EXPLANATION OF SIGNIFICANT DIFFERENCES
Crab Orchard National Wildlife Refuge
PCB Areas Operable Unit

1.0 INTRODUCTION

The Crab Orchard National Wildlife Refuge Superfund Site (the Refuge), also known as Sangamo Electric Dump/Crab Orchard National Wildlife Refuge Site, is located near Marion, Carterville, and Carbondale, Illinois, primarily within Williamson County, extending into Jackson and Union Counties in Southern Illinois. The Refuge consists of approximately 43,500 acres of multiple-use land. The Refuge is used as wildlife refuge and also for recreational, agricultural, and industrial purposes. The Refuge is owned by the U.S. government and currently is administered the U.S. Fish and Wildlife Service (FWS), a bureau of the Department of the Interior (DOI).

A portion of the Refuge, designated as the PCB Areas Operable Unit (PCB OU), is the subject of this Explanation of Significant Differences (ESD). In August 1990, U.S. EPA issued a Record of Decision (ROD) that selected the remedial action for the PCB OU. In May 1991, a Consent Decree was signed between U.S. EPA, DOI, and Schlumberger Industries Inc. (Schlumberger), a successor corporation to a company that manufactured PCB capacitors at the Refuge. Under the terms of the Consent Decree, Schlumberger agreed to perform the cleanup set out in the PCB OU ROD. At the time the ROD was issued, the highest known levels of trichloroethene (TCE) in the PCB OU groundwater were 906 parts per billion (ppb). U.S. EPA assumed that source control, namely the removal of the lead, cadmium and PCB contaminated soils and sediments, would also remove the source of the TCE groundwater contamination. During the PCB OU cleanup, however, TCE levels as high as 60,000 ppb were discovered in groundwater associated with Study Sites 32 and 33 at the PCB OU. This ESD describes the additional source control necessary to address the TCE contaminated groundwater.

In addition, this ESD also explains the significant increase in volume of PCB-contaminated material thermally treated during the remedial activities for the PCB OU.

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the 1986 Superfund Amendments and Reauthorization Act (SARA), states in Section 117(c), that "[a]fter adoption of the final remedial action plan:

(1) if any remedial action is taken,
(2) if any enforcement action under 106 is taken, or
(3) if any settlement or consent decree under 106 or 122 is entered into,

and if such action, settlement, or decree differs in any significant respects from the final plan, the President or the State shall publish an explanation of the significant differences and the reasons that such changes were made." Pursuant to this requirement and Section 300.435 (c)(2)(I) of the

National Contingency Plan (NCP), U.S. EPA, in consultation with FWS and Illinois EPA, issues this ESD for the PCB OU ROD.

This ESD documents U.S. EPA's decision to require additional source removal to cleanup the TCE contamination in the upper sand and upper clay layers of the subsurface soil and to mitigate further degradation of the groundwater associated with Study Sites 32 and 33 at the PCB OU. This ESD is made part of the Administrative Record for the Crab Orchard Site. The public is encouraged to review this ESD and other related documents to gain a more comprehensive understanding of the site and the CERCLA activities conducted there. The Administrative Record is available for review at the following locations:

Crab Orchard National Wildlife Refuge
8588 Route 148
Marion, IL 62959

U.S. EPA Region V
77 West Jackson Blvd., 7th floor
Chicago, IL 60604

Additionally, four information repositories have been established at the following locations:

Southern Illinois University Morris Library
Fifth Floor
Carbondale, IL 62901

Marion Carnegie Public Library
206 South Market Street
Marion, IL 62901

Carbondale Public Library
405 West Main Street
Carbondale, IL

Department of Justice
Marion Federal Penitentiary
Bureau of Prisons
RR5, Little Grassy Road
Marion, IL 62959

2.0 SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

2.1 Site History

While presently administered by FWS, the Department of Defense (DOD) administered the Refuge during the World War II era in the 1940s. During the DOD administration, portions of the Refuge were leased to industrial tenants, primarily for the purpose of munitions and explosives manufacturing. In 1947, the DOD transferred the Refuge to the DOI. Congress, in passing the law that created the Crab Orchard National Wildlife Refuge, mandated a continuing industrial presence on the Refuge property. While the principal industry at the Refuge was production of explosives, several other industries including Schlumberger's predecessor, Sangamo Weston, Inc., which manufactured PCB capacitors, moved into the Refuge to occupy many of the buildings formerly used by the wartime industries.

Beginning in the late 1970s, DOI, U.S. EPA, and Illinois EPA conducted site investigations that indicated the presence of PCBs, lead, and cadmium in soils within the eastern portions of the Refuge. The Crab Orchard National Wildlife Refuge site was proposed for the National Priorities List (NPL) in 1984 and finalized on the NPL in July 1987. In 1989, a Remedial Investigation/Feasibility Study (RI/FS) Report was completed by FWS and Sangamo Weston, Inc.

During the RI/FS, thirty-three different study sites within the Refuge were investigated. The RI concluded that four of the sites needed remediation because of the presence of PCBs, lead, and cadmium, in part because the levels of PCBs and lead posed a significant threat to human health and the environment, and that three other sites needed remediation due to the presence of heavy metals such as lead, cadmium, and chromium. U.S. EPA grouped these sites into two separate operable units, the Metals Areas OU and the PCB Areas OU. The Metals Areas OU included the three sites which contained heavy metals contamination. The PCB OU included the remaining four sites that were contaminated with PCBs, lead, and cadmium. These four sites are the Job Corps Landfill, the Water Tower Landfill, the Area 9 Landfill, and the Area 9 Building Complex. A risk assessment determined that the PCB OU sites posed an unacceptable risk to human health and the environment.

In September 1991, U.S. EPA entered into a Federal Facilities Agreement with the Department of the Interior, Illinois EPA, and the Department of the Army (Army) (collectively referred to as the State and Federal Agencies). The general purpose was to ensure that the environmental impacts associated with past and present activities at the Refuge are thoroughly investigated and appropriate remedial action taken as necessary to protect the public health, welfare and the environment. The Federal Facility Agreement initially identified four Operable Units including the PCB Areas Operable Unit that is the focus of this ESD.

2.2 Cleanup Remedy Selected in the 1990 Record of Decision

In the 1990 ROD for the Crab Orchard Site's PCB OU, the selected remedy included:

1) the excavation of contaminated soil and sediment;

2) treatment of all excavated soil and sediment contaminated with PCBs in excess of established remediation goals using mobile incineration technology;

3) stabilization/fixation of residues from incineration and non-incinerated soil and sediment contaminated with metals (if determined to be RCRA hazardous because of their metals leachability) to render them nonhazardous;

4) on-site disposal of nonhazardous treated material and untreated residues exceeding the cleanup targets in a landfill meeting the requirements of RCRA Subtitle D and 35 Illinois Administrative Code Part 807;

5) backfilling, placement of low-permeability caps and closure of areas where contamination is below the excavation criteria or from where contaminated soil and sediment have been excavated; and

6) environmental monitoring and maintenance during and after remedial construction to ensure the effectiveness of the remedial action.

2.3 PCB OU ROD Remediation Goals

The ROD required the four sites to be remediated to the following cleanup levels:

Soil and Sediment Remediation Goals[1]

- lead to 450 mg/kg dry soil,
- cadmium to 10 mg/kg dry soil,
- PCBs in top one foot of soil to 1 mg/kg dry soil,
- PCBs in soil below one foot depth to 25 mg/kg dry soil, and
- PCBs in sediments to 0.5 mg/kg dry sediments.

The ROD also required that the risk from all of the chemical contaminants present in the soil and sediment above naturally occurring background levels established for the site not exceed an

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[1] Mg/kg is equivalent to parts per million (parts of contaminant present in one million parts of dry soil).

excess cancer risk of one in one million and not exceed concentrations determined to produce any non-cancer chronic health effects.

Groundwater Remediation Goals

Although the ROD, in a discussion of Site 33, Area 9 Building Complex, reported that TCE groundwater contamination was detected in one well at 906 ppb, the ROD did not require groundwater remediation per se. Nor did the ROD formally identify federal or any more stringent State applicable or relevant and appropriate requirements (ARARs) for the groundwater cleanup. Removal of the contaminated surface soils was expected to control the groundwater contamination. Instead of presuming that the groundwater required treatment, the ROD required monitoring of the groundwater at each of the remediated sites during and after construction of the remedial action. The ROD stated that the purpose of the monitoring was to ensure that after completion of the remediation of the contaminated soils and sediments, the remaining risk from all of the contaminants in the groundwater (measured at the source of the contamination) above naturally occurring background levels did not exceed any excess cancer risk or any standard. The ROD also stated that

> "If, at any time, groundwater at the contaminated sites exceeds a 10^{-6} cumulative lifetime cancer risk, or Maximum Contaminant Levels (MCLs) for carcinogens, whichever is more stringent; and MCLs, Maximum Contaminant Level Goals (MCLGs), or a hazard index of 1.0 for noncarcinogens; whichever is more stringent, additional remedial work as determined by U.S. EPA, shall be performed."

As U.S. EPA noted in its ROD Responsiveness Summary for the PCB Areas, Response 69 to Sangamo-Weston at paragraph c.,

> "In the preamble to the revised NCP, U.S. EPA's approach to groundwater remediation is discussed. The preamble states 'The goal of EPA's Superfund approach is to return usable ground waters to their beneficial uses within a time frame that is reasonable given the particular circumstances at the site.' The groundwater at the Refuge is a usable resource and contributes flow to a unique environment. The RI Report indicated that there was groundwater contamination associated with the PCBs Areas operable unit, but did not document risks from groundwater. U.S. EPA believes that the removal of sources of contamination will control any potential groundwater problems. However, if monitoring activities during and after remediation indicate that there is potential risk from the groundwater, additional remediation activities will be considered.
>
> Since a remedy other than source control was not selected for groundwater, the 10^{-6} excess cancer risk target level discussed in the Proposed Plan and selected in this ROD will not necessarily be a cleanup level but will trigger a review of conditions at the sites."

The Response also stated that since the risk from the sites was addressed by the removal of the contaminated sources (i.e. the contaminated soils), the groundwater standards specified in the ROD are not cleanup standards, but standards to evaluate how effective source control has been. If the standards specified in the ROD are exceeded, the groundwater situation would be evaluated to determine if further remedial action is necessary. Response 69 concludes with the statement that the risk assessment calculations for groundwater will reflect realistic and site-specific exposure scenarios.

Surface Water Remediation Goals

The ROD provides that the surface water in Area 9 will be monitored during and after construction of the remedial action. The results would be evaluated to ensure that after completion of the remedial action for the contaminated soils and sediments, the cumulative risk from all of the contaminants in surface water above naturally occurring background levels established for the site shall not exceed an excess cancer risk of one in one million (10^{-6}) and shall not exceed any non-cancer chronic health effects.

2.4 PCB OU Remedial Action

As stated in the Introduction to this ESD, Schlumberger, successor to the corporation that manufactured PCB capacitors, agreed in a Consent Decree to undertake the remedial action at the PCB OU in accordance with requirements of the ROD. Under these requirements, Schlumberger remediated soil and sediments contaminated with PCB, lead, and cadmium.

The PCB OU ROD, in a discussion of the Area 9 Building Complex, reported that TCE in groundwater was detected in one well at 906 ppb, yet the ROD did not require groundwater remediation per se. The ROD remedy required only the excavation and treatment of PCB and metals-contaminated soil and sediments above specified action levels, with disposal of the materials at the Refuge. As stated in the ROD, it was expected that remediation of PCBs and metals in soil and sediment to meet the specified remediation goals would also address all of the other contaminants at the sites. Implementation of the PCBs and metals cleanup of soil and sediment at the PCB OU was completed in 1997. The remediation goals identified in the ROD and summarized in Section 2.3 of this ESD require continued monitoring of surface water and groundwater at the remediated sites and require conducting post-remediation risk assessments. Although Schlumberger is continuing to monitor surface water and groundwater at the remediated sites, the additional remedial measures identified in Section 3.0 of this ESD will have to be implemented to adequately meet the remaining portions of the remediation goals.

2.5 Post-ROD Discovery of Elevated TCE Concentrations in Groundwater

In 1996 while conducting the PCB OU cleanup, Schlumberger discovered TCE contamination in subsurface soils near Building I-1-23. At U.S. EPA's request, Schlumberger

conducted a groundwater investigation at Study Sites 32 and 33 in 1997 and 1998 and prepared a Groundwater Investigation Report and Focused Feasibility Study (GWI/FFS). Although TCE contamination was known to exist at the time of the ROD, the GWI discovered concentrations of TCE in the groundwater as high as 66,000 ppb or over 10,000 times the MCL of 5 ppb listed in the Safe Drinking Water Act. In addition to the TCE contamination, other chlorinated volatile organic compounds (CVOCs) were also discovered in the groundwater. The other CVOCs include, tetrachloroethene (PCE), Dichloroethene (DCE), and vinyl chloride.

The GWI identified five separate known and potential CVOC source areas and associated groundwater plumes within Study Sites 32 and 33. One plume starts from Building I-1-23 and extends approximately1500 feet to the lake, one emanates from the Area 9 Repository and extends 500-700 feet and discharges to a ditch that flows to the lake, and one begins at Buildings I-1-2 and may extend more than 1,300 feet to the west, where the groundwater discharges to an intermittent stream and into a marshy area. Other plumes appear to be associated with Building I-1-36A and an area near the south side of the Area 9 Repository.

The GWI determined that the groundwater impacts are restricted to the Upper Clay and Upper Sand Units. Concentrations of CVOCs in the intermediate-depth sand lenses within the Lower Clay unit and in the Lower Sand are very low to non-detectable (approximately 200 ppb to 0.5 ppb). CVOC plumes within the Upper Sand unit extend from 500 feet to over 1,000 feet downgradient from each of the source areas. Based on the GWI Report, these contaminants are transported laterally within the Upper Sand with little or no downward migration through the underlying low-permeability clay. The groundwater at the Study Sites 32 and 33 discharges to the Crab Orchard Lake and to drainage ditches, swales, and streams that flow to the lake.

3.0 REMEDY DESCRIPTION AND THE BASIS FOR SIGNIFICANT DIFFERENCES

3.1 Modified Remedy Description

The GWI/FFS prepared by Schlumberger examined several cleanup options for the TCE and other co-contaminant CVOCs, including monitored natural attenuation, phytoremediation, in-situ bioremediation, multiple phase extraction and in-situ thermal treatment. U.S. EPA is selecting the multiple phase extraction with limited phytoremediation and monitored natural attenuation as the appropriate remedial technology that is premised on source material removal. The multiple phase extraction system described in the FFS targets the removal of the TCE and accompanying CVOC residuals from the contaminated soil. The technology moves air through the contaminated soil and vacuums the TCE and accompanying CVOCs from the soil in a vapor phase. Groundwater pumping is required to enhance the vapor phase extraction. The pumping lowers the water table and allows the saturated clay to dry enough to enable air and volatilized CVOCs to move more readily through the interstitial spaces. As part of the pre-design work for the extraction system, Schlumberger will further characterize the source material in both the soil

and groundwater, as necessary, to fully design and implement the selected remedy. U.S. EPA, in consultation with FWS and Illinois EPA, will review and approve all pre-design and design documents.

Multiple phase extraction is a combination of proven technologies that can remove significant volumes of the TCE and other CVOCs from the subsurface soil. Modeling indicates that after approximately two years of operation, the multiple phase extraction system is expected to reduce TCE contaminant levels to about 3,000 ppb in the groundwater near the contaminated source material at Building I-1-23. The modeling also indicates that after two years of operation, the TCE concentration in groundwater where the I-1-23 plume discharges into the lake should decrease by approximately half. Likewise, TCE concentrations in the lake water at the groundwater/surface water interface will also be reduced commensurately. These results are consistent with CERCLA's preference for reduction of toxicity, mobility or volume through treatment.

In addition to the use of multiple-phase extraction at each of the five CVOC source areas, the modified remedy includes the use of phytoremediation at selected areas at the sites where contaminated groundwater currently discharges to Crab Orchard Lake and to drainage channels that flow to the lake. Fast-growing and deep-rooted hybrid poplar trees will be planted in these areas to take-up relatively large quantities of the contaminated groundwater before it can discharge to the surface water. The trees transpire many CVOCs at a relatively high rate, thereby oxidizing significant amounts of CVOCs to carbon dioxide and water.

The GWI/FFS have shown that naturally occurring biological and physical degradation processes are attenuating the impacts of the CVOC source materials on groundwater quality to some extent, although these processes alone are insufficient to achieve the groundwater cleanup standards specified in the ROD within an acceptable time period. However, in combination with the use of multiple-phase extraction and limited phytoremediation, the existing natural attenuation processes will enhance the rate of improvement in groundwater quality. Therefore, monitored natural attenuation (MNA) is also included as a component of the selected overall remedy for groundwater at Sites 32/33.

Despite the significant TCE reductions that multiple phase extraction will achieve, U.S. EPA recognizes that restrictions upon groundwater use must be imposed and that it will be several decades before the TCE contamination is reduced to levels that meet the cleanup standards specified in the ROD. In fact, it may be technically impossible to achieve MCLs throughout the aquifer given the nature of the contaminants and the media in which they are present. Nonetheless, the significant reductions that are estimated to be achieved within approximately two years after initiation of the modified remedial action will prevent further degradation of the groundwater and surface waters.

If, at any time within the two years operation of the extraction system, it is deemed that significant reductions have occurred and that the continued operation will not further effectively

treat the remaining contaminant levels, U.S. EPA may seek a technical impracticality (TI) waiver, pursuant to CERCLA or seek an alternate groundwater standard pursuant to State of Illinois Groundwater Standards (35 IAC Part 620). An evaluation of the effectiveness of the extraction system will be made at the end of two years and U.S. EPA, in consultation with FWS and Illinois EPA, will determine the feasibility of operating the system for more than two years duration. The effectiveness of the extraction system will be based on a comparison of the total mass of contaminants removed against time of operation or a comparison of the reduction in contaminant levels against time of operation of the extraction system. The remaining phases of the remedial action namely, phytoremediation and monitored natural attenuation will be implemented regardless of the decisions made with respect to the operation of the extraction system. If the selected remedy is discontinued due to technical impracticality waiver, pursuant to CERCLA or if an alternative groundwater standard is sought pursuant to State of Illinois Groundwater Standards (35IAC Part 620), an institutional control to prohibit use of this aquifer for drinking water purposes will be implemented until such time as the aquifer is restored to its beneficial use.

Schlumberger has estimated the capital cost of the multiple phase extraction system with limited phytoremediation and monitored natural attenuation ranges approximately from $1.5 million to $3.2 million. U.S. EPA believes that this cost is commensurate with the benefits expected from the estimated overall effectiveness of the additional TCE source removal in the vadose zone and upper clay layers of the subsurface soil

3.2 Significant Differences in Remedies

The significant difference between the ROD and the additional work described in the modified remedy is the removal of the residual CVOC source material from the subsurface soil to advance the groundwater remediation goals stated in the original ROD. At the time the ROD was issued the significance of the TCE groundwater contamination, in terms of concentration levels and areal extent, was not known. The National Contingency Plan (NCP), in Section 300.430 (a) (1) (iii) (F), states

> "EPA expects to return usable ground waters to their beneficial uses wherever practicable, within a time frame that is reasonable given the particular circumstances of the site. When restoration of groundwater to beneficial uses is not practicable, EPA expects to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction."

The additional cleanup described in the modified remedy improves remedy permanence by removing a significant portion of the residual source material and treating contaminated groundwater and will support the above NCP requirement.

The modified remedy is designed to comply with all ARARs. If after several years operation of the multi-phase extraction system, however, it appears that the continued operation will not effectively diminish the remaining contaminant levels, then a technical impracticability waiver or alternate groundwater standards may be sought. Institutional Controls to prohibit the installation of drinking water wells in this aquifer will be implemented until the aquifer is restored to its beneficial use.

The Illinois EPA has identified the 35 IAC Part 620, Subpart D: Groundwater Quality Standards for Class I: Potable Resource Groundwater as applicable cleanup standards for contaminated groundwater at the PCB OU. The Illinois standard for TCE of 5 ppb is the same as the Safe Drinking Water Act (SDWA) Maximum Contaminant Level (MCL). Illinois EPA has also indicated 35 IAC Part 302, Subpart B: General Use Water Quality Standards. Specifically 302.208 ("Numeric Standards for Chemical Constituents") and 302.210 ("Other Toxic Substances") are applicable cleanup standards for surface water and groundwater discharging to surface water. Potential action specific standards include 35 IAC Subtitle B, Part 201, Part 304 Subpart A, Part 305, Part 306 Subpart A, Part 309 Subpart A, Part 704, Part 730, and 35 IAC Subtitle G, Waste Disposal (generally this covers the management and disposal of both hazardous and special waste in Illinois).

The components of the modified remedy appear to be implementable, as there are qualified experienced contractors operating similar multiphase extraction systems.

Direct costs associated with the additional work are expected to range from $1.2 million to $3.8 million. The overall cost of the PCB OU cleanup is $43 million. The cost of the additional source removal represents an additional 2.8% to 8.8% cost to the PCB OU cleanup.

3.3 Significant Increase in volume of materials treated during Remedial Action for treating PCB-contaminated soil and sediments

The ROD for the selected remedy estimated quantities and costs for the excavation, removal, treatment, and disposal of PCB-contaminated soil and sediments. These estimates are based on the preliminary remedial objectives established in the August 1989 Feasibility Study Report for the Crab Orchard National Wildlife Refuge. The preliminary remedial objective identified 50 mg/kg as the cleanup level for PCB-contaminated soil and sediments. This objective was, however, revised to incorporate the wildlife protection criteria provided by FWS. The final remedial objective identified the cleanup level for PCB-contaminated soil and sediments as 25 mg/kg and 0.5 mg/kg, respectively. Despite these changes, U.S. EPA did not anticipate a significant increase in volume of materials and did not revise these cost estimates for the selected remedy.

During the pre-design investigation and during the actual remedial activities, however, U.S. EPA realized that there was approximately a 100% increase in volume of materials treated. The

original estimated volume of materials and cost, based on the preliminary remedial objectives, were 32,400 cubic yards and $25,000,000, respectively. The actual volume of materials treated and cost based on the final remedial objectives are 65,412 cubic yards and $43,000,000, respectively. The significant increase in volume is due mainly to the additional excavation needed to remove and treat PCB-contaminated material with levels of PCBs between 25 mg/kg and 50 mg/kg.

The ROD also provided that areas where contamination is below the excavation criteria (i.e., less than 25 mg/kg of PCB-contaminated material) would be closed and covered with clean material. In addition, the Scope of Work for the Remedial Design and Remedial Action for the PCB OU provided that untreated soil and sediments containing less than 25 mg/kg PCBs would be consolidated as backfill in the excavated areas of the four PCB OU study sites. During the remedial activities, FWS requested that such untreated soil and sediments be consolidated and backfilled in one area near the Area 9 landfill rather than leaving them in the various excavation trenches at the four study sites. Schlumberger, at the request of FWS, excavated and consolidated all untreated material (soil and sediments containing less than 25 mg/kg and 0.5 mg/kg, respectively) from the four study sites of the PCB OU and backfilled in the Area 9 repository, the location of which was approved by FWS. The increase in cost can also be attributed to the additional excavation, consolidation, and backfill in the repository of approximately 102,210 cubic yards of untreated material.

4.0 SUPPORT AGENCY COMMENTS

Illinois EPA has indicated a willingness to concur with the modifications made by U.S. EPA to the 1990 PCB OU ROD, as described in this ESD. The Illinois EPA concurrence letter will be added to the Administrative Record upon receipt. In its June 9, 2000 letter, FWS has declined to concur with this ESD. FWS' correspondence dated February 18, March 30, and June 9, 2000 expressing its concerns regarding the selected remedy and U.S. EPA's March 22, May 10, and June 20, 2000 correspondence in response to FWS concerns are made part of the Administrative Record.

5.0 AFFIRMATION OF STATUTORY DETERMINATIONS

Considering the new information that has been developed and the changes that have been made to the selected remedy, the U.S. EPA and Illinois EPA believe this remedy remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the modified remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

6.0 PUBLIC PARTICIPATION ACTIVITIES

The Administrative Record, which includes this ESD, is available for public review and comment at the repository listed in Section 1.0 of this ESD. Please direct written comments to:

Community Involvement Coordinator
Office of Public Affairs (P- 19J)
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, Illinois 60604

7.0 CONCURRENCE

William E. Muno, Director
Superfund Division

6/23/00
Date