which this was done.

When, in two separate transactions in 1971 and 1972, Union purchased the assets of Hirtz Brothers, those assets included contracts for the Public Service Electric & Gas Company (“PSE&G”) and with the Long Island Lighting Company (“LILCO”) for the collection and recycling of scrap transformers and certain inventories at the Hirtz Brothers New Jersey facilities. Throughout the negotiations for the purchase of Hirtz Brothers, Mr. Sabel and Union intended that the Hirtz transformers would be shipped to the Cottman Site, where they would be

recycled. (See Robert H. Sabel deposition transcript at 91-92 (June 7, 2002), U.S. Sum. J. Mem. Ex. 55). At trial, defendant Irvin Schorsch testified that obtaining the contracts with the two utilities “was really the heart of why this transaction was entered into, . . . [since it gave Metal Bank] access to these two providers of source material that [Metal Bank] didn’t already have contracts with” (T. Tr. at XII – 79; Dep. of John B. Schorsch (Nov. 15, 2001) at 211).

Some of the transformers acquired from the two utilities contained dielectric fluids when employees of Hirtz Brothers and later, employees of Metal Bank, collected them for processing at the Site. (T. Tr. at IV – 52-53). Dr. Edward W. Kleppinger, expert for the defense, admitted that the dielectric fluid would have contained hazardous substances, including chlorinated benzenes. (Expert Report of Edward W. Kleppinger, April 9, 2002, at 5). Chlorinated benzenes and PCBs are hazardous substances under CERCLA. See 40 C.F.R. § 302.4. These substances were released into the environment when Metal Bank employees spilled the contents of the transformers while processing them as previously described. The record shows that by the end of 1971, approximately 2516 transformers had been shipped to Metal Bank from PSE&G under the first Hirtz Brothers transaction. Between June of 1972 and October of 1973, 31 transformers were shipped from LILCO and approximately 6,844 transformer were shipped from PSE&G to the Site.

c-1. Legal Analysis

Section 107(a)(3) of CERCLA imposes liability upon “any person who by contract, agreement, or otherwise, arranged for disposal or treatment . . . of hazardous substances owned or possessed by such person” 42 U.S.C. § 9607(a)(3). As with other provisions of the Act, § 107(a)(3) must be construed liberally to effectuate the “overwhelmingly remedial” purpose of

the statute. Florida Power & Light Co. v. Allis Chalmers Corp., 893 F.2d 1313 (11th Cir.1990); see United States v. Northeastern Pharmaceutical & Chemical Co. (“NEPACCO”), 810 F.2d 726, 733 (8th Cir. 1986), cert. denied, 484 U.S. 848 (1987).

In determining whether activities trigger liability for a person who “arranged” for disposal, it is necessary to examine the facts to determine whether a nexus exists between the potentially responsible party and the disposal of the hazardous substance. Emergency Technical Servs. Corp. v. Morton Int'l, 1993 WL 210531 (N.D. Ill. July 13, 1993). The nexus is “premised on the potentially liable party's conduct with respect to the disposal or transport of hazardous wastes,” General Electric Co., Inc. v. Aamco Transmissions, 962 F.2d 281, 286 (2d Cir. 1992), and is easily found in situations where a party took affirmative action that resulted in deposit or treatment at a site that ultimately resulted in release of the hazardous substance, or, where the party retained the authority to control the handling and disposition of a hazardous substance, and, by failing to act, in effect, decided on the disposition. Morton, 1993 WL 210531, at *4 (citing United States v. Arrowhead Refining Co., No. 5-89-202, 1992 W.L. 436429, at *5 (D.C. Minn. December 21, 1992)); United States v. North Landing Line Constr. Co., 3 F. Supp.2d 694, 699-702 (E.D. Va. 1998) (requiring “crucial decision” to send contaminated materials to a facility); Aamco Transmissions, 962 F.2d at 286 (requiring some involvement in or responsibility for the decision to dispose of waste); Ashland Oil, Inc. v. Sonford Products Corp., 810 F. Supp 1057, 1061 (D. Minn. 1993) (affirmative action or crucial decision necessary for arranger liability to attach); Edward Hines Lumber Co. v. Vulcan Materials, Co., 685 F. Supp. 651, 655 (N.D. Ill. 1988) (requiring a transaction involving a hazardous substance or by-product and motivation behind the transaction was to dispose of it); United States v. Bliss, 667 F. Supp 1298 (E.D. Mo.

1987) (company that acted essentially as broker between chemical manufacturer and disposal company was liable under § 107(a)(3) of CERCLA for arranging for the disposal of hazardous substances).

Moreover, actual physical possession or ownership of the hazardous wastes is not necessary. United States v. Aceto Agric. Chems. Corp., 872 F.2d 1371 (8th Cir. 1989) (imposing arranger liability absent possession of hazardous substances); see also United States v. New Castle County, 727 F. Supp. 854, 873-74 (D. Del. 1989) (recognizing actual ownership or possession of hazardous substance not a prerequisite to imposing arranger liability; rather, need only show “some nexus or relationship between the person under attack and the actual owner or possessor of the hazardous substance”).

In Morton, the court found liability where a third party: 1) arranged with the disposal site for the shipping date and receipt of the hazardous wastes; 2) instructed the generators on how to package specific items for disposal at the site pursuant to the site's requirements; 3) used its relationship with the disposal site to “push” the facility to create space for the generators' wastes within a certain time period; and, with respect to certain generators; and 4) facilitated transportation of the waste by sending shipping and manifest documents, labels for the drums of waste, and other instructions and contacting a transporter on the companies' behalf. 1993 WL 210531, at *4-5.

Although Union did not physically possess the transformers and hazardous substances, Union was the entity that “brokered” their acquisition on behalf of Metal Bank for processing at the Site. Robert Sabel, then President and Chairman of the Board of Union Corporation and Chairman of the Board of Metal Bank negotiated the Hirtz acquisition. The Hirtzes were not

aware of any Metal Bank representatives being involved in the transaction. (Dep. of Lillian Hirtz (April 10, 2002) at 36-38). Thus, Union not only had the authority to control the place and manner of disposal, but specifically directed that the transformers be delivered to Metal Bank. (See Robert H. Sabel deposition transcript at 91-92 (June 7, 2002), U.S. Sum. J. Mem. Ex. 55 (acknowledging that “physical materials” acquired from the utilities “would go” to Metal Bank). The court finds that Union made the critical decision to acquire and deliver to the Site undrained scrap transformers in order to expand Metal Bank’s transformer recycling operations and to enhance Union’s own financial position. This was an arrangement for disposal within the meaning of CERCLA.

d. As Lessee/De Facto Owner

The record shows that Union leased the Property from the Schorsch brothers from June or July 1972 until September 1980 and that Metal Bank conducted transformer recycling operations on the property during the term of Union’s leasehold. It is also clear that one year earlier, in July 1971, Union contracted with Hirtz Brothers to purchase transformers, as well as contracts for the collection of transformers, for recycling at the Cottman Avenue Site and that Metal Bank officers took no part in this transaction. Hirtz transformers were shipped to the Site through at least October 31, 1973, and that Metal Bank’s operations were shut down only after it had finished processing its entire inventory of transformers. Thus, Union did more than merely participate in the decision to bring the transformers to the Site. In fact, Union alone made the decision.

Union demonstrated numerous other indicia of ownership of the Site. It paid the taxes and other expenses of the Property, including maintenance, insurance, telephone and utility bills,

and legal expenses, from at least 1997. Union was responsible under the terms of the lease for maintenance and repair of all damage to the premises and was required to hold the Schorsch brothers harmless for any failure, on the part of Union, to comply with applicable laws and regulations and for any damage caused by leaking buildings and fixtures.

d-1. Legal Analysis

“CERCLA ‘owner’ liability may be extended to a lessee . . . when the lessee participates in the disposal of hazardous wastes.” Lentz v. Mason, 961 F. Supp. 709, 715 (D.N.J. 1997) (citing United States v. South Carolina Recycling and Disposal, Inc., 653 F. Supp. 984, 1003 (D.S.C. 1984), aff’d in part, rev’d in part sub nom., United States v. Monsanto, 858 F.2d 160 (4th Cir. 1988)). Courts have held that “[c]ertain lessees[/sublessors] may have the requisite indicia of ownership vis-à-vis the record owner to be de facto owners and therefore strictly liable.” Commander Oil Corp. v. Barlo Equipment Corp., 215 F.3d 321, 330 (2d Cir. 2000); see, e.g., Delaney v. Town of Carmel, 55 F. Supp.2d 237, 258-59 (S.D.N.Y. 1999) (“[T]he owner of a leasehold of a CERCLA facility may be liable as an owner of that facility.”); United States v. A & N Cleaners & Launderers, Inc., 788 F. Supp. 1317, 1332-34 (S.D.N.Y. 1992); South Carolina Recycling, 653 F. Supp. at 1002-03.

These courts have reasoned that the term “owner” extends beyond the record owner to anyone possessing the requisite degree of control over the property. See id. In Commander Oil, 215 F.3d at 330-31, the court provided a non-exclusive list of factors that courts should consider including: 1) whether the lease is for an extensive term and admits of no rights in the owner/lessor to determine how the property is used; 2) whether the lease cannot be terminated by the owner before it expires by its terms; 3) whether the lessee has the right to sublet all or some

of the property without notifying the owner; 4) whether the lessee is responsible for payment of all taxes, assessments, insurance, and operation and maintenance costs; and 5) whether the lessee is responsible for making all structural and other repairs. Similarly, In re Bergsoe Metal Corp. v. East Asiatic Co., 910 F.2d 668, 671 (9th Cir. 1990) explained that traditional indicia of ownership include factors such as: 1) responsibility for payment of taxes; 2) payment of insurance; 3) retention of risk of loss from destruction or damage to property; and 4) terms of repayment of leases (for example, to whom the money is paid when the lease expires and whether the rent is equal to the principal and interest due).

Union is liable as an owner of the Cottman Avenue Site within the meaning of CERCLA. During the term of its leasehold, it possessed the requisite degree of control over the Property and made actual decisions concerning the disposal of hazardous substances there.

2. Factual Basis for Finding Metal Bank is a “Covered Person”

a. As Owner/ Operator

It is undisputed that in 1968 Metal Bank entered into a two-year lease with LGS for the Cottman Avenue property and that from that point until at least the summer of 1973, Metal Bank operated the property as a scrap metal and transformer reclamation facility. Metal Bank purchased used transformers from numerous utility companies, transported them to the Cottman Site, disassembled them and poured the oil from them into a UST located beneath a concrete pad. Metal Bank admitted that it operated the Site when the transformers were disassembled. (See Answer with Affirmative Defenses to Am. Compl. of United States and Countercls. (Nov. 17, 1998) at ¶ 17; T. Tr. at XII – 147-49).

It is also undisputed that corporately Metal Bank is a current owner of the Cottman Avenue Property. Following the assignment to Metal Bank of Union's rights under the purchase agreement with the Schorsch brothers, (see Assignment from the Union Corporation to The Metal Bank of America, Inc. (Sept. 15, 1980)), Metal Bank purchased the Property from the Schorsch brothers in 1980. (Memorandum of Installment Sale Agreement between PAID and Metal Bank (September 30, 1980)). Title was conveyed in 2001.

a-1. Legal Analysis

Under Pennsylvania law, when a contract to sell land is made, the equitable ownership of the property passes immediately to the buyer. Nobel v. Morchesky, 697 F.2d 97 (3d Cir. 1982). Property ownership is governed by state law rather than federal law. Oregon ex rel. State Land Board v. Corvallis Sand & Gravel Company, 429 U.S. 363, 378 (1977). Thus, courts have applied state common law of equitable ownership in the CERCLA context. See, e.g., K.C. 1986 Limited Partnership v. Reade Manufacturing, Inc., 33 F. Supp.2d 820, 833-34 (W.D. Mo. 1998); Nurad Inc. V. Hooper & Sons, Co., No. Civ. WN 90-611, 1991 U.S. Dist. LEXIS 17090, at *39-40 (D. Md. Aug. 15, 1991), aff'd in part, rev'd in part, 966 F.2d 837 (4th Cir. 1992). Although title was not actually conveyed to Metal Bank until 2001, under the doctrine of equitable conversion, Metal Bank was the equitable owner of the Site beginning in 1980. Moreover, the stipulation entered into in this case in 1983 specifically refers to Metal Bank as the "beneficial owner" of the Property. See Stipulation at 1, in United States v. Union Corp., No. 80-1589 (E.D. Pa. 1983).

The court finds that Metal Bank is a current owner of the Site and has been an equitable owner within the meaning of CERCLA since 1980.

b. As an Arranger

It is undisputed that Metal Bank entered into and performed numerous contracts for the recycling of transformers at the Site with Baltimore Gas & Electric Company, Jersey Central Power & Light, Long Island Lighting Company, Metropolitan Edison Company, Orange and Rockland Utilities Corporation, PECO Energy Company, Potomac Electric Power Company, PP & L Electric Utilities Corporation Virginia Power Company, Consolidated Edison of New York, Public Service Electric & Gas Company of New Jersey, and The Monsanto Company.

b-1. Legal Analysis

Section 107(a)(3) of CERCLA imposes liability upon “any person who by contract, agreement, or otherwise, arranged for disposal or treatment . . . of hazardous substances owned or possessed by such person” 42 U.S.C. § 9607(a)(3). As with other provisions of the Act, § 107(a)(3) must be construed liberally to effectuate the “overwhelmingly remedial” purpose of the statute. Florida Power & Light Co. v. Allis Chalmers Corp., 893 F.2d 1313 (11th Cir.1990); see United States v. Northeastern Pharmaceutical & Chemical Co. (“NEPACCO”), 810 F.2d 726, 733 (8th Cir. 1986), cert. denied, 484 U.S. 848 (1987).

Thus, the court finds that Metal Bank is a “person who by contract . . . arranged for disposal or treatment” of hazardous substances within the meaning of CERCLA.

3. Factual Basis for Finding that John B. and Irvin G. Schorsch, Jr. are “Covered Persons”

a. As Owners/Operators

The Schorsch brothers were the legal owners of the Cottman Avenue property from at least 1969, see Indenture (Deed) between LGS and Irvin G. Schorsch and John B. Schorsch (March 11, 1969), until at least 1980 when they entered into an Agreement of Sale with Union.

See Agreement of Sale between Irvin G. Schorsch, Jr. and John B. Schorsch and The Union Corporation (July 14, 1980). It is undisputed that transformer recycling operations took place on the site between 1968 and 1973.

Moreover, it was the Schorsch brothers themselves who operated the Site as a scrap electric transformer reclamation facility. In 1968, the Site was leased to Metal Bank by LGS. When the Schorsch brothers acquired title from LGS, they entered a new lease with Union on behalf of Metal Bank. Irvin Schorsch, Jr. was President of Metal Bank from 1968 until at least 1980 and was a member of Metal Bank's Board of Directors from 1969 until 1976. John Schorsch was Executive Vice President and director of Metal Bank from 1968 until at least 1973. As officers and directors of Metal Bank, the brothers were responsible for contracting with major electric utility companies along the east coast of the United States for the purchase and transportation of scrap electric transformers to the Cottman Avenue Site for recycling by Metal Bank. That activity continued until 1973.

a-1. Legal Analysis

In United States v. CDMG Realty Co., 96 F.3d 706, 715 (3d Cir. 1996), the third circuit held that CERCLA imposes liability upon past owners if hazardous substances were disposed of on the property during their tenure as owners. The court finds that the Schorsch brothers are liable as past owners and operators of the Cottman Avenue property within the meaning of § 107(a)(2) of CERCLA.

4. Factual/Legal Basis for Finding that the Site is a “Facility”

The second element of CERCLA liability requires that the site be a “facility.” The term means “any building, structure, installation, equipment, pipe or pipeline (including any pipe into

a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located” 42 U.S.C. § 9601(9)(B); see also New York v. Shore Realty Corp., 759 F.2d 1032, 1043 n.15 (2d Cir.1985) (“facility” is defined broadly to include any property where a hazardous substance is present). The court finds that the Property is a facility within the meaning of CERCLA.

5. Actual or Threatened Release

a. Factual Basis

Plaintiffs have presented considerable evidence that: 1) PCBs and other hazardous materials were disposed of at the Cottman Avenue property; 2) there have been actual releases of those hazardous materials; and, 3) there is the potential for further releases. In particular, the testimony at trial established that there was a spill of waste transformer oil containing PCBs from the Site into the Delaware River in 1972. (T. Tr. at XII – 1490; Dep. of Philip Levin, (Dec. 20, 2001), at 16-20; U.S. Coast Guard Reports (August 3, 1972, Aug. 9, 1972), U.S. Exhibit 670 (admitted, T. Tr. at V – 145); see also Petroleum Analysis Report, U.S. Exhibit 469 (admitted, T. Tr. at IX – 129) (finding that the transformer present at the site and the oil found in the river were the same)).

Moreover, Defendants admitted that spills or actual releases occurred at the Site, (Defs.’ Supp. Proposed Findings of Fact, ¶ 47 at 20 (citing Dayno , N.T. Vol. 12, pp. 154-55)), and specifically, that “the only spills or releases at the site” were of transformer oil from the recycling operations. (Id. ¶ 48 at 21 (citing Kleppinger, N.T. Vol. 5, pp. 253; Dayno, N.T. Vol. 12, pp.

189090)). Virtually every sampling event conducted at the Site has shown the presence of PCBs, volatile organic compounds (“VOCs”), semi-volatile organic compounds (“SVOCs”), polyaromatic hydrocarbons (“PAHs”), dioxins, furans, and various metals including arsenic, chromium, lead and mercury in varying degrees in the soils and in groundwater at the Site. (See Record of Decision (“ROD”) (Dec. 1997) at 14-29; Remedial Investigation Report (“RI”) at Ch. 4 (Oct. 14, 1994); Pre-Design Investigation Report (“PDI”) (Jan. 21, 2000); Data Report, Cottman Site Investigation, EWK Consultants (July 2000)).

Finally, the highest concentrations of PCBs and total petroleum hydrocarbons (“TPHs”) at the Site are located in the area of the former recycling operations. The next highest concentrations are located in the rip rap area. Lower concentrations are found in the beach area and still lower concentrations in the river sediments. (T. Tr. at IX – 151-70; RI Report Figs. 4-16, 4-17; PDI Report Fig. 6-2; Table 5-5; 1995 Test Pit Study, Fig. 1). This pattern strongly suggests that contaminants have migrated from the area of the transformer recycling operations to the Delaware River. Consistent with the above, the June 2002 mudflat sampling showed that the concentrations of PCBs, PAHs, VOCs, dioxins and furans detected in samples taken in the vicinity of a nearby property were from ten to one hundred times lower than those taken near the Site. Moreover, Metal Bank’s own expert witnesses, who have offered opinions on the migration of contaminants from the Site all admit that at least some concentrations of PCBs, inconsequential they opine, are migrating from the Site into the adjacent mudflat area and into the Delaware River. (See, e.g., T. Tr. at IX – 55, 150; T. Tr. at X – 139; Expert Report of Kirk W. Brown, Ph.D., Aug. 23, 2001 at 17-18; Dep. of Kirk W. Brown, Ph.D., May 28, 2002 at 98; Dep. of Edward W. Kleppinger, Ph.D., May 29, 2002 at 95, 158, 167-68).

a-1. Legal Analysis

The third element of CERCLA liability requires an actual or threatened release of hazardous substances from a facility into the environment. United States v. Alcan Aluminum Corp., 964 F.2d 252, 258 (3d Cir. 1992) (quoting 42 U.S.C. § 9607(a)). The term “release” means “any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers or other closed receptacles containing any substance or pollutant or contaminant).” 42 U.S.C. § 9601(22).

“[T]he definition of release should be construed broadly.” In re Joshua Hill, Inc., 294 F.3d 482 (3d Cir. 2002) (citing Amoco Oil Co. v. Borden, Inc., 889 F.2d 664, 669 (5th Cir. 1990)). The third circuit recently cited with approval the fifth circuit’s decision in Amoco, which held that the release requirement had been met in two ways: “First, . . . by disposing of the (hazardous wastes) on the property Second, the gas emanating from the [waste] constitutes a release within the meaning of the statute.” The third circuit noted that district courts in our circuit have adopted the same interpretation. In re Joshua Hill, Inc., 294 F.3d at 489 (citing United States v. Barkman, Nos. CIV. A. 96-395 and CIV. A. 98-1180, 1998 WL 962018, at *8 (E.D. Pa. Dec. 7, 1998) (rejecting defendants' arguments that plaintiff must prove that defendants' waste was the contamination source and finding that a release had occurred where hazardous substances were present at the site and in the surrounding groundwater and soils); Bethlehem Iron Works, Inc. v. Lewis Indus., Inc., No. CIV.A. 94-0752, 1996 WL 557592, at * 50, *64 (E.D. Pa. Oct.1, 1996) (finding a release established where the evidence showed contamination of the groundwater at the site and of the soil on the property and dumping of drums containing

hazardous materials on the property such that plaintiffs were not required to prove who was responsible for the release at the site); Artesian Water Co. v. New Castle County, 659 F.Supp. 1269, 1282 (D. Del.1987), aff'd, 851 F.2d 643 (3d Cir. 1988) (stating that plaintiff was not required to prove that contaminants found near the site actually flowed from the site); HRW Sys., Inc. v. Washington Gas Light Co., 823 F. Supp. 318, 338 (D. Md.1993) (suggesting that activity producing hazardous waste on the site constitutes a release)).

The court finds that there have been actual releases of PCBs and other hazardous substances from the Site and that there is a potential for further releases.

6. Response Costs

a. Factual Basis for finding EPA has Incurred

It is beyond question that over the course of the past twenty years, the Government has incurred substantial costs in connection with the 1989 sampling of oil on the groundwater table, the 1989 sampling at the nearby property of St. Vincent's, the 1991-1995 remedial investigation, the 1999 pre-design investigation, the 2000 trench investigation, and the 2002 mudflat sampling. Thus, the only issue is the extent to which these expenses constitute recoverable "response costs" within the meaning of CERCLA.

a-1. Legal Analysis

The final element of CERCLA liability requires a finding that as a result of the release or threatened release of hazardous substances into the environment, the United States has incurred some response costs. 42 U.S.C. § 9607. Activities undertaken to investigate and assess the presence of hazardous substances, like activities undertaken to clean up a contaminated site, result in recoverable response costs. In re Joshua Hill, Inc., 294 F.3d at 490 (citing Darbouze,

1998 WL 512941, at *6-*7, *10 (awarding costs for investigating presence of hazardous substances on property under CERCLA and HSCA); Fallowfield Dev. Corp. v. Strunk, No. 89-8644, 1990 WL 52745 (E.D. Pa. April 23, 1990) (finding that costs related to testing and evaluating the contamination constitute recoverable costs under CERCLA); Wickland Oil Terminals v. Asarco, Inc., 792 F.2d 887, 892 (9th Cir. 1986) (holding that no distinction exists between investigatory costs and on-site clean-up costs for purposes of recovery); In re Allegheny Int'l Inc., 126 B.R. 919, 926 (W.D. Pa. 1991) (finding that expenses incurred for monitoring a waste site and developing a clean-up plan are recovery costs); Artesian, 659 F. Supp. at 1288 (adopting the reasoning of Wickland and allowing recovery of evaluation and monitoring costs)). Recoverable costs of investigatory activities may include the cost of activities conducted outside the boundaries of the site for the purpose of evaluating the migration of contaminants from the site.

The Government has incurred response costs within the meaning of CERCLA. This is separate from the question of whether the entire \$1.6 million in claimed costs was necessary and consistent with the National Contingency Plan ("NCP"), see 42 U.S.C. § 9605, 42 U.S.C. § 9607(a)(4)(B), an issue specifically reserved for Phase Two of this trial.

B. RCRA Liability

Section 7003(a) of the Resource Conservation and Recovery Act authorizes suit by the United States against “any person . . . who has contributed or who is contributing to . . . [the] handling, storage, treatment, transportation or disposal” of “any solid waste or hazardous waste” where such activity “may present an imminent and substantial endangerment to health or the environment” 42 U.S.C. § 6973. The court may restrain such a person from engaging in the

activity or “order such person to take such other action as may be necessary, or both.” Id.

At the outset, the court notes that the word “may” is “expansive language,” and is “intended to confer upon the courts the authority to grant affirmative equitable relief to the extent necessary to eliminate any risk posed by toxic wastes.” Dague v. City of Burlington, 935 F.2d 1343, 1355 (2d Cir.1991) (quoting United States v. Price, 688 F.2d 204, 213-14 (3d Cir. 1982)), rev'd in part on other grounds, 112 S. Ct. 2638 (1992). RCRA “has enhanced the courts’ traditional equitable powers by authorizing the issuance of injunctions when there is but a risk of harm, a more lenient standard than the traditional requirement of threatened irreparable harm.” W.R. Grace & Co. v. U.S. E.P.A., 261 F.3d 330, 339 (3d Cir. 2001) (quoting Price, 688 F.2d at 211)). Moreover, the application of section 6972 is not limited to emergency situations. United States v. Waste Industries, Inc., 734 F.2d 159, 165 (4th Cir. 1984).

1. Imminent and Substantial Endangerment

a. Factual Basis

The court has already found that thousands of gallons of contaminated oil are currently present at the Site and that at least some of the contaminants therein are potentially harmful to human health and the environment. See supra pp. 22-39. Tidal flows and groundwater migration result in ongoing releases to the adjacent mudflat area and there are insufficient erosion controls to prevent the movement of contaminated soils from the banks to the mudflat area and the river. See supra pp. 26-30, 66-67; (Expert Report of Kirk W. Brown, Ph.D., Aug. 23, 2001 at 17-18).

Although there is a fish advisory in effect on the Delaware River, subsistence fisherman and others continue to fish in the vicinity of the Metal Bank Site and to consume the fish at levels exceeding the fish advisory. (T. Tr. at III – 194, 196-201). The Pennsylvania Fish and Boat

Commission has specifically investigated the sale of *Corbicula* clams from the Delaware River in Asian markets locally. (Id. at 202). Dr. Jerome Diamond explained that clams are particularly susceptible to contamination because they are primarily filter feeders. (T. Tr. at II – 37-38). This means that they siphon whatever is in the water column and accumulate it in their fat tissue. Id. at 38.

The evidence at trial establishes that the Site does not have a secure fence or a plan for monitoring the potential movement of soils and hazardous substances.

a-1. Legal Analysis

To prevail, Plaintiff must initially demonstrate a risk of harm that is imminent and attributable to the presence of solid waste at a facility. Price, 668 F.2d at 211. “[E]ndangerment” means a threatened or potential harm and does not require proof of actual harm. Dague v. City of Burlington, 935 F.2d 1343, 1356 (2d Cir. 1991). An endangerment that is “imminent” is one that “threaten[s] to occur immediately.” Mehrig v. Western, Inc., 516 U.S. 479, 480 (1996). The requirement that an endangerment be substantial “does not require quantification of the endangerment (e.g., proof that a certain number of persons will be exposed, that ‘excess deaths’ will occur, or that a water supply will be contaminated to a specific degree).” Lincoln Properties, Ltd. v. Higgins, 1993 WL 217429, at *13 (E.D. Cal. Jan 21, 1993) (citing United States v. Conservation Chemical Co., 619 F. Supp. 162, 194 (W.D. Mo. 1985)). Rather, “an endangerment is substantial if there is some reasonable cause for concern that someone or something may be exposed to a risk of harm . . . if remedial action is not taken. Id. Although the statute requires “a threat which is present *now*,” neither the fact that the activity giving rise to the threat arose in the past nor the fact that the impact of the threat may not be felt until some time in

the future will preclude liability. Mehrig, 516 U.S. at 486 (1996) (quoting Price v. U.S. Navy, 39 F.3d 1011, 1019 (9th Cir. 1994)). In sum, the factors creating the endangerment must be imminent, even if the harm may not occur for some time and the third circuit has clearly stated that the EPA may “authorize[] the cleanup of a site, even a dormant one, if that action is necessary to abate a present threat to the public health or the environment.” W.R. Grace., 261 F.3d at 340 (quoting Price, 688 F.2d at 214).

Congress has explained that since “[t]he primary intent of [Section 7003] is to protect human health and the environment . . . risk may be assessed from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections, from imperfect data, or from probative preliminary data not yet certifiable as ‘fact.’ ” S. Rep. No. 284, 98th Cong., 1st Sess., at 59 (Oct. 28, 1984).

The court finds that the consumption of contaminated fish and clams, as well as potential contact with contaminated oil at the Site, may present an imminent and substantial danger to human health if remedial action is not taken. See United States v. Price 688 F.2d 204, 209 (3d Cir. 1982) (finding endangerment based on the presence of “arsenic, a highly toxic metal and an established human carcinogen; lead, a toxic metal and a suspected human carcinogen and teratogen; benzene, a highly toxic petroleum derivative and a potent carcinogen and teratogen; vinyl chloride, a toxic halogenated hydrocarbon and a suspected carcinogen and mutagen; and 1, 2 dichloroethane, a toxic chlorinated hydrocarbon, and a suspected carcinogen and teratogen”).

Moreover, the court is persuaded that contaminants leaving the Site are presently having a harmful effect on aquatic and plant life in the area. Thus, RCRA’s requirement of an endangerment to health or the environment is satisfied.

2. Endangerment Stemming from Handling, Storage, Treatment, Transportation or Disposal of Solid or Hazardous Waste

a. Factual Basis

Metal Bank has admitted to transporting the transformers to the southern area of the Site where the concrete pad and underground storage tank were located. (Defs.’ Supp. Proposed Findings of Fact, ¶ 51 at 22). It is also admitted that transformers were stored on the ground near the pad prior to processing and that waste transformer oil was temporarily stored in an underground storage tank on the property and periodically pumped out by a waste oil hauler. *Id.* It is further admitted that spills or actual releases occurred at the Site, (*id.* ¶ 47 at 20), and specifically, that “the only spills or releases at the site” were of transformer oil from the recycling operations. (*Id.* ¶ 48 at 21). It has been established that the transformer oil was contaminated with PCBs and other hazardous substances. Metal Bank employees handled the oil during transportation and processing. Finally, the evidence shows that sometime in 1972, the underground tank beneath developed a leak or rupture which allowed contaminated oil to flow into the groundwater and, ultimately, into the Delaware River.

a-1. Legal Analysis

The second element of RCRA liability requires that an imminent endangerment stem from “past or present handling, storage, treatment, transportation or disposal of any solid or hazardous waste.” U.S.C. § 6973(a).

“Disposal” is defined as the “discharge, deposit, injection, dumping, spilling, leaking or placing of any solid waste or hazardous substance into or on any land or water so that such solid waste or hazardous substance or any constituent thereof may enter the environment . . .” 42 U.S.C. § 6903(3); see also 40 C.F.R. § 260.10 (Discharge or hazardous waste discharge means

the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water). The term "storage," when used in connection with hazardous waste, means the containment of hazardous waste, either on a temporary basis or for a period of years, in such a manner as not to constitute disposal of such hazardous waste. 42 U.S.C. § 6903(33); see also 40 C.F.R. § 260.10 (storage includes holding until later treated, disposed of, or stored elsewhere). The broadest of the statutory terms, "handling," is not defined in RCRA. It should therefore be given the ordinary dictionary meaning of "to manage, operate, or use with the hand or hands; . . . to manage, control, direct, train, etc." Webster's New World Dictionary at 611 (3d Coll. Ed. 1988); Montello Oil Corp. v. Martin Motor Oil, Inc., 740 F.2d 220, 228 (3d Cir. 1984) ("Since Congress used the word 'demand' and did not define it in the statute, normally we would give the word its ordinary dictionary meaning."). Similarly, the term "transportation" is not defined in RCRA, but is defined in CERCLA as the ordinary "movement of a hazardous substance by any mode." 42 U.S.C. § 9601(26).

The court finds that the endangerment posed by the contamination of the Site stems from the transportation, storage, disposal and handling of solid or hazardous waste as part of the transformer recycling operations.

Defendants' argument that PCBs are not subject to regulation under RCRA because they are not solid or hazardous wastes within the meaning of the statute, and alternatively, because such regulation would violate RCRA's integration provision, is unpersuasive. According to RCRA, "[t]he term 'solid waste' means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial,

commercial, mining, and agricultural operations, and from community activities” 42 USCA § 6903(27).

RCRA’s definition of “solid waste” includes any “discarded material,” including a liquid. See Assoc. of Battery Recyclers, Inc. v. EPA, 208 F.3d 1047, 1056 n.5 (D.C. Cir. 2000) (“Under RCRA a ‘solid waste’ may be liquid.”); see also Zands v. Nelson, 779 F. Supp. 1254, 1262 (S.D. Cal. 1991) (gasoline which has leaked from a tank and contaminated the soil is no longer a useful product; the contaminated soil and groundwater constitute “solid waste” within the meaning of RCRA). Moreover, the fact that PCBs are not specifically listed under § 3001(b)(1) of RCRA, 42 U.S.C. § 6921(b)(1), is not dispositive since:

[t]his part identifies only some of the materials which are solid wastes and hazardous wastes under Sections 3007, 3013, and 7003 of RCRA. A material which is not defined as a solid waste in this Part, or is not a hazardous waste identified or listed in this Part, is still a solid waste and a hazardous waste for purposes of these sections if:

* * *

(ii) In the case of Section 7003, the statutory elements are established.

40 C.F.R. § 261.1(b)(2); see Comite Pro Rescate de la Salud v. Puerto Rico Aqueduct and Sewer Auth., 888 F.2d 180, 186-87 (1st Cir. 1989) (“[T]he definitional regulation applies ‘only to wastes that also are hazardous for purposes of the regulations implementing Subtitle C of RCRA.’ 40 C.F.R. § 261.1(b)(1) (emphasis in Comite Pro Rescate). Sections 7002 and 7003 are not part of Subtitle C.”). The court finds that the waste transformer oil in and around the soil and water of the Site, which has been found to contain PCBs and other contaminants, constitutes solid waste from industrial operations within the meaning of RCRA.

The court also finds that the transformer oil in the soil and groundwater is a hazardous waste within RCRA. “[H]azardous waste is a subset of solid waste,” Connecticut Coastal

Fishermen’s Ass’n v. Remington Arms Co., 989 F.2d 1305, 1314-15 (2d Cir. 1993), and is defined by RCRA as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may [inter alia] . . . pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” 42 U.S.C.A. § 6903(5). “Certain wastes have been listed by the EPA as hazardous pursuant to 40 C.F.R. § 261.30.” Remington Arms Co., 989 F.2d 1317. However, as with the definition of solid waste, this is not an exclusive list. See id. The evidence presented at trial and discussed above establishes the harmful effects of PCBs on the environment and their potential for substantial harmful effects upon humans.

Other contaminants have been found to be present at the Site at levels exceeding relevant toxicity thresholds. Arsenic has been detected in the mudflat area at a concentration of up to 290 parts per million (“ppm”), well in excess of the toxicity threshold level for arsenic, which is 8.2 ppm. (T. Tr. at II – 237-38). At this level, arsenic exposure poses a threat to the aquatic ecosystem. (Id.). Thus, the court finds that the contaminated oil at and around the Cottman Site is a “hazardous waste” within the meaning of RCRA.

While RCRA’s integration provision discourages “duplication, to the maximum extent practicable,” with “such other Acts of Congress as grant regulatory authority to the Administrator,” 15 U.S.C. § 6905(b)(1), the same provision states that such integration shall be effected only to the extent that it can be done in a manner consistent with the goals and policies expressed in this chapter and in the other acts referred to in the subsection. In United States v. Vineland Chem. Co., the court expressly rejected the argument that regulation under CERCLA

exempted defendants from similar regulatory provisions under RCRA. 692 F. Supp. 415, 420 (D.N.J. 1988). Reasoning that “Section 6905(b) . . . constitutes an exhortation to the EPA to avoid unnecessary and overlapping regulation,” but that “the decision of when to regulate and under which statute to regulate is left to the EPA’s discretion,” the court held that Section 6905(b) is “not a right enforceable by the regulated.” *Id.* This court agrees.

The first clause of RCRA § 7003(a) makes clear that the EPA may act under that provision “[n]otwithstanding any other provision of this chapter.” 42 U.S.C. § 6973(a). Similar “notwithstanding any other provision or rule of law” language in § 107 of CERCLA has been interpreted as “indisputably evidenc[ing] Congress’ intention to prohibit implied exclusions from or exceptions to” liability. *Reading Co. v. City of Philadelphia*, 823 F. Supp. 1218, 1229 (E.D. Pa. 1993); *see also Remington Arms*, 989 F.2d at 1317) (“ ‘[I]ntegration’ is designed “for purposes of administration and enforcement and [to] avoid duplication,’ . . . not . . . for the perilous purpose of engaging in a far-ranging search through the United States Code for exemptions from particular provisions of one environmental statute in order to apply them to another.”). Moreover, nothing in the text of the Toxic Substances Control Act (“TSCA”), which also regulates PCBs, evinces Congress’ intention to preempt RCRA. Instead, TSCA specifically provides that it is not intended to “limit the authority of the Administrator, under any other provision of this chapter or any other Federal law, to take action respecting any polychlorinated biphenyl.” 15 U.S.C. § 2605(e)(5).

3. Factual Basis for Liability of the Schorsch Brothers

a. As Owners/ Operators and Corporate Decision-makers who Contributed

During their tenure as owners, the Schorsch brothers leased the Property to Union to enable Metal Bank to use it for its transformer recycling operations with knowledge of the use that was intended for the property. Their knowledge can hardly be denied since the lease agreement specifically provides that the property is leased “for refining, processing, conversion, separation of ferrous and non-ferrous metals and alloys, sales and administrative offices and uses and occupation necessary and desirable” thereto. (T. Tr. at XII – 30); Lease Agreement by and between Irvin G. Schorsch, Jr. and John Schorsch and The Union Corporation (June 1, 1972)). A rider to the lease agreement specifically obligated the Schorsch brothers to provide “oil storage tanks” to the lessee. (Id.).

Moreover, during the same time period, it was the brothers themselves who, in their capacity as officers and directors of Metal Bank, contracted with numerous utility companies to arrange for the purchase, transportation and delivery of scrap electrical transformers to the Site for recycling.

a-1. Legal Analysis

The Schorsch brothers are past owners within the meaning of RCRA. In United States v. Price, 523 F. Supp. 1055, 1072-73 (D.N.J. 1981), aff’d, 688 F.2d 204 (3d Cir. 1982), the court held past owners of property liable under RCRA where they knew or should have known that contaminants were present on the property when it was purchased. The court reasoned that the owners’ “studied indifference” to the hazardous site conditions “contributed to” the passive migration of contaminants from the site and specifically held that “their [subsequent] sale of the

property did not relieve them of their accountability under the statute.” Id.

The Schorsch brothers’ liability is premised upon more than mere studied indifference. Given the specific information provided in the lease agreement and the rider, as well as their simultaneous role as officers and directors of Metal Bank, the Schorsch brothers cannot deny their actual knowledge regarding the nature of the operations at the Cottman Site during their tenure as owners. As in Price, their subsequent sale of the property does not relieve them of liability.

Moreover, the Schorsch brothers’ liability is also premised upon their role as operators or corporate decision-makers, subsequent to the sale of the property. In United States v. Northeastern Pharmaceutical & Chemical Co., Inc.(NEPACCO), 810 F.2d 726 (8th Cir. 1986), cert. denied, 484 U.S. 848 (1986), the eighth circuit explained that imposing liability upon only a corporation, but not upon those corporate officers and employees who actually make corporate decisions, would be inconsistent with Congress’ intent to impose liability upon the persons who are involved in the handling and disposal of hazardous substances. Id. at 745 (citing Price, 523 F. Supp. at 1073; H.R. Conf. Rep. No. 1133, 98th Cong., 2d Sess. 119, reprinted in 1984 U.S. Code Cong. & Ad. News at 5690; S. Rep. No. 172, 96th Cong., 2d Sess. 5, reprinted in 1980 U.S. Code Cong. & Ad. News 8665, 8669).

Without piercing the corporate veil, a court may hold an individual defendant liable if the defendant was “personally involved in” or “directly responsible for” corporate acts in violation of RCRA. Id. (citing United States v. Pollution Abatement Services of Oswego, Inc., 763 F.2d 133, 134 (2d Cir. 1985) (corporate officers and shareholders individually liable for company discharging refuse into creek in violation of Rivers and Harbors Appropriations Act of 1899);

Johnson & Towers, Inc., 741 F.2d at 664-66 (employees criminally liable for RCRA violations)); see also United States v. Production Plated Plastics, Inc., 742 F. Supp. 956 (W.D. Mich. 1990), adopted 955 F.2d 45, cert. denied 506 U.S. 820 (1990) (majority stockholder of corporation which owned hazardous waste disposal facility was jointly liable with facility where evidence showed that shareholder was personally involved in or directly responsible for acts in violation of RCRA); State of Vermont v. Staco, Inc., 684 F. Supp. 822, 831, 835 (D. Vt. 1988), vacated in part on other grounds, State of Vt. v. Staco, Inc., 1989 WL 225428 (D. Vt. Apr. 20, 1989) (individual defendants liability where they were “either personally involved in the corporate acts of Staco or w[ere] in a position as [] corporate officer[s] or major stockholder[s],” to ultimately control the proper handling of contaminants) (citing NEPACCO, 810 F.2d at 745).

The court finds the Schorsch brothers liable under RCRA as both 1) past owners, because they knowingly leased the Site to Union during the time that hazardous substances were disposed of at the Site through Metal Bank’s transformer recycling operations; and, 2) past operators, because both during their tenure as owners and following the sale of the Property, as directors and officers of Metal Bank, they operated the facility.

4. Factual Basis for Liability of Metal Bank

a. As Owner/ Operator who Contributed

It is undisputed that Metal Bank is a current owner of the Property. In addition, Metal Bank polluted the Site through its transformer recycling operations and had a duty to gain specific knowledge of the hazards of substances being stored on and being spilled onto its property and of their potentials for release into the environment.

a-1. Legal Analysis

In Price, the third circuit held that a current owner of property could be held liable under RCRA, by virtue of his owner status, for “contributing to” the disposal of any hazardous wastes. 523 F. Supp. at 1073-1074. Rejecting the argument that some active behavior was required, the court reasoned that as owners of the property, the defendants were “contributing to” the disposal or leaking of wastes “merely by virtue of their studied indifference” to the hazardous condition. Id. Although the defendants there had not created that hazardous condition, the court nonetheless emphasized that they had been aware, at the time that they purchased the property, that it had been used as a landfill and had a duty to investigate the actual conditions that existed on the property or take it as it was. The court noted that this approach was confirmed by another provision of the statute exempting subsequent owners from liability where they “could not reasonably be expected to have actual knowledge of the presence of hazardous waste at such facility or site and of its potential for release.” Id. (citing 42 U.S.C. § 6934(b)).

Here, Metal Bank is liable by virtue of its owner status, for contributing to the endangerment currently posed by contamination at the Site. Unlike in Price, where defendants did not create the hazardous condition, Metal Bank’s own operations resulted in the contamination of the Site.

5. Factual/Legal Basis for Liability of Union Corporation as Owner/ Operator who Contributed to the Contamination

Union Corporation’s liability under CERCLA as a person who “arranged for the treatment or disposal of hazardous substances” is sufficient to prove that Union “contributed to” the disposal of wastes within the meaning of RCRA. See United States v. Aceto Agric. Chems., 872 F.2d 1373, 1383-84 (8th Cir. 1989). Moreover, the court has already found both that Union

is an owner of the Site in the CERCLA context and that piercing of Union's corporate veil is warranted.

Moreover, it is noted that Union specifically held itself out as the owner of the Site for purposes of compliance with RCRA facility closure regulations. Those regulations require that facility owners and operators establish a closure trust fund, post a surety bond, obtain a closure letter of credit, obtain closure insurance, or provide financial assurance that it has sufficient net worth to ensure closure, post-closure care and liability coverage for hazardous waste facilities. See 40 C.F.R. §§ 264.143(a)(1), 264.145. In 1984, A.P. Spagnol of Union Corporation wrote a letter to the EPA identifying Union as the owner of the Cottman Avenue property for the purpose of providing financial assurance as required by RCRA regulations. (Letter from A.P. Spagnol to Helen Beggun (Sept. 7, 1984); T. Tr. at XIII – 119-22). In so doing, Union assumed responsibility for closing the Site in a manner consistent with the requirements of RCRA. This included ensuring that the Site, as a whole, did not present an endangerment to human health or the environment. See 40 C.F.R. § 260.10, 264.1(b) (defining owner and explaining that the requirements of § 264 apply to owners of all facilities that treat, store or dispose of hazardous waste).

Although defendant has attempted to argue in post-trial pleadings that the referenced facility in the 1984 letter to EPA was the State Road property rather than the Cottman property, the trial evidence shows that the facility referenced was the Cottman Site. (See 61 Fed. Reg. 39646, 39650 (July 30, 1996), T. Tr. at XII – 122, Federal Register notice introduced by the Government at trial). The “Notice of Availability for Administrative Records of CERCLA Actions” cited the EPA identification number in connection with Metal Bank's Operable Unit 01

RI which began in 1991. See id. The State Road property was never the focus of an EPA-supervised clean-up. Therefore, the reference could only have been to the Cottman Site.

Federal courts have imposed penalties directly against corporate decisionmakers based on broad interpretations of RCRA provisions pertaining to owners or operators. See NEPACCO, 810 F.2d at 745 (reasoning that absolving those who actually make corporate decisions would be inconsistent with Congress' intent to impose liability upon persons involved in the handling and disposal of hazardous substances). The court finds that Union, as an entity involved in and directly responsible for the corporate acts of its subsidiary, Metal Bank, is directly liable under RCRA. The court also finds that Union contributed to the endangerment posed by the contamination of the Site both in its capacity as owner and in its capacity as a corporate decisionmaker.

IV. CONCLUSION

For the foregoing reasons, the court finds that defendants John B. and Irvin G. Schorsch, Metal Bank, and Union Corporation are responsible parties within the meaning of CERCLA and RCRA for contamination of the Cottman Avenue Site. The court also finds that the Government has incurred response costs in connection with the contamination.