UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

15-425

REPLY TO THE ATTENTION OF:

SUBJECT: ON-SCENE COORDINATOR'S REPORT - Removal Action at the Dead Creek Area G Landfill, (Site G) in Sauget, St. Clair County, Illinois, Site ID# 4V

FROM: Rick Karl, Chief
Emergency and Enforcement Response Branch, SE-5J

TO: Debbie Dietrich, Acting Director
Emergency Response Division, 0S-210

THRU: William Muno, Director
Office of Superfund, HS-6J

Attached is the On-Scene Coordinator's (OSC) Report for the removal action conducted at the Dead Creek Area Site G Landfill (Site G), Sauget, St. Clair County, Illinois. The report follows the format outlined in the National Oil Pollution and Contingency Plan (NCP), Section 300.165. This removal began on March 29, 1995, and was completed on September 30, 1995. The OSC for this removal action was Samuel Borries.

The Dead Creek Area Site G Landfill is a closed industrial and municipal landfill that occupies approximately 4.5 acres in Sauget, Illinois. The site operated for an unknown number of years until it was closed in mid 1970s. The site is one of approximately 12 uncontrolled hazardous waste sites that form the Dead Creek Project (DCP). The site is bordered to the west by Wiese Engineering Company, to the north by Queeny Avenue and Cerro Copper Company, to the east by Dead Creek, and by cultivated fields and residential areas to the south. The area surrounding the site is light commercial, industrial and residential. The nearest residence is located approximately 1,000 feet southeast and 500 feet directly west of the site. The nearest active business employing more than five people is located adjacent to the west of the site.

Between the period of March 18, and June 3, 1994, the site caught fire on four separate occasions. According to Robert Thorton, Sauget Fire Chief, the cause of the four fires was spontaneous combustion of unknown waste in the landfill. The United States Environmental Protection Agency (U.S. EPA) supported by the Technical Assistance Team contractor conducted a site assessment of Site G on May 27, 1994. The site assessment revealed the presence of 15,000 parts per million (ppm) Polychlorinated biphenyl (PCBs) and total Dioxin equivalence in the range of 10 to 21 parts per billion (ppb) in soil samples collected from outside the fenced area. Dioxin levels exceeded the recommended cleanup level of 20 ppb for industrial areas.

The U.S. EPA conducted a funded removal action at Site G. The removal actions included the assessment of nearby unfenced areas that might have been impacted by previous fires, excavation and incorporation of unfenced contaminated soil into the fenced portion of the site, evaluation of contaminants magnitude in the fenced area, installation of a shallow barrier wall to prevent waste oil and contaminated shallow groundwater from directly seeping into the Dead Creek. The site fenced area was covered with a clean soil layer of approximately 18 to 30 inches. Removal actions started on March 29, 1995, and were completed on September 30, 1995. Cost under the control of the OSC were estimated at $553,493.68 of which $389,847.93 was for the

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

FEDERAL ON-SCENE COORDINATOR'S REPORT

Sauget and Company Landfill, Site G
Sauget, St. Clair County, Illinois

March 29 - September 30, 1995

EXECUTIVE SUMMARY

SITE: Dead Creek Area G Landfill, (Site G)

LOCATION: Sauget, St. Clair County, Illinois.

PROJECT DATES: March 29, 1995 - September 30, 1995

INCIDENT DESCRIPTION: The Dead Creek Area G Landfill (Site G) is a closed industrial and municipal landfill. The site occupies approximately 4.5 acres which is located in an industrial and residential area. The nearest residence is located approximately 500 feet west of the site. The nearest active business employing more than five people is located adjacent to the west of the site. Dead creek, a tributary of the Mississippi River, is located adjacent to the east of the site. Between the period of March 18, and June 3, 1994, the site caught fire on four separate occasions. According to the Sauget Fire Department files, the cause of these fire was spontaneous combustion. On May 27, 1994, the U.S. EPA supported by the TAT contractor conducted a site assessment of the site and its surrounding areas. Results of soil samples collected during the assessment phase indicated levels of PCBs at 15,000 ppm and dioxin total equivalence at 21 ppb. Levels of dioxin and PCBs in soil samples collected from outside the fenced areas exceeded the recommended cleanup levels for industrial and residential areas.

ACTIONS TAKEN: The U.S. EPA began removal actions on March 29, 1995. The removal action included the following activities:

* Extent of contamination determination of nearby unfenced areas including the south side-walk of Queeny Avenue, Wiese Engineering Company parking lot, and the uncultivated field south and southwest of the site fenced area.

* Determination of contaminants magnitude from soils inside the fenced area.

* Excavation of contaminated soil from the above-mentioned unfenced areas and incorporating the excavated soil into the site fenced area.

* Solidification of two oil pits that were located on the northeast and central east portions of the site. Kiln dust/Code L type Lime, was used as a solidification agent.

* Installation of a shallow barrier wall on the eastern boundary of the site to prevent waste oil and contaminated groundwater from possibly migrating into Dead Creek.

* Installation of cover material over the site fenced area. The soil cover thickness is in the range of 18 to 30 inches. Excavation and backfill of areas in Weise's parking lot and the area between Queeny Avenue and the sites northern fence line.

The removal action was completed on September 30, 1995, at an estimated cost under the control of the OSC of $553,493.68 of which $389,847.93 was for the Emergency Response Cleanup Services (ERCS) contractor. The On-Scene Coordinator for this removal was Samuel Borries.

_____ _____

Samuel Borries, On-Scene Coordinator Date
Emergency and Enforcement Response Branch
Region V United States Environmental Protection Agency

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Emergency Response Cleanup Services (ERCS) contractor.

Any indication in this OSC Report of specific costs incurred at the site is only an approximation, subject to audit and final definitization by the U.S. EPA. The OSC Report is not a final reconciliation of the costs associated with a particular site.

Portions of the OSC Report appendices may contain confidential business or enforcement-sensitive information and must be reviewed by the Office of Regional Counsel prior to release to the public.

The site is currently being considered for inclusion on the National Priority List (NPL). However, the site is not on the NPL at the time of preparing this report.

Attachment

cc: L. Welch, Ohio EPA, w/OSC Report
T. Johnson, U.S EPA, OERR, OS-210, w/OSC Report

bcc: B. Warning, Site Attorney, CS-3T, w/OSC Report
T. Lesser, P-19J, w/OSC Report
O. Warnsley, CRU, HSM-5J, w/OSC Report
R. Freeman, U.S. EPA State Coordinator, R-19A, w/OSC Rpt
T. Connell, 5SPT (if PCB site)
R. Mayhugh, HSC-9J, w/OSC Rpt (20 copies for RRT distribution
B. Ramsey, Secretary, NRT, OS-120
S. Borries, OSC, w/OSC Report
R. Karl, w/OSC Report
B. Messenger, ESS, w/OSC Report
R. Powers/R. Buckley (RS1), w/OSC Report
D. Bruce, (RS2), w/OSC Report
F. Rollins (RS3), w/OSC Report
EERB Site File, 5HS-12, w/OSC Report (5)

I. SUMMARY OF EVENTS

A. Site Conditions and Background

1. Initial Situation

The Dead Creek Area G Landfill, (Site G) is one of 12 uncontrolled hazardous waste sites that form the Dead Creek Project in the area. The site is a closed industrial and municipal disposal area which operated for a number of years before closing in early 1970s. The site is bordered on the north by Queeny Avenue; on the east by Dead Creek; on the south by cultivated and un-cultivated fields; and on the west by Wiese Engineering Company (see Site Location Map, Figure 1-1). The site occupies approximately 4.5 acres located in an industrial and residential area. The nearest residence is located 500 feet west of the site and the nearest occupied business employing more than five people is located adjacent to the west of the site.

As recorded in site files information pertaining to previous site investigations, the surface of Site G is littered with demolition debris and metal wastes. Two small pits are located in the northeast and central east portions of the site. The pits contained oil and sludge waste, as well as scattered drums and debris. A mound area was observed in the western portion of the site. Protruding from this mound area were several corroded drums. A large depression exists in the central south portion of the site, which is immediately south of the mounded area. Surface run-off from the site flows towards the above-mentioned depression.

From 1985 to 1987, the Illinois Environmental Protection Agency (IEPA) conducted an Extensive Site Investigation (ESI) of Site G and other Dead Creek Projects. The site investigation indicated the presence of uncontrolled hazardous substances including Polychlorinated Biphenyl (PCB) and volatile organic compounds at high levels in the surface soils of Site G. In May of 1987, the U.S. Environmental Protection Agency (U.S. EPA) conducted an emergency response at Site G and collected samples, results of which indicated that high levels of organic contamination exist in surficial soils. As a result, Monsanto Chemical Company, Cerro Copper Products Company, and Wiese Engineering under U.S. EPA supervision, constructed a chain-link fence surrounding Site G. According to site file information, aliphatic hydrocarbons, chloroanilines, chlorobenzenes, chlorophenols, PCBs, phenanthrene, and pyrene were identified at Site G.

According to file information from the Sauget Fire Department (SFD), the site caught on fire four times during the period of March 18 and June 3, 1994. The cause of the fire is believed to be spontaneous combustion. On May 27, 1994, the U.S. EPA supported by Region 5 TAT contractor conducted a site assessment of Site G. The assessment indicated the presence of 15,000 ppm PCB and Dioxin total equivalence greater than 137 ppb within the fenced area. Soil samples collected from outside the fenced area indicated the presence of high PCB and Dioxin levels exceeding the recommended cleanup levels for industrial and residential areas. On June 6, 1994, the U. S. EPA conducted a removal assessment response action due to another fire at the site. Summa canister air samples collected from residual smoke plumes three days after the fire indicated the presence of 130 ppb benzene, 2.1 ppb toluene, 35 ppb trichlorobenzene. According to an infra-red imaging over-flight conducted by the U.S. EPA, the fire was completely extinguished but fugitive fumes and smoke were still detected afterwards.

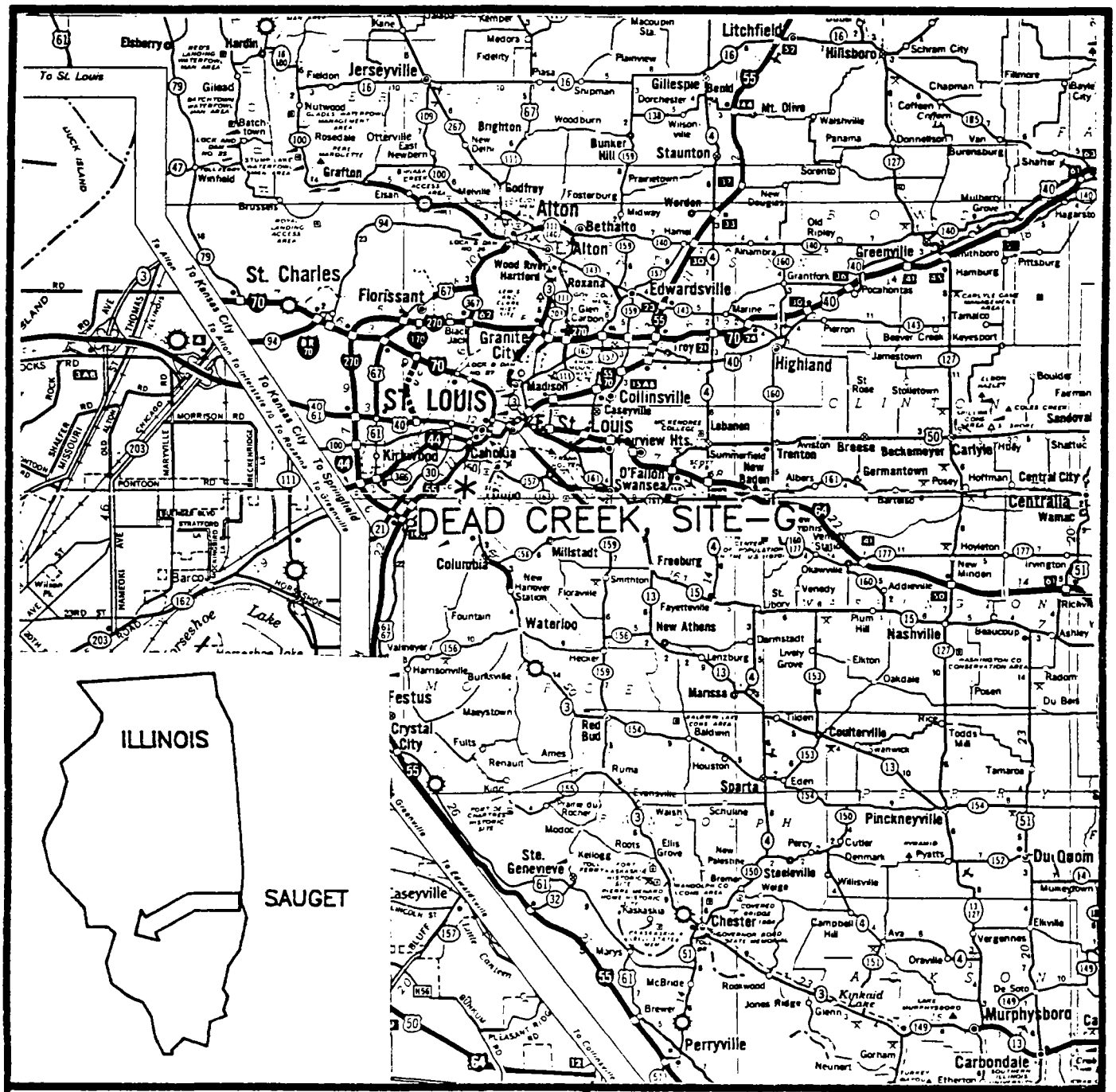


FIGURE 1

LOCATION MAP

DEAD CREEK, SITE-G

SAUGET, ILLINOIS

SCALE 1"=20 MILES

WESTON

DESIGNERS CONSULTANTS

DRAWN BY	DATE	PCS #
J. Brikley	8/10/87	1057
APPROVED	DATE	TDD #
S.M	8/11/87	5-8703-11

2. Location of hazardous substance(s)

The surface of Site G was littered with demolition debris and corroded drums. The site occupies approximately 4.5 acres located in an industrial and residential area. The nearest residence and/or active business in the area is located adjacent to the west of the site. Dead Creek, a tributary of the Mississippi River, is located adjacent to the east and down gradient from the site. The Majority of the site property is fenced by a six-foot barbed wire chain-link fence.

According to the findings of the site assessment conducted by the U.S. EPA on May 27, 1994, soil sample results revealed the presence of 15,000 ppm PCB and greater than 137 ppb Dioxin in the soils of the fenced area of the site. Additional, field observations indicated the presence of oil pits located approximately 50-80 feet upgradient from Dead Creek. Soil samples collected from outside the fenced area including the Queeny Avenue sidewalk area and Wiese Engineering Company parking lot indicated the presence of PCBs at 134 ppm and 63 ppb Dioxin in unsecured settings close to nearby residence and workers.

3. Cause of the release or discharge

According to Sauget Fire Department (SFD) Fire Chief, R. Thorton, the SFD was called four times to extinguish fires at the site between mid-March to early June 1994. The cause of the fires is believed to be spontaneous combustion due to unknown waste contained within the landfill. It appears that the origin of Dioxin contamination was created by incomplete combustion of high levels of PCBs at the site. Furthermore, on-site contaminants and pollutants had migrated outside the fenced area via smoke, fumes, and possibly run-off of fire fighting water and or rainwater.

As for off-site migration of contaminants along the eastern boundary of the site and into Dead Creek, the IEPA conducted sediment sampling of the creek. Elevated levels of PCBs were found more than ½ mile down-stream from the site location. It is believed that the site specific-location, being upgradient and close to the Dead Creek, may be partially or wholly responsible for the release of PCBs into the creek.

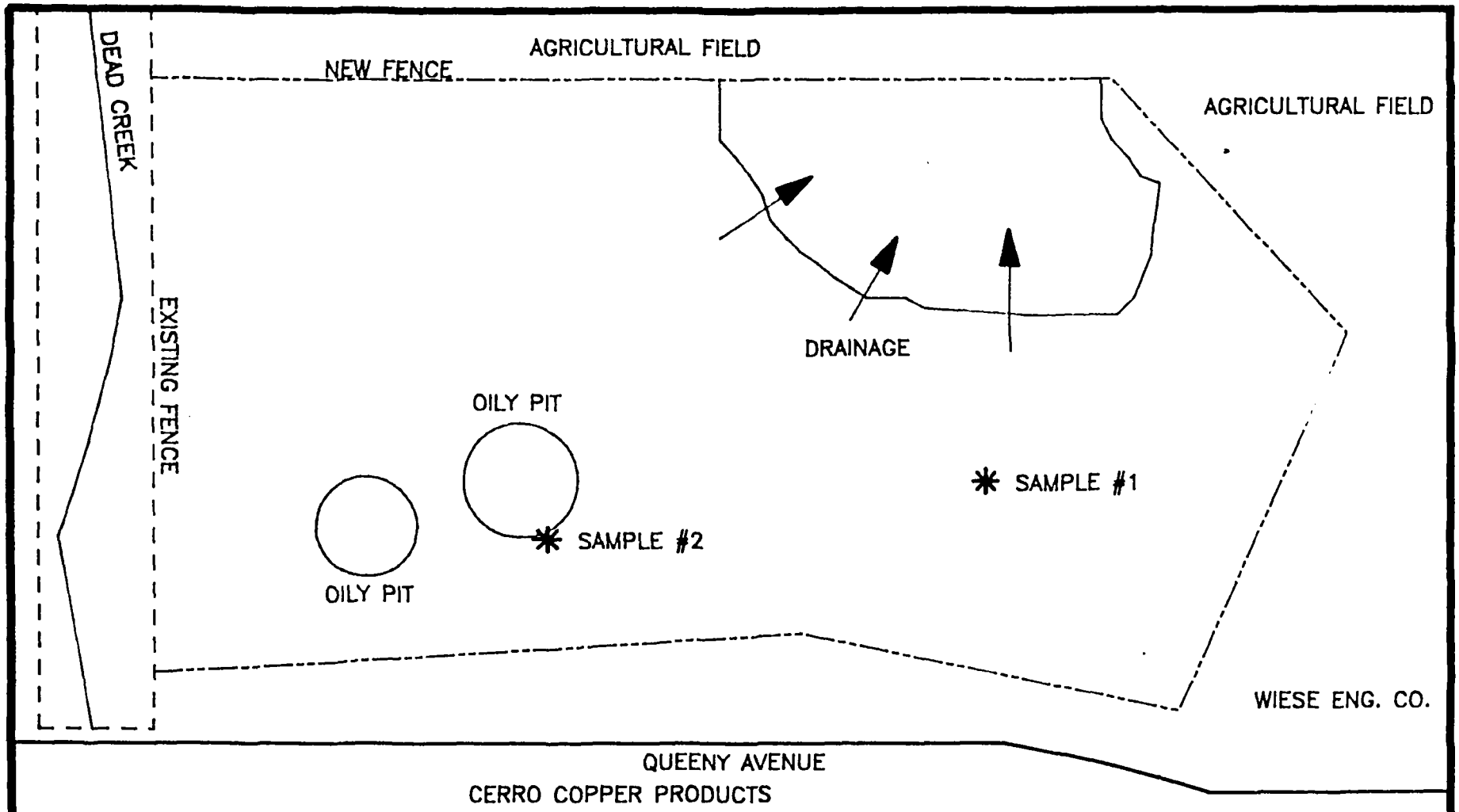
4. Efforts to locate and obtain response by responsible parties

Site G is one of 12 uncontrolled hazardous waste sites that the IEPA and the U.S. EPA are jointly investigating. The IEPA issued an information request to ten potentially responsible parties (PRPs) regarding this site and in conjunction with other sites in the area (Sauget and Company, Site Q). The IEPA issued a Complaint for Injunction and Other Relief to Monsanto to obtain a response for a removal action. IEPA negotiations failed to obtain a response from any of the ten PRPs that were solicited for the information request mentioned earlier.

No viable PRP was found that was willing to undertake a full cleanup action. Therefore, no orders pursuant to Section 106 of the Comprehensive Environmental Response Cleanup and Liability Act (CERCLA), as amended by Superfund Amendment and Reauthorization Act (SARA) were issued.

B. Organization of the Response

Following the March 1994 fires, IEPA requested the assistance of the U.S. EPA to evaluate site conditions that may warrant a removal action under the authority of CERCLA, as amended in 1986 by SARA. On May 27, 1994, and based on the findings of the site assessment conducted by the U.S. EPA TAT contractor, site conditions satisfied the National Contingency



NO SCALE

FIGURE 2

SITE MAP

DEAD CREEK, SITE–G

SAUGET, ILLINOIS

WESTON
DESIGNERS CONSULTANTS

DRAWN	DATE	PCS #
J. Binkley	8/12/87	1057
APPROVED	TDD #	
SDS	S-8703-11	

Plan (NCP) Section 300.415 requirement for initiating a funded removal action.

On September 26, 1994, the U.S. EPA Superfund Office approved an Action Memorandum for a removal action at Site G. The Action Memorandum approved the expenditure of up to $1,902,000.00 to abate imminent and substantial threats to public health and the environment at the site. U.S. EPA Sam Borries coordinated removal actions with the IEPA and other local and state participants. Other participants in the removal actions are included in the Summary Of Response Organization, Table 1-1.

C. Injury or Possible Injury to Natural Resources

1. Content and time of notice to natural resources trustees

According to the National Oil Pollution and Contingency Plan (NCP) Section 415 Part 300.5, "natural resources" means land, fish, wildlife, biota, air, water, and groundwater belonging to or held intrust by, or controlled by the United States. The U.S. EPA OSC, Sam Borries, sent regular pollution reports detailing the situation and the progress of cleanup action at the site to the U.S. Department of Interior Natural Resources Trustee Officer for Region 5, Donald Henne. Pollution reports were also sent to IEPA representatives and Peoria, Illinois office of the U.S. Fish and Wildlife Services.

2. Trustee damage assessment and restoration activities

At the time of preparation of this report, no follow-up action was initiated by the trustees mentioned-above or their contractors.

D. Chronological Narrative of the Removal Activities

1. Threat abatement actions taken

On March 29, 1995, the U.S. EPA OSC mobilized Region 5 TAT and ERCS contractor to Site G. ERCS contractor mobilized an operator and a cleanup technician to setup the site support zone and command post. ERCS personnel installed a water line to supply the site support zone with clean water for personal decontamination and other site needs. The water was drawn from a nearby fire hydrant. To facilitate truck traffic into the site fenced area, ERCS personnel installed a 20-foot gate on the northwest corner of the fenced area. The site fenced area was heavily wooded and infested with snakes. ERCS contractor mobilized an additional laborer to assist in clearing and grubbing operations. Clearing and grubbing inside the fenced area took approximately 15 working-days which started on March 30, 1995, and was completed on May 11, 1995. Removal actions at Site G were conducted in a number of steps as the following:

1.1 Determination of extent of contamination in the unfenced portion of the site

On March 25-27, 1995, the U.S. EPA Region 5 TAT contractor collected 18 soil samples to assess the areas outside the fenced area. Ten composite soil samples were collected from Queeny Avenue's southern sidewalk area. The sidewalk is approximately 15 x 600 feet stretching alongside the site north fence line. Four composite soil samples were collected from Wiese Engineering Company parking lot along the site west fence line. Three composite soil samples were collected from a depression located south and southeast of the site fenced area. This area is believed to have received surface run-off from the site fenced area. One composite soil sample was collected from a soil mound situated on the southwest corner of the fenced

TABLE 1
ORGANIZATION OF RESPONSE
SAUGET AND COMPANY LANDFILL, SITE G

Agencies or Parties Involved	Contact	Description of Participation
U.S. EPA-Region V 77 W. Jackson Blvd. Chicago, IL 60604 1-312-353-2886	Samuel Borries	Federal OSC responsible for overall response oversight.
Illinois Environmental Protection Agency	P. Takacs K. Mensing	Provided historical information on the site.
Riedel Environmental Services St. Louis District 18207 Edison Ave Chesterfield, MO 63005-3703 1-314-532-7660	Ken Braig	Provided personnel and equipment necessary for removal and conducted the cleanup. Coordinated shipment and disposal of materials.
Ecology and Environment, Inc. Technical Assistance Team 858 E. Crescentville Cincinnati, OH 45215 1-513-671-4717	Sam Sirhan	Provided the OSC with technical assistance, administrative support, sampling, photo and site documentation, site safety, and draft report preparation

area and approximately 40 feet south of the Wiese Company building.

Results of soil samples collected from Queeny Avenue sidewalk area indicated the presence of PCBs at levels in the range of 226 to 5,300 ppm. Dioxin, total equivalence, was found at levels in the range of 4 to 74 ppb. Results of soil samples collected from Wiese Company parking lot indicated the presence of PCBs in the range of 85 to 154 ppm and total dioxin equivalence in the range of 30 to 67 ppb. Results of soil samples collected from the soil mound, waste pile area, indicated the presence of PCB at 530 ppm and total dioxin equivalence at 134 ppb. No substantial levels of PCB or dioxin were found in soil samples collected from the depression area located south and southeast of the site fenced area.

On April 12, 1995, The U.S. EPA TAT contractor collected three groundwater samples from existing monitoring wells at the site to determine the impact of the removal activities on the quality of groundwater at the site area. Results of these samples indicated the presence of 3,200 ppb chlorobenzene, and 650 ppb benzene. No elevated levels of inorganic contaminants were detected in any groundwater sample.

On April 18, 1995, the U.S. EPA OSC tasked the TAT contractor to evaluate the entire Wiese Company parking lot according to a hexagonal sampling pattern as recommended by the Toxic Substances Control Act (TSCA). A total of 37 soil samples were collected from the parking lot. Results of these samples indicated that most PCB contamination extended approximately 40 feet west parallel to the site west fence line.

1.2 Excavation of contaminated soil from the unfenced areas

On April 25, 1995, ERCS contractor completed excavation of approximately 25 cubic yards of PCB, Dioxin-contaminated soil from Queeny Avenue southern sidewalk. The excavated soil was transferred onto the fenced portion of the site property. The excavation was backfilled with clean soil (containing less than 1 ppm PCB by weight) and the surface of the backfilled area was serviced with medium-size gravel (less than two inches in size). During excavation ERCS contractor placed warning signs and construction barricades along Queeny Avenue to caution traffic of the construction activities in that area.

On April 26 - 27, 1995 ERCS contractor completed the excavation of the waste pile that was located on the southwest corner of the site fenced area. The excavated soil was placed inside the fenced area. The excavation was backfilled with clean soil and graded to blend its terrain with the surrounding area, i.e. Wiese Company parking lot. It was observed that waste drums and bulk waste were encountered during the excavation of the waste pile area.

On May 19 - 20, 1995, ERCS contractor completed excavating approximately 30-50 cubic yards of PCB and Dioxin-contaminated soil from Wiese Engineering Company parking lot. Excavation depth was in the range of 10 to 15 inches. The excavated soil was transferred and incorporated into the fenced area. The excavation was backfilled with clean soil and surfaced with a layer of gravel. ERCS contractor compacted the backfill using a roller vibrator with approximately 7-pounds per square inches pressure. The compaction was needed to ensure safe truck traffic for Wiese Engineering Company.

1.3 Determination of extent of contamination inside the fenced area

This step of the removal action was conducted over the course of the removal activities. Soil samples were collected to determine the extent of

contamination in the landfill surface soil and waste samples (from excavated and/or exposed waste drums). These samples were collected to identify the waste and help in determining the generating party. On April 21 - 25, 1995, TAT contractor, in cooperation with ERCS, collected 24 composite soil samples from the southern half of the site fenced area (samples number CSH-1 thru CSH-24). Soil samples were analyzed for Dioxin and PCBs at Environmetrics Laboratories of St. Louis, Missouri. Results of soil samples indicted PCB levels in the range of 88 to 344,021 ppm and total equivalence Dioxin levels in the range of 4 to 44 ppb (see Analytical Results, File No. 3-B of the OSC Appendices).

ERCS contractor excavated six exploratory trenches to estimate the depth and type of waste in the landfill body. Three exploration trenches were excavated in the west portion of the site, one trench was dug in the central portion of the site, and two trenches were placed in the eastern half of the site. Waste samples were collected during the excavation of the above-mentioned trenches. A total of 35 waste samples were collected during the removal action at Site G (see Analytical Results, File No. 3-B of the site OSC Appendices). A number of these samples were analyzed for PCB pre-cursor, total PCBs, volatile organic, and inorganic content.

Results of waste samples collected from the west portion of the site indicated levels of PCBs in the range of 1,613 to practically pure PCB material. Biphenyl, Chlorobiphenyl, trichlorbiphenyl, and Nitroaniline PCB pre-cursors were found in abundant concentrations (in the range of 1,900 to 54,000 ppm) in the majority of waste samples collected from the western exploration trenches (EP-1, EP-2, and EP-3). TAT contractor collected a groundwater sample No. EP-3-GW from the water table exposed at the bottom of exploration pit No. EP-3. Results of the groundwater sample indicated the presence of 149 ppm PCB and elevated levels of inorganic compounds.

Waste samples collected from the eastern half of the site originated from the two oil pits and exploration trenches No. EP-5 and EP-6. Waste samples collected from the oil pits indicated the abundant presence of Benzene, Toluene, ethylbenzene, and Xylene (BTEX) compounds. Furthermore, Naphthalene compounds were detected at high concentrations (see Analytical Results, File No.3-B). At EP-5 location, ERCS operator uncovered undetermined quantity of battery casings. TAT contractor collected a soil sample from EP-5 location for inorganic analysis. Results of that sample indicated a lead level of 536 ppm.

During the course of this step of the removal activities, ERCS, in cooperation with TAT contractor, uncovered numerous documents, labeled containers, and marked filled/partially filled and empty 50-pound product bags. A list of all findings including company names, location where documents were found, and any other marking was prepared and provided to the U.S. EPA site Attorney to aid in further search for PRPs. A copy of that list can be found in site file No. 1-M.

1.4 Solidification of oil pits

There were two oil pits, OP-1 and OP-2, located on the northeast and central east portions of the site. Oil pit No. OP-1 was of approximately 50 x 110 feet and extended down to below the water-table (approximately 10 feet). Waste sample No. OP-1-OIL was collected from this oil pit indicated the presence of Naphthalene at 66,000 ppm, 41 ppm Benzene, 590 ppm Toluene, 370 ppm Xylene. Low levels of PCB were detected in this sample, 14 ppm level, which may indicate that the oil and sludge was cross-contaminated from other site PCBs and the oil waste might have been generated by an oil-handling facility such as a refinery. Oil pit No. OP-2 was smaller in size, approximately 30 x 80, and was located in the central east portion of the site. Free-phase oil and deteriorated containers that had leaked their

contents were observed in both oil pits.

ERCS contractor used Code L lime to solidify oil and sludge in the oil pits. Real-time air monitoring in the oil pits during the solidification process documented elevated levels of liberated fumes and vapors. All detected levels were in the range of 5 to 15 ppm and did not necessitate upgrading of personnel protection gear other than level C protection. The optimum mixing rate was determined by on-site bench scale experimentation. The actual mixing rate was approximately 1 part of Code L lime to 1.25 parts of liquid oily waste and contaminated soil. During the period of May 5 - June 14, 1995, ERCS contractor solidified approximately 4,000 cubic yards of oil, sludge, and oil-contaminated soil. The solidified mass from the oil pits were placed in there respective excavations and graded to blend its topography with the surrounding terrain. The oil material was solidified only to the extent it would support heavy equipment traffic and an overlying soil cover. A barrier wall of clean soil material was constructed between the oil pits and Dead Creek. The wall was placed a couple feet below the water table to the surface of the landfill. The barrier wall was installed as a preventative measure from residual oil around the periphy of the oil pits from possibly migrating to Dead Creek.

1.5 Installation of the Barrier wall

On June 20 - 23, 1995, ERCS contractor dug a trench along the eastern fence line, approximately 25 feet west and parallel to the east fence line. The trench was approximately 10 feet wide and extended approximately 85 feet south of the northeast fence corner. The depth of the trench was approximately 12 feet, two feet below the water-table in the area. The excavation was backfilled with clean material creating a barrier wall to impede on-site migration of oily-water from possibly seeping into Dead Creek and eventually the Mississippi River.

1.6 Ground water sampling

Groundwater samples collected from existing monitoring wells, samples No. GW-32, GW-33, and GB-1, indicated the presence of Vinyl chloride at 44 ppb, Chlorobenzene at 3,200 ppm, and Benzene at 43 ppb. Groundwater sample No. EP-3-GW that was collected from the bottom (water-table) of exploration pit No. EP-3 indicated the presence 149,000 ppb PCB and elevated levels of organic compounds. It was estimated that the shallow groundwater flow was due east and southeast towards Dead Creek.

1.7 Installation of soil cover over the fenced area.

Following the placement of all excavated soil from outside the fence area, ERCS contractor started placing a soil cover over the landfill body. The soil layer covers the entire fenced area except for the southeast and southwest corners, and the central south portion of the site fenced area. Results of surface soil samples collected from these corners indicated PCB and Dioxin levels less than the established cleanup level for the site. The central southern portion of the site filled with ponded rainwater. During the course of the removal actions, inclement weather conditions including heavy rain storms caused approximately 4.5 million gallons of rainwater to accumulate in a depression area located in the central southern portion of the site (see Section 1.7 below).

During the period of June 15 - July 14, 1995, ERCS contractor hauled approximately 30,000 tons of clean soil to install a protective cover over the fenced area. The cover was graded to create a positive drainage for surface run-off. On September 29, 1995, the cover was hydro-seeded to establish a vegetative cover to prevent soil erosion.

1.8 Rainwater accumulation at the site

During the removal activities at the site, the site area experienced intermittent periods of heavy rainfall which caused rainwater to pond in a depression located on the central southern portion of the site fenced area. The quantity of rainwater was estimated on May 23, 1995 to be approximately 3.5 million gallons. Continued rain during the second-half of the month of June and early July added approximately an additional 1.0 million gallons to the ponded water.

On June 1, 1995, the U.S. EPA TAT contractor collected a surface water sample from the ponded rainwater to evaluate the quality of that water. Results of the surface water sample indicated the presence of 120 micro-gram per liter (ug/l) Acetone, 20 ug/l 2,4-Dichlorophenol, and 180 ug/l Nitoraniline. No detectable levels of PCB or Dioxin were found in this sample. The U.S. EPA investigated the possibility of disposing of the surface water at a nearby publicly-owned water treatment works (POTW), American Bottoms, Inc., of Sauget, Illinois, via lift-pumps and through the Village of Sauget's industrial storm sewer network used in the area. Officials of Sauget and the American Bottoms treatment plant indicated that full capacity of the industrial storm sewer was approximately 100 gallons per minute. The 100 gallon/minute restriction was due to a sewer line collapse and the bypass line which was installed only has a 100 gallon/minute capacity. It was estimated that the ideal pumping rate for site purposes was at 1,200 gallons per minute to achieve cost effectiveness.

On July 13, 1995, the TAT contractor collected a second surface water sample from the ponded rainwater. Results of the second sample indicated no detectable levels of any of the contaminants of concern that were detected in the first sample collected on June 1, 1995.

2. Treatment, disposal, or alternative technology approaches pursued

On-site encapsulation of contaminated soil and debris was chosen due to the following facts:

* The magnitude of PCB and Dioxin contamination prohibited the landfilling of contaminated soil.

* The amount of PCB and Dioxin-contaminated soil was approximately 70,000 cubic yards. The cost of excavating, hauling, and treating such an amount would be prohibitive.

* Encapsulation of contaminated soil would eliminate the direct threat contact to hazardous substances and pollutants by nearby residence until a more comprehensive response is obtained by the U. S. EPA, State and PRPs.

Solidification of the oil pit was conducted due to the presence of free-phase oil in proximity to a navigable waterway, Dead Creek. No treatability study was performed for the solidification process due to the temporary results sought by solidification and any further action (treatment) would have been outside the scope of the removal activities designated for the site. The optimum mixing rate was established onsite from a bench scale test and through trial-and-error experimentation. Code L lime was chosen as a solidification agent and on-site experiments indicated that a mixing ratio of approximately 1.25 parts of contaminated waste to 1 part of Code L lime was successful in solidifying the oily waste.

Table 2
MATERIALS AND DISPOSITION
SAUGET AND COMPANY LANDFILL, SITE G

Material	Amount	Method	Location
PPE	20 cu yd	incineration	Aptus, Coffeyville, Kansas
All other contaminated waste material was covered on-site			

3. Public information and community relation activities

On February 17, 1995, the U.S. EPA OSC, Sam Borries, informed the property owners and nearby businesses in the site area of the up-coming removal activities. On May 23, 1995, a representative from TV Channel 30, a local news station visited the site. OSC Sam Borries updated the news reporter of the on-going removal activities and of the hazardous substances present at the site.

The U.S EPA Office of Public Affairs published and distributed a "news Release" on May 15, 1995, detailing the removal activities that were taking place at the site. U.S. EPA OSC Sam Borries kept a positive rapport with the local community and representatives from the IEPA Springfield and Collinsville, Illinois, offices.

E. Resources Committed

The U.S. EPA provided all monetary resources for the removal actions at Site G. The ERCS contractor for this removal was Riedel Environmental Services, Inc., under Delivery Order (DO) No. 5001-05-368. The TAT contractor for this removal was Ecology and Environment, Inc., under Technical Directive Document (TDD) No. T05-9503-007. Removal actions started on March 29, 1995, and were completed on September 30, 1995, for a total cost of $553,493.68 of which $389.847.93 were for services provided by ERCS. A breakdown of all contractors expenditures into major categories of labor, equipment, material, and disposal is shown in Table 1-E.

II. EFFECTIVENESS OF REMOVAL ACTIVITIES

A. Actions Taken by PRPs

No cleanup activities were conducted by any known responsible party. State, federal, and responsible party representatives held several meetings to discuss cleanup options and concerns for site G. No cleanup strategy was agreed upon by all parties therefore U.S. EPA conducted removal activities.

B. Actions by State and Local Agencies

The IEPA made the initial discovery of Site G. IEPA provided support and contributed to the removal efforts by providing the U.S. EPA OSC with historical information and analytical data from its files. IEPA provided a dedicated site-representative to communicate and assist in the removal efforts.

C. Actions Taken by Federal Agencies and Special Teams

The U.S. EPA provided all monetary resources and technical expertise for the removal activities at Site G.

D. Action Taken by Contractors, Private Groups, and Volunteers

1. Riedel Environmental Services Inc., Region V ERCS contractor

ERCS contractor Riedel Environmental Services, Inc., conducted all cleanup activities associated with Site G.

2. Ecology and Environment, Inc., Region V TAT contractor

The Technical Assistance Team contractor for this removal was Ecology and Environment, Inc., (E & E). E & E provided timely assistance

TABLE 3
REMOVAL PROJECT ESTIMATED TOTAL COST SUMMARY
SAUGET AND COMPANY LANDFILL, SITE G

Extramural Costs	
Total Cleanup Contractor Costs(1)	$389,847.93
Total TAT Costs(2)	$ 89,580.55
Total CLP Costs	$ 0.00
Total REAC Costs	$ 0.00
EXTRAMURAL SUBTOTAL	$479,428.48
Intramural Costs	
EPA Direct Costs	$ 27,820.20
EPA Indirect Costs(3)	$ 46,245.00
INTRAMURAL SUBTOTAL	$ 74,065.20
ESTIMATED TOTAL PROJECT COSTS	$553,493.68
PROJECT CEILING	$688,000.00

(1) Source: ERCs Contractor Riedel Environmental Services Invoice # 8168-12, 3/22/96

(2) Source: RORIS dated 1/11/96

(3) Source: IOL or U.S. EPA Financial Management Branch, Itemized Cost Summary, Appendix 2D.

Any indication of specific costs incurred at the site is only an approximation, subject to audit and final definitization by the U.S. EPA. The OSC report is not meant to be a final reconciliation of the costs associated with a particular site.

in maintaining an overall site safety plan (SSP), and documenting on-site activities. E & E TAT utilized St. Louis-based U.S. EPA Region 7 TAT contractor to assist in conducting on-site activities. This utilization provided the site budget with monetary savings through the elimination of mobe/demobe and perdiem charges.

III. DIFFICULTIES ENCOUNTERED

A. Items That Affected the Response

1. Topography and wooded areas

The Sauget and Company Landfill, Site G area was partially wooded with trees and bushes. Most of the landfill exhibited un-even terrain through the scattered distribution of waste loads being dumped on the landfill surface. Some areas of the landfill surface were not adequate to support the load of heavy equipment due to the presence of oil saturated soils ERCS contractor personnel practiced caution and extra attention while working in such areas.

2. Heavy rain

Heavy rainfall during the course of the removal activities suspended on-site work for approximately 18 working days. Furthermore, rainwater accumulated in a depression area on the central southern portion of the site. It was estimated that approximately 4.5 million gallons of water ponded in the above-mentioned depression area.

B. Issues of Intergovernmental Coordination

The OSC worked closely with State personnel throughout the cleanup process. The IEPA provided a dedicated site-representative to communicate and assist in the removal efforts. The IEPA representative provided detailed historical information for the site. The local Fire Department provided gate keys to access the site and the water department provided access to a local fire hydrant for a decon water source.

C. Difficulties Interpreting, Complying with, or Implementing Policies and Regulations

During site activities, no policies and/or regulations applicable to the cleanup of Site G affected the efficient completion of the removal action.

IV. RECOMMENDATIONS

A. Means to Prevent a Recurrence of Discharge or Release

1. Rapid evaluation for inclusion in the NPL

The IEPA is evaluating the site for the purpose of including it in the NPL. A U.S. EPA site assessment was completed on May 27, 1994, and conditions at the site satisfied the requirement of Part 415 of Section 300 of the National Contingency Plan (NCP) for the initiation of a removal action. On June 3, 1994, the fourth fire occurred at the site. The fourth fire incident could have been prevented by a rapid stabilization action if U.S. EPA would have been notified of the incident.

B. Means to Improve Removal Activities

1. Field screening for PCBs

The use of EPA-approved immunoassay field screening for PCB can efficiently reduce the analytical cost of the removal actions. During the course of the removal action, the TAT contractor collected approximately one-hundred and ten soil samples to determine the extent of contamination and verify the attainment of cleanup levels. All samples were screened using immunoassay test kits. Verification of field screening results was performed on approximately 15% of the screened samples at an off-site laboratory. Laboratory analysis confirmed approximately 85% of field screening results. Overall, field screening provided quality sample analysis with quick turn-around-time and approximately $10,000.00 in monetary savings.

C. Recommendations for New Policy or Regulations, and Changes in Current Regulations and Response Plans

All policies and regulations observed for the cleanup of Site G were practical and no change is recommended.