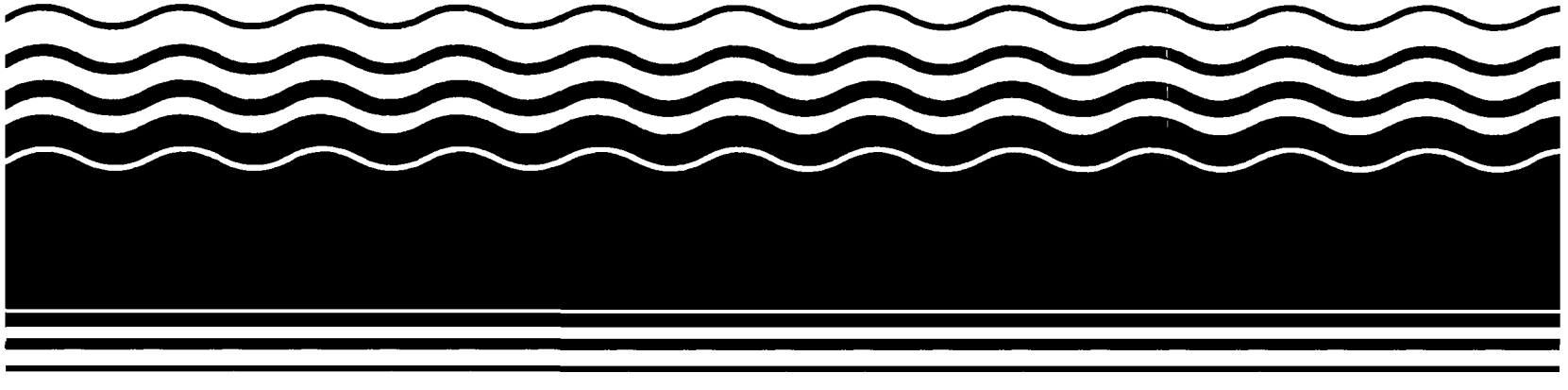
PB98-963146
EPA 541-R98-160
May 1999

EPA Superfund
Explanation of Significant Difference for the Record of Decision:

Vertac, Inc.
Jacksonville, AR
1/12/1998



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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DALLAS, TX 75202-2733

EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE SEPTEMBER 1996 RECORD OF DECISION VERTAC, INC. SUPERFUND SITE OPERABLE UNIT 2 JACKSONVILLE, ARKANSAS

I. STATEMENT OF PURPOSE

This document explains the differences between the selected remedy for the Soils, Foundations, and Underground Utilities, Operable Unit 2 (OU2) identified in the September 1996 Record of Decision (OU2 ROD) for the Vertac, Inc. Superfund Site, Jacksonville, Arkansas (Vertac Site or Site), pursuant to the Comprehensive Environmental Response, Compensation & Liability Act (CERCLA or Superfund), 42 U.S.C. § 9601 et seq., and the final remedy implemented for this Operable Unit. This Explanation of Significant Differences (ESD) documents an alteration to the selected remedy under CERCLA in the ROD for OU2 of the Vertac, Inc. Superfund Site. This significant difference is the additional consolidation of dioxin-contaminated residential soils from the Jacksonville Residential Areas Superfund Site (JRA Site), Jacksonville, Arkansas, in the on-site hazardous waste landfill that was constructed as part of Operable Unit (OU1) for the Vertac Site. The Jacksonville Residential Areas Superfund Site is located approximately 1,000 feet east of the Vertac Site in Jacksonville, Pulaski County, Arkansas, consisting of approximately four residential properties within an estimated radius of three hundred feet from the intersection of McArthur Boulevard and Lee Street.

As a result of an Exposure Investigation (EI) that was finalized on August 11, 1997, and performed jointly by the U.S. Agency for Toxic Substances and Disease Registry (ATSDR) and the Arkansas Department of Health (ARDOH), it was recommended that additional soil samples be taken from a residence where an occupant had been determined to have an elevated dioxin blood level. Soil samples taken by the ARDOH as part of the EI had detected dioxin (tetrachlorodibenzo-p-dioxin or TCDD) above the residential cleanup level of 1 ppb.

Two additional "rounds" of sampling performed by EPA, and one "round" of sampling performed by Hercules under Federal oversight have indicated that the TCDD contamination in the area of the original residence sampled is more widespread than the initial yard sampled. TCDD concentrations in soil sampled from the four residential properties located in Jacksonville, Arkansas, at the location described above and designated as the Jacksonville Residential Areas Superfund Site, exceed the 1 ppb residential action level.

The TCDD concentrations as a percentage of the total dioxin, and other comparisons of the congeners of dioxins and furans, indicate that the soil contamination encountered in the Jacksonville Residential Areas is chemically very similar to the contaminants in the soil at the Vertac Site.

II. INTRODUCTION

The Vertac, Inc. Superfund Site is approximately 193 acres in size, and is located on Marshall Road in Jacksonville, Pulaski County, Arkansas, as shown in Figure 1. Jacksonville is about 15 miles northeast of the State Capital, Little Rock. Approximately 1,000 residents live within one mile of the site with residential areas bordering the entire east and south sides. The west and northern sides of the Site are bounded by an industrial area and the Little Rock Air Force base, respectively.

EPA is the lead agency for the Vertac, Inc. Superfund Site, and the State of Arkansas, through the Arkansas Department of Pollution Control and Ecology (ADPC&E), has been involved in all aspects of Site activities. Hercules, Incorporated (Hercules) has been identified as one of the potentially responsible parties for the Vertac Site, and EPA has authorized Hercules through an Unilateral Administrative Order (UAO) to design and implement the remedy for OU2, as set forth in the 1996 Vertac On-Site OU2 ROD.

This Explanation of Significant Differences (ESD) is prepared in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, 42 U.S.C. § 9617(c), and the National Oil and Hazardous Substances Contingency Plan (NCP), 40 CFR 300.435(c)(2)(i), which provide that, after adoption of a final remedial action plan, if any remedial action is taken and if such action differs in any significant respects from the final plan, EPA shall publish an explanation of the significant differences and the reasons such changes were made.

This ESD was necessitated by the findings of the EI, where dioxin contamination was encountered in residential areas just to the east of the Vertac Site, resulting in the designation of the Jacksonville Residential Areas Superfund Site and the issuance of an EPA Action Memorandum authorizing site cleanup through CERCLA removal action. It has been reported verbally by one resident within the JRA Site that imported backfill was used to "regrade" the shoulder of McArthur Blvd., after an upgrade was performed on a sewer or water supply line. No other records exist to support this theory for the presence of TCDD contamination; however, logic dictates that since this is a "hot spot" of TCDD, which is a common contaminant in the nearby Vertac Site soils, then the contaminated soil may well have been "trucked in" from the Vertac Site, or a Vertac related source in the past.

The JRA Site TCDD soil contamination is extremely similar to the type of contaminant encountered in the soil at the Vertac Site, along with the TCDD concentrations as a percentage of

the total dioxin. Other comparisons of the congeners of dioxins and furans indicate that the soil contamination encountered in the Jacksonville Residential Areas is chemically very similar to the contaminants in the soil at the Vertac Site. Thus, there is a reasonable relationship of the threat, or the potential threat to public health and the environment posed by the TCDD contamination at both of these non-contiguous sites, which are also closely related in their near geographic proximity to each other. Accordingly, it would appear that the most prudent method of handling of the excavated soil from the Jacksonville Residential Areas Site is to be consistent with the handling of the Vertac soil addressed in Operable Unit #2 (OU2). The OU2 contaminated soil at the Vertac Site is being consolidated or "entombed" in the Consolidation/Containment Unit (CCU or Resource Conservation and Recovery Act [RCRA] Subtitle C compliant landfill), which is a hazardous waste landfill (vault) that was constructed as part of OU1 at the Vertac Site.

The mechanism for disposing of, or consolidating, the contaminated soil on the Vertac Site is the Area of Contamination (AOC) which simply states that if contamination is being consolidated within a CERCLA Area of Contamination and is not subject to treatment, then "placement" within the meaning of RCRA, does not occur, therefore the RCRA Land Disposal Restrictions (LDRs) required by 40 C.F.R. 268, do not apply. See 55 Fed. Reg. 8666, at 8758-60. In order to be consistent with the Vertac OU2 determination and given the site relationship factors noted above, for purposes of consolidation, the contaminated soil from the Jacksonville Residential Areas Superfund Site should be considered part of the Vertac Site, and within the AOC. Therefore, this soil could, and properly should, be consolidated within the on-site landfill or CCU at the Vertac Site, which is part of the Vertac Site CERCLA remedial action.

In accordance with the NCP, 40 C.F.R. 300.825(a)(2), this ESD and the supporting information EPA relied upon in preparing the ESD, will become part of the Administrative Record for the Vertac Superfund Site as well as the Jacksonville Residential Areas Superfund Site. The Administrative Record files for the Vertac Superfund Site and for the Jacksonville Residential Areas Superfund Site are available at the following locations:

Jacksonville City Hall
1 Industrial Drive
Jacksonville, Arkansas 72076
(501) 982-3181

Arkansas Department of Pollution
Control & Ecology
8001 National Drive
Little Rock, Arkansas 72209
(501) 570-2186

U.S. Environmental Protection Agency
Region 6
12th Floor Library
1445 Ross Avenue
Dallas, Texas 75202-2733
1-800-533-3508

III. SITE HISTORY AND ORIGINALLY SELECTED REMEDIES

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Site History

The first facilities on the Site (see Figure 1 for Site location) were constructed by the U.S. Government in the 1930's and 1940's. These facilities were part of a munitions complex that extended beyond the present Site boundaries. Little is known about the operations that occurred during that time period. In 1948, the Reasor-Hill Company purchased the property and converted the operations to manufacture insecticides such as DDT, aldrin, dieldrin, and toxaphene. During the 1950's, Reasor-Hill manufactured herbicides such as 2,4-dichlorophenoxyacetic acid (2,4-D), 2,4,5-trichlorophenoxyacetic acid (2,4,5,-T), and 2,4,5-trichlorophenoxypropionic acid (2,4,5,-TP), which is also called Silvex. Drums of organic material were stacked in an open field immediately southwest of the production area, and untreated process water was discharged from the western end of the plant to Rocky Branch Creek.

Hercules Powder Company, now known as Hercules, Inc. (Hercules), purchased the Reasor-Hill property and plant in 1961 and continued to manufacture and formulate herbicides. The drums that were in the open area southwest of the central process area were buried in what is now referred to as the Reasor-Hill Landfill. From 1964 to 1968, Hercules produced the herbicide Agent Orange, a mixture of equal parts of 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) and 2,4-dichlorophenoxyacetic acid (2,4-D). Hercules discontinued operations at the Site in 1971.

From 1971 to 1976, Hercules leased the plant site to Transvaal, Inc. (Transvaal), a predecessor company of Vertac. Transvaal resumed production of 2,4-D and intermittently produced 2,4,5-T. Organic wastes from these manufacturing processes were stored and then buried by Hercules on the Site in what is now referred to as the North Landfill area. Transvaal purchased the property and plant from Hercules in 1976. In 1978, Transvaal underwent a Chapter XI bankruptcy reorganization and ownership of the Site was transferred to the new company, Vertac Chemical Corporation, which is the present owner.

In 1979, ADPC&E issued an order that required Vertac to improve its hazardous waste practices, and in 1980 EPA and ADPC&E jointly filed suit in federal district court against Vertac and Hercules. A Consent Decree entered into by EPA, ADPC&E, Vertac, and Hercules in January 1982 required that an independent consultant assess the conditions of onsite wastes and develop a proposed disposal method for the wastes. The proposal, called the "Vertac Remedy",

was deemed by EPA to be unsatisfactory. The Court decided in favor of the proposed remedy, which was implemented in the summer of 1984 and completed in July 1986. As part of the remedy, the Vertac plant cooling water pond was closed, and sediment from this unit was removed and placed in an above-ground vault. The Reasor-Hill and Hercules/Transvaal Landfills were capped, and a French drain and leachate collection system were installed around the burial (landfill) areas. Ground water monitoring wells were also installed, and a ground water monitoring program was initiated.

Vertac operated the plant until 1986. On January 31, 1987, Vertac abandoned the Site and declared bankruptcy, leaving approximately 29,000 drums of 2,4-D (D-waste) and 2,4,5-T wastes (T-waste). Many of these drums were corroded and leaking. At that time, EPA initiated an emergency removal action to stabilize and secure the Site.

In 1988, ADPC&E contracted for the incineration of the drummed waste, using a $10.7 million combined trust fund and letter of credit obtained from Vertac during bankruptcy litigation. A contract for the incineration of the drummed waste was signed in 1989 between ADPC&E and Vertac Site Contractors (VSC). VSC is a joint venture of MRK Incineration and Morrison-Knudsen Environmental Services. In January 1992, ADPC&E approved the VSC trial burn and production incineration began. Because of the difficulty in handling the Vertac drummed waste material, incineration operations took longer than originally anticipated. In May 1993, the trust fund money had been expended with approximately 50 percent of the waste destroyed under the State's contract. In June 1993, EPA took over the incineration operation and completed the incineration of the D-waste drums in September 1994. EPA contracted for the off-site incineration of the remaining 3,100 drums of T-waste. Shipments of T-waste to the APTUS commercial hazardous waste incineration facility, located in Coffeyville, Kansas, concluded on March 29, 1996.

On July 16, 1996, the Regional Administrator for EPA Region 6 executed a Non-Time Critical Removal Action Memorandum that concluded the on-site incinerator support activities associated with the on-site D-waste incineration, which had concluded on January 2, 1994. That Action Memorandum authorized the off-site disposal of 33,000 drums of salts (and the associated pallets) that were generated during the on-site incineration of D-wastes, and it authorized the on-site consolidation within the RCRA Subtitle C hazardous waste landfill of both 10,000 shredded pallets used to store drummed waste materials and of 6,300 drums of incinerator ash (and their associated pallets). In that Action Memorandum, the Regional Administrator also granted a variance from the RCRA LDR treatment standard applicable to dioxin-containing wastes found at 40 CFR 268.31. Specifically, the Regional Administrator approved a treatability variance for the disposal of dioxin-contaminated wastes within the on-site RCRA Subtitle C landfill of 5 ppb from the LDR standard of 1 ppb pursuant to the procedures set out at 40 CFR 268.44. Therefore, should the LDR dioxin treatment standard be applicable to on-site disposal within the on-site RCRA Subtitle C hazardous waste landfill, when and if placement within the unit occurs, the treatment standard is 5 ppb. See July 18, 1996, Non-Time Critical Action Memorandum in Administrative Record for more details.

Currently, there are no manufacturing operations at the Site. At the time operations were shut down, Vertac "mothballed" the plant. Mothballing involved flushing process lines and draining several of the process vessels. Continuing activities at the Site include operation of an on-site wastewater treatment plant by Hercules, Inc. The treatment plant processes ground water collected in French drains constructed downgradient (south and west) of the old waste burial areas, and surface water runoff collected in a series of drainage ditches and sumps that surround the central process area. This treated water was originally piped to the West Wastewater Treatment Plant owned and operated by the city of Jacksonville and was discharged into Bayou Meto. As part of ongoing remedial activities at the Site, Hercules has recently completed the cleaning and regrouting of certain sections of the sewer lines that run through the Site to the West Wastewater Treatment Plant, and as such, water that was discharged to the sewer interceptor on the Site is now treated and discharged directly into Rocky Branch Creek (after meeting discharge limits established by ADPC&E).

The Vertac Site was added to the National Priorities List (NPL) of hazardous waste sites in 1981. Once the Site was placed on the NPL, money available from the EPA Hazardous Substances Superfund established under Subchapter A, Chapter 98, Title 26, U.S. Code, and authorized by section 111 of CERCLA, 42 U.S.C. § 9611, could be used to fund remedial action with the meaning of sections 101(24), and 104(a) of CERCLA, 42 U.S.C. §§ 9601(24) and 9604(a), consistent with permanent remedy taken instead of or in addition to removal actions, to prevent or minimize the releases of hazardous substances from the Vertac Site.

Selected Remedy

A summary of the selected remedy for OU2 is presented below. This information is provided from the OU2 ROD, dated September 1996. About 90% of this work has been accomplished by Hercules at the time of the preparation of this ESD.

1) **On-Site Surface Soils**

All soils on-site with dioxin concentrations at or above the action level of 5 ppb will be excavated and disposed of in the on-site landfill. The OU2 on-site soils area includes the area around the existing Regina Paint Building, which is targeted for demolition under the OU1 ROD. Sampling results indicate that some excavation will be necessary in the areas around the Regina Paint Building. Following remediation, the entire northern parcel of the Site will be available for redevelopment.

All excavated Site areas will be backfilled with clean soil, compacted and revegetated. Some surface drainage modifications may be used to control runon and runoff, thereby minimizing the potential for erosion, and to facilitate positive drainage to eliminate the possibility for ponding water.

During remedial action for this remedy, there is a possibility of dust being created which could suspend dioxin contamination. As part of the remedial action, continuous air monitoring will be conducted and dust suppression measures will be implemented to ensure that no airborne contaminants migrate off-site to a receptor point. Therefore, no site-related contaminants will be allowed to pose a threat to nearby citizens or a casual passerby.

EPA will work with the Vertac Receiver and City of Jacksonville to impose deed restrictions and notifications, or to enact specific land use restrictions to limit the future use of the property as appropriate for the long term remediation efforts. Finally, upon completion of the remedy for OU2, long term operations and maintenance measures will be instituted to ensure, in part, that the integrity of the RCRA Subtitle C hazardous waste landfill will be maintained.

Another element of this portion of the remedy is a "phased fencing" approach for the southern parcel. Once initial remediation is complete, the smallest possible area of the Site will be fenced. A continuous effort will be made to provide the maximum amount of property possible for potential commercial redevelopment, as long term remediation efforts allow the restricted area to be reduced.

2) Crystalline Tetrachlorobenzene (TCB) and Soils associated with the TCB spill

This component of the remedy calls for the excavation and off-site incineration of the crystalline TCB and TCB-associated spill soils where the TCB concentrations exceed a 500 ppm health-based action level. Excavated areas will be backfilled with clean fill, graded and revegetated to prevent future contact with the remaining soils that fell below the 500 ppm TCB action level. It has been estimated in the RI that there are approximately 1,400 cubic yards (2,100 tons) of crystalline TCB and associated soils for costing purposes. The actual volume of material will be determined during the remedial action.

3) Bagged Soils from Residential Areas Excavated by Hercules, Inc., During a 1990 Removal Action

This component of the remedy calls for the consolidation of approximately 2,770 cubic yards (4,155 tons) of dioxin-contaminated soils removed from residential yards in 1990 into the on-site RCRA-compliant CCU. The Agency's 1993 ROD had deferred treating these contaminated low level threat soils and debris until all Site soils were to be addressed. Due to the similarity of the on-Site soils addressed in this ROD and the bagged soils from residential areas, EPA has determined that it is appropriate to treat all low level threat media in a manner consistent with the approach selected for the on-site soils in this ROD, that is, on-site consolidation in the RCRA Subtitle C Landfill. Dioxin concentrations in the bagged soils range between 13 ppb and 55 ppb TCDD, which is consistent with the dioxin concentrations found in the soil and debris principally addressed in the OU2 ROD.

4) **Off-Site Soils from the Residential Portions of Bayou Meto and Rocky Branch Creek Flood Plain Areas from the 1990 Off-Site Areas ROD**

This component of the remedy calls for the excavation of 1 ppb or greater (approximately 4,100 cubic yards or 6,150 tons) dioxin-contaminated soils from along Rocky Branch Creek and Bayou Meto and consolidation of this material into the on-site RCRA compliant CCU that was constructed as part of the remedial action phase of the 1993 OU1 ROD. These contaminated soils and debris constitute low level threat media and had originally been addressed in the 1990 ROD for Vertac Off-Site Areas, which had required that they be incinerated in the now-dismantled on-site incinerator. Due to the similarity to the on-site soils addressed in the OU2 ROD, EPA has determined that it is appropriate to treat all low level threat media in a manner consistent with the approach selected for the on-site soils in the OU2 ROD, that is, on-site consolidation in the RCRA Subtitle C compliant landfill.

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5) **Dewatered Sludges from the Old Sewage Treatment Plant Sludge Digester and Sediments from the Interceptor line from the 1990 Off-Site Areas ROD**

This component of the remedy calls for the consolidation of approximately 890 cubic yards (1,200 tons) of digester sludge from the Old Sewage Treatment Plant into the on-site RCRA compliant CCU. Also, about 2 cubic yards of contaminated sediment from the interceptor lines will be disposed in the CCU. The dioxin concentrations found in the sewage treatment plant digester are consistent with those being landfilled from on-site areas. As discussed earlier, these contaminated soils and debris had originally been addressed in the 1990 ROD for Vertac Off-Site Areas, which had proposed that they be incinerated in the now-dismantled on-site incinerator. Due to the similarity to the on-site soils addressed in this ROD, EPA has determined that it is appropriate to treat all low level threat media in a manner consistent with the approach selected for the on-site soils in this ROD, that is, on-site consolidation in the RCRA, Subtitle C compliant landfill.

IV. DESCRIPTION OF AND BASIS FOR THE SIGNIFICANT DIFFERENCE

The OU2 ROD selected on-site consolidation of all contaminated soil in the on-site Consolidation/Containment Unit, which is a RCRA Subtitle C compliant landfill. The only change that this ESD documents is the additional consolidation on the Vertac Site of dioxin contaminated soil (the substantially identical material to that which is being disposed or consolidated under Vertac Site remedial action pursuant to OU2) from the Jacksonville Residential Areas Superfund Site. Through this ESD, the EPA has determined that their is a reasonable relationship between the threat or potential threat to public health and the environment presented by the dioxin contaminated soils from the JRA Site and the Vertac Site, due to the similarity of their hazardous substance contaminant TCDD. Additionally, there is close geographical proximity between the two sites in that their distance apart is approximately 1000

feet. Accordingly, the EPA will treat the two sites as one for purposes of consolidation of the TCDD bearing contaminated soils. In connection with that determination, the Agency believes that the Area Of Contamination (AOC), which is continuous and encompasses the entirety of the Vertac Site, should include the JRA Site. In fact, as noted earlier herein, EPA believes that the TCDD contaminated material found at the JRA Site may well have originated from the Vertac Site in the form of excavated fill material mistakenly used as backfill in the residential area. The authority for this determination by EPA is found in section 104(d)(4) of CERCLA, 42 U.S.C. § 9604(d)(4). A discussion of the reasoning for consolidating the TCDD contaminated soil in the on-site unit is provided below:

Consolidation

As long as contaminated material remains within a CERCLA Area of Contamination, EPA generally does not consider placement to have occurred, according to the NCP. See 55 Fed. Reg. 8666, 8758-60 (March 8, 1990). The Agency also embraced that principle in the RCRA corrective action regulations, such as the Corrective Action Management Unit (CAMU) Rule , 58 Fed. Reg. 8658 (Feb. 16, 1993). The CAMU rule, in addition to waste consolidation, may also permit movement of RCRA remediation waste associated with corrective action from outside an AOC into a CAMU for on-site handling or treatment and disposal, without triggering placement and the associated LDR treatment and disposal requirements.

For LDR's to be applicable requirements, EPA must here first determine whether consolidation activities considered or contemplated at the Vertac Site constitute "placement." To assist in defining when placement does and does not occur for CERCLA actions involving on-site handling of wastes, EPA uses the concept of AOC's, which may be viewed as equivalent to RCRA units, for the purposes of LDR applicability determinations. An AOC is delineated by the areal extent of contiguous contamination. Such contamination must be continuous, but may contain varying types and concentrations of hazardous substances. Depending upon Site characteristics, one or more AOC's may be delineated.

Placement does not occur when wastes are consolidated within a land-based unit, when they are treated *in situ*, when they are left in place, or when they are moved within an AOC. See 55 Fed. Reg. 8666, 8758-8760 (March 8, 1990), and "Determining When Land Disposal Restrictions (LDR's) Are Applicable to CERCLA Response Actions," OSWER Directive 9347.3-05FS (July 1989). Also see 61 FR 18804-18805 (April 29, 1996). Specifically, placement does not occur when the wastes are consolidated within the AOC.

EPA considers the entire landmass of the Vertac Site to be contaminated due to the fact that TCDD levels in the soils found on-site and on contiguous contaminated off-site areas exceed the background TCDD level found in Jacksonville of 0.3 ppb or less. Therefore, all consolidation actions contemplated in the removal action for the JRA site that will apply to excavated on-site soils and debris, or to soils and debris removed from areas contiguous to the Site, are within the

AOC for purposes of determining the applicability of LDR's due to the fact that TCDD concentrations within the AOC and contiguous contaminated areas exceed background TCDD concentrations by substantial orders of magnitude. Thus, during the on-site consolidation activities, materials will be consolidated within the AOC, and therefore, the land disposal restrictions are not applicable.

However, if the materials are treated on-site within the AOC in a manner that would constitute "treatment" as that term is defined at RCRA Section 1004(34), 42 U.S.C. § 6903(34), and then redeposited within the AOC such as in the consolidation unit, then placement has occurred and the land disposal restrictions apply, unless a treatability variance under 40 CFR 268.44 is obtained, or unless the ARAR is waived under CERCLA Section 121(d)(4)(A), 42 U.S.C. § 9621(d)(4)(A), and NCP Section 300.430(f)(1)(ii)(C)(1), 40 CFR 300.430(f)(1)(ii)(C)(1).

On July 18, 1996, the EPA Region 6 executed an Amended Non-Time Critical Action Memorandum that, among other things, granted a treatability variance pursuant to 40 CFR 268.44, of the 1 ppb LDR treatment standard for dioxin-contaminated wastes set out at 40 CFR 268.31, to allow the on-site disposal of treatability residues from the on-site incineration of TCDD-contaminated Vertac wastes. That treatability variance allows the on-site disposal of Vertac Site-related dioxin-contaminated materials, such as some of the incinerator ash and possibly some shredded pallets and incinerator salt residuals, that exceed the 1 ppb LDR treatment standard but that fall below the 5 ppb alternative treatment standard selected in the treatability variance section of the Action Memorandum.

Therefore, should placement occur with respect to Vertac TCDD wastes within the AOC, the treated materials cannot exceed the 5 ppb TCDD alternate LDR treatment standard selected in the July 18, 1996, Action Memorandum. In addition, EPA has established LDR treatment standards for most of the hazardous wastes associated with the Vertac Site, but, as discussed above, they will not be applicable where consolidation within the AOC occurs, since placement will not have occurred.

For the reasons set out above, the consolidation of the soils addressed in the Jacksonville Residential Areas Superfund Site Action Memorandum does not constitute placement for purposes of invoking LDRs as an ARAR. However, as discussed in the RODs for Vertac OU1 and OU2, the design, construction and operation of the on-site RCRA Subtitle C compliant landfill will substantively comply with ARARs as identified in those RODs with respect to the construction. This ESD supports, and explains significant differences in, the selected remedy in the September 1996 ROD for OU2, which was chosen in accordance with CERCLA, 42 U.S.C. § 9601, et seq., and to the extent practicable, the National Contingency Plan (NCP), 40 CFR Part 300. This decision is also based upon the contents of the administrative record file for the Vertac Site.

EPA and the State of Arkansas have determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost effective manner for the Vertac Superfund Site Operable Unit 2.

V. PUBLIC PARTICIPATION ACTIVITIES

A community relations plan for the Vertac Site was put in place in 1983. This plan listed contacts and interested parties within the federal, state, and local governments, various organized affiliations, and local citizens. It also established communication pathways to ensure timely dissemination of pertinent information about Site activities. Extensive community outreach has been performed in Jacksonville over the years through the release of information fact sheets, by conducting frequent open houses and work shops, and through numerous meetings with local civic groups and media representatives (newspapers, radio and TV). Reports updating activities at the Site are also distributed to the Mayor, interested civic groups, and the local media on a weekly basis. A satellite community relations office was established in Jacksonville in July 1990 to provide easy access to documents and information, and to provide a local contact for questions and concerns.

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A Technical Assistance Grant (TAG) was awarded by EPA in 1989 to a citizens group called Jacksonville People With Pride Clean Up Coalition (JPWPCUC). This grant award was challenged by citizen groups that had competed for the grant. Following investigation by EPA, the grant was annulled because of a possible conflict of interest in December 1991. A TAG grant was awarded to the Concerned Citizens Coalition (CCC) in April 1993, after considerable effort by EPA to facilitate consolidation of four competing citizen groups. CCC selected the Environmental Compliance Organization (ECO) as its technical advisor and has actively reviewed Site documents for the community.

In February 1995, EPA released the draft feasibility study (FS) for Operable Unit 2, and several meetings were held in Jacksonville with local citizens groups and the press to discuss the various options being considered. The Operable Unit 2 FS was finalized in April 1995, and was made available to the public at five local repositories (Jacksonville City Hall, Public Library, Police Courts Building, Air Force Base Library, and ADPC&E). The official Administrative Record for this Operable Unit is maintained at EPA in Dallas, the Jacksonville City Hall, and the Arkansas Department of Pollution Control and Ecology in Little Rock.

In the feasibility study, EPA assumed that the future land use for the Site, based on past land use and existing zoning ordinances, would be commercial/industrial. This reasonably anticipated future use for this Site is consistent with EPA's directive "Land Use in the CERCLA Remedy Selection Process," OSWER Directive No. 9355.7-04, May 25, 1995.

On May 25, 1995, EPA held an informal open house in Jacksonville to discuss EPA's proposed plan of action for contaminated soils at the Vertac Site. The meeting was well attended

by Jacksonville citizens, members of the city government, State Health Department representatives, numerous local civic groups, and the technical advisor for the TAG grant. At that time, the proposed plan was released to the public for review and comment. Several weeks prior to the informal open house, the EPA project manager met with the local press to discuss the major elements of EPA's proposed plan which received coverage in both local papers and the State paper. At this open house, EPA discussed with the community the anticipated future land use scenario for the Site, which formed the basis for EPA's risk assumption. That risk assumption presupposed that the future usage of the Site would remain consistent with both past land use and current zoning for the Site area, which is commercial/industrial. Therefore, the EPA derived the Site's cleanup level of 5 parts per billion (ppb) toxicity equivalents (TEQ) for dioxin due to the fact that a commercial/industrial human exposure scenario assumes that a worker would be exposed to post-cleanup dioxin levels over a 40-hour-per-week period. This worker exposure scenario additionally is protective of a trespasser or a passerby, both of whose exposure period would be less than that of a Site worker.

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On June 15, 1995, EPA held a formal public meeting in Jacksonville at the community civic center to discuss EPA's proposed cleanup scenario for dioxin-contaminated soils at the Vertac Site. At that meeting EPA attempted to address all comments or questions raised concerning the proposed cleanup and formally accepted all public comments. Over 100 citizens attended the meeting, including members from the Jacksonville Chamber of Commerce, Jacksonville City Council, the Mayor, representatives from ADPC&E, and the State Health Department. The comment period for the proposal ran from May 26 through August 11, 1995, after EPA granted two extensions of time. All comments received by EPA prior to the end of the public comment period, including those expressed verbally at the public meeting, are addressed in the Responsiveness Summary section of this Record of Decision. Thus, the requirements of CERCLA Sections 113(k)(2)(B)(i-v) and 117, 42 U.S.C. §§ 9613(k)(2)(B)(i-v) and 9617, were met during the remedy selection process. During both the May open house and the June public meeting, the community indicated its approval and acceptance of EPA's reasonably anticipated land use for the Site and the risk assumptions based on that anticipated future land use.

EPA's original proposal for remediation of soils, foundations and underground utilities at Vertac was presented to the community at an informal open house held in Jacksonville on May 25, 1995. At that time EPA's preferred alternative called for the off-site incineration of dioxin-contaminated hot spots and on-site landfilling of dioxin contaminated soils that exceeded a site-specific commercial/industrial exposure level. Under this scenario approximately two-thirds of the Site would have potentially been available for future commercial reuse.

Following the release of the original Proposed Plan for OU2 in May 1995 and the subsequent community meetings, EPA Administrator Carol M. Browner issued a series of administrative reforms for the Superfund Program on October 3, 1995. One purpose of the reforms was to control remedy costs and to promote cost effectiveness, and the reforms directed EPA to base Site cleanup decisions on practical future land usage and reasonable contaminant exposure scenarios.

As a result of those reform measures, EPA Region 6 revised the proposed plan of action for OU2. The Supplemental Proposed Plan was issued on February 26, 1996, and presented to the public at an Open House on March 5, 1996. The Supplemental Proposed Plan for OU2 eliminated the off-site incineration component of the original proposed plan and included capping in-place soils having dioxin contamination between 5 to 50 ppb. It also proposed on-site landfilling of soil contaminated with dioxin in excess of 50 ppb. The Jacksonville community objected strongly to the Supplemental Proposed Plan.

After the March 5, 1996, Open House, EPA representatives conducted numerous meetings with several community groups to listen to the concerns of the local residents. Following the March 5, 1996, release of EPA's Supplemental Proposed Plan for OU2, EPA held another comment period to accept formal public comment on the supplemental plan. The response to these comments is contained separately from the original responsiveness summary in the "Supplemental Responsiveness Summary," which is included as Attachment B to this document. Subsequently, EPA conducted another open house on July 30, 1996, to present to the public the remedial elements it had reconsidered and currently held under consideration at the time. In general, EPA has responded to community concerns and has reevaluated the OU2 FS and the two proposed plans, and the elements discussed during the July 30, 1996, Open House are now contained in this ROD.

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VI. STATE COMMENTS

The State of Arkansas concurs with this ESD.

VII. STATUTORY DETERMINATION

In accordance with subsection 104(d)(4) of CERCLA, 42 U.S.C. § 9604(d)(4), the EPA finds that these two non-contiguous facilities, the Vertac Superfund Site and the Jacksonville Residential Areas Superfund Site, are reasonably related on the basis of geography and on the basis of the threat, or potential threat, to the public health or welfare or the environment, and that these two facilities shall be treated as one for consolidation of the JRA Site contaminated soils within their common AOC in the Vertac Site RCRA Subtitle C compliant landfill, pursuant to section 104 of CERCLA, 42 U.S.C. § 9604.

Considering the new information developed during the EI performed by ATSDR and the ARDOH, and subsequent information obtained by EPA and Hercules, and the changes that have been made to the selected remedy for OU2, the EPA believes that the Vertac OU2 remedy remains protective of human health and the environment, complies with Federal and state requirements that were identified as applicable or relevant and appropriate to this component of

the remedial action at the time this ESD was signed, and is cost effective. In addition, the revised remedy continues to utilize permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.

Jerry Clifford
Acting Regional Administrator

January 12, 1998
Date

000049

000052

ADMINISTRATIVE RECORD INDEX

SITE NAME: VERTAC, INC. OPERABLE UNIT 2

SITE NUMBER: ARD000023440

INDEX DATE: 03/06/98

ADMINISTRATIVE RECORD INDEX

SITE NAME: VERTAC, INC. OPERABLE UNIT 2
SITE NUMBER: ARD000023440

000054

DOCUMENT NUMBER: 000013 - 000013
DOCUMENT DATE: 02/29/96
NUMBER OF PAGES: 001
AUTHOR: Unspecified
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Notice
DOCUMENT TITLE: "EPA to Release Supplemental Proposed Plan for Operable Unit 2 Media (Soils)" (Notice published in the Jacksonville Patriot.)

DOCUMENT NUMBER: 000014 - 000014
DOCUMENT DATE: 03/21/96
NUMBER OF PAGES: 001
AUTHOR: John Loyd, Real Estate Broker
COMPANY/AGENCY: Bart Grey Realty Company, Inc.
RECIPIENT: Wren Stenger, U.S. EPA Region 6
DOCUMENT TYPE: Public Comment
DOCUMENT TITLE: Comment about proposed plan

DOCUMENT NUMBER: 000015 - 000015
DOCUMENT DATE: 03/22/96
NUMBER OF PAGES: 001
AUTHOR: Emma Knight, Owner-Principal Broker
COMPANY/AGENCY: Coldwell Banker Quality Real Estate Services, Inc.
RECIPIENT: Donn Walters, Community Involvement Coordinator, U.S. EPA Region 6
DOCUMENT TYPE: Public Comment
DOCUMENT TITLE: Comment about proposed plan

DOCUMENT NUMBER: 000016 - 000017
DOCUMENT DATE: 03/25/96
NUMBER OF PAGES: 002
AUTHOR: Marshall Steinberg, Vice President, Health & Environment
COMPANY/AGENCY: Hercules, Incorporated
RECIPIENT: Jane N. Saginaw, Regional Administrator, U.S. EPA Region 6
DOCUMENT TYPE: Letter w/Memorandum
DOCUMENT TITLE: Supplemental proposed plan

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AUTHOR: Roberta A. Quinn
COMPANY/AGENCY: Resident of Jacksonville, Arkansas
RECIPIENT: Donn Walters, Community Involvement Coordinator, U.S. EPA Region 6
DOCUMENT TYPE: Public Comment
DOCUMENT TITLE: Comment about proposed plan

000055

DOCUMENT NUMBER: 000019 - 000019
DOCUMENT DATE: 04/01/96
NUMBER OF PAGES: 001
AUTHOR: Ms. J.G. Wright
COMPANY/AGENCY: Resident of Jacksonville, Arkansas
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Public Comment
DOCUMENT TITLE: Comment about proposed plan

DOCUMENT NUMBER: 000020 - 000020
DOCUMENT DATE: 04/04/96
NUMBER OF PAGES: 001
AUTHOR: John Loyd, Real Estate Broker
COMPANY/AGENCY: Bary Gray Realty Company, Inc.
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Public Comment
DOCUMENT TITLE: Comment about proposed plan

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DOCUMENT DATE: 08/11/97
NUMBER OF PAGES: 015
AUTHOR: Unspecified
COMPANY/AGENCY: Agency for Toxic Substances and Disease Registry
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Health Assessment
DOCUMENT TITLE: Exposure Investigation

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DOCUMENT NUMBER: 000036 - 000049
DOCUMENT DATE: 01/12/98
NUMBER OF PAGES: 014
AUTHOR: Jerry Clifford, Acting Regional Administrator
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Explanation of Significant Differences (ESD)
DOCUMENT TITLE: ESD to the September 1996 Record of Decision

000056

DOCUMENT NUMBER: 000050 - 000050
DOCUMENT DATE: 03/01/98
NUMBER OF PAGES: 001
AUTHOR: Unspecified
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Notice
DOCUMENT TITLE: "EPA Announces an ESD in the Remedy for the Vertac Superfund Site, Jacksonville, Arkansas" (Notice published in the North Pulaski Leader.)

DOCUMENT NUMBER: 000051 - 000051
DOCUMENT DATE: 03/02/98
NUMBER OF PAGES: 001
AUTHOR: Unspecified
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Notice
DOCUMENT TITLE: "EPA Announces an ESD in the Remedy for the Vertac Superfund Site, Jacksonville, Arkansas" (Notice published in the Jacksonville Patriot.)

DOCUMENT NUMBER: 000052 - 000057
DOCUMENT DATE: 03/06/98
NUMBER OF PAGES: 005
AUTHOR: TechLaw, Incorporated
COMPANY/AGENCY: Contractor for U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Index
DOCUMENT TITLE: "Addendum and Supplement for the Operable Unit 2 Administrative Record"

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Prepared for

United States Environmental Protection Agency

Region 6

Administrative Record Index Addendum and Supplement for

Vertac, Inc. Superfund Site (Operable Unit 2) EPA ID No. 000023440

ESS VI
Work Assignment No. ESS8033

Philip Allen
Remedial Project Manager
U.S. EPA Region 6

Prepared by

TechLaw, Incorporated
750 N St. Paul Street
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P. 6833.0604
March 6, 1998

ADMINISTRATIVE RECORD INDEX

SITE NAME: VERTAC, INC. OPERABLE UNIT 2
SITE NUMBER: ARD000023440

DOCUMENT NUMBER: 000001 - 000009
DOCUMENT DATE: 07/24/95
NUMBER OF PAGES: 009
AUTHOR: Douglas J. Keilman, Technical Director, Health & Environment
COMPANY/AGENCY: Hercules, Incorporated
RECIPIENT: Donn Walters, Community Involvement Coordinator, U.S. EPA Region 6
DOCUMENT TYPE: Public Comment w/Enclosure
DOCUMENT TITLE: Comments on proposed plan of action for Operable Unit 2

DOCUMENT NUMBER: 000010 - 000010
DOCUMENT DATE: 02/27/96
NUMBER OF PAGES: 001
AUTHOR: Unspecified
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Notice
DOCUMENT TITLE: "EPA to Release Supplemental Proposed Plan for Operable Unit 2 Media (Soils)" (Notice published in the Jacksonville Patriot.)

DOCUMENT NUMBER: 000011 - 000011
DOCUMENT DATE: 02/28/96
NUMBER OF PAGES: 001
AUTHOR: Unspecified
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Notice
DOCUMENT TITLE: "EPA to Release Supplemental Proposed Plan for Operable Unit 2 Media (Soils)" (Notice published in the Arkansas Democrat Gazette.)

DOCUMENT NUMBER: 000012 - 000012
DOCUMENT DATE: 02/29/96
NUMBER OF PAGES: 001
AUTHOR: Unspecified
COMPANY/AGENCY: U.S. EPA Region 6
RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Notice
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RECIPIENT: U.S. EPA Region 6 Superfund Site Files
DOCUMENT TYPE: Index
DOCUMENT TITLE: "Addendum and Supplement for the Operable Unit 2 Administrative Record"

CHERCULES

Hercules Incorporated
Hercules Plaza
1313 North Market Street
Wilmington, DE 19894-0001
(302) 594-5000

July 24, 1995

Via FAX: 214-665-6460
No. of Pages: 6
Hard Copy to Follow by Federal Express (Next-Day Delivery)

000001

Mr. Donald Walters
Community Involvement Coordinator (6H-MC)
U.S. EPA Region VI
1445 Ross Avenue
Dallas, TX 75202-2733

Dear Mr. Walters:

Subject: Comments on the Proposed Plan of Action for Operable Unit II of the Vertac Superfund Site

The following comments by Hercules Incorporated are submitted in response to the Proposed Plan of Action , hereafter referred to as the Plan, issued by the U.S. EPA for Operable Unit II of the Vertac Superfund Site in Jacksonville, Arkansas, hereafter referred to as the Site. The comments are based on knowledge gained by Hercules and its consultants and contractors while working with the EPA and the Arkansas Department of Pollution Control & Ecology (ADPC&E) on site-related activities, including the Remedial Investigation/Feasibility Study for Operable Unit II.

Site Surface Soil Cleanup Criteria for Dioxin

The Plan acknowledges that the Site will consist of two areas in the future. One area will include those portions of the Site that will be involved in long-term remedial operations and maintenance; e.g., the existing capped waste burial areas; the closed cooling pond and wastewater equalization basin areas; the leachate collection and treatment systems; the new landfill and future groundwater recovery and monitoring wells (see Attachment 1). That area, referred to hereafter as the "Containment Area," is, and will be, surrounded by a security fence and a buffer zone. Attachment 2 shows the approximate location of the existing fence. The eastern boundary of the Containment Area should be specified so the bagged soil storage building, which may be used to house the wastewater treatment system in the future, will be included in the Containment Area. The Vertac Site Receiver has agreed to place a restriction in the property deed for that portion of the Site to prevent disturbing it as long as hazardous substances are present. The second area, which is referred to hereafter as the "Developable Area," includes the rest of the Vertac Chemical Corporation property (approximately 115 acres). As stated in the Plan, and as voiced by many in the community at the June 15, 1995, public meeting on the Plan, the Developable Area of the Site should be remediated to allow for continued use for commercial/industrial purposes without

restrictions. Although the Plan acknowledges the existence of the two areas, it fails to recognize unique area-specific conditions when proposing surface soil cleanup criteria; i.e., the Plan provides for a 5 ppb dioxin (TEV) cleanup criterion for surface soil for both the Containment and Developable areas of the Site.

Hercules recognizes that the Site must be remediated and has already spent tens of millions of dollars in that effort. In fact, Hercules is the only Potentially Responsible Party to either enter Consent Agreements or to comply with Administrative Orders to study or remediate portions of the Site. It is Hercules' position that when remediation is complete, all potential threats to the health of the community and the environment must be eliminated. The 5 ppb dioxin surface soil cleanup criterion, however, is unnecessarily stringent and inconsistent with a past dioxin cleanup requirement of 20 ppb used at another commercial/industrial site in Arkansas, e.g., the site in Arkwood, Arkansas, and at other sites. Despite the fact that a 5 ppb dioxin surface soil cleanup criterion is unnecessarily stringent, Hercules is aware that a not-to-exceed (NTE) surface soil concentration of 20 ppb, shown to be protective of human health by risk analysis, may not be acceptable to the public. The Jacksonville public's perception of the risk from dioxin has been significantly influenced by EPA's other actions in the area. For this reason, Hercules is willing to support EPA's proposed 5 ppb cleanup criterion for the Developable Area. However, the surface soil cleanup criterion for the Containment Area should be based on area-specific factors. Hercules believes that although the EPA has made an effort to estimate risks on the Site, the effort failed to properly consider unique area-specific conditions which do and will continue to exist within the Containment Area and, therefore, provide the basis for a higher surface soil cleanup criterion that protects worker health and safety and is consistent with reasonable future land use.

The Plan states that dermal contact with contaminated surface soil is the major potential concern for future site workers. The Plan also states that future workers within the Containment Area should not be required to wear "chemical protective equipment in order to conduct their daily activities." Hercules believes that normal work clothing consisting of long-sleeved shirts and pants will be adequate protection for future workers. Risk assessments made by Hercules consultant, ENVIRON Corporation[1], were based on the assumed use of normal work clothing. The EPA has approved use of a Health & Safety Plan for workers employed at the Site under the presently existing conditions which requires only normal work clothing where contaminated soil is the sole concern.

The EPA risk assessor incorrectly used EPA default risk assessment guidance when selecting the amount of skin area exposed to soil for workers wearing the clothing described

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[1] Risk Assessment of Prospective Cleanup Levels for 2,3,7,8-TCDD in Surface Soils at the Vertac Chemical Corporation Site, Jacksonville, Arkansas, April 11, 1994 and EPA RME Scenarios for the Vertac Chemical Site, Jacksonville, Arkansas, June 28, 1994

above. The risk assessor used 25% as the percent of the total body surface exposed every working day for twenty-five years. This skin area corresponds to hands, arms, face and lower legs being continually exposed. For normal work clothing, i.e., long sleeved shirt and pants, EPA risk assessment guidance for exposure to soil indicates that the skin exposure should be 10%[2] which corresponds to exposure of hands and face. This factor alone will effectively reduce the estimate of potential risk to future workers by about 60% for any given soil cleanup criterion.

The EPA risk assessor also assumed that future site workers would not conduct any of their activities in those portions of the Containment Area that have already been remediated. Under EPA oversight, 40% of the Containment Area has been remediated using clean, off-site soil and is currently contaminant free. The EPA risk assessor ignores the fact that many of the Site activities, e.g., inspection and maintenance, mowing of capped areas, measuring water levels in monitoring wells, etc., currently and in the future will occur in the clean areas. Hercules believes that the risk assessment for the future worker should reflect this site information. If incorporated correctly, this factor would reduce the predicted risk to future workers by at least 40% because, as discussed below, future Site workers are expected to spend a disproportionate share of time in clean areas[3].

The EPA risk assessor also failed to consider that remedial plans for the Site which, although not yet finalized, include relocation of most of the wastewater treatment facilities into a clean building within the Containment Area. Collection and treatment of groundwater will be the main future activity within the Containment Area. Therefore, future worker exposure to Site soil will be further reduced from that assumed by the EPA risk assessor. Hercules has estimated that over one-half of each worker's time in the Containment Area will be spent on operating and maintenance activities which will occur within the clean building. This factor should also be included in the Site risk assessment.

Two other inappropriate assumptions or procedures were used by the risk assessor that resulted in an overly stringent cleanup standard. One inappropriate procedure was the use of a site-specific bioavailability factor of 10% that was higher than any of the individual results determined by the Rutgers University bioavailability study for 2,3,7,8-TCDD conducted with soil samples taken from the Site. The individual results ranged from less than 1% to less than 9%. An average of the site-specific results which had a geometric mean of 2.3% more accurately describes the bioavailability of dioxin from Vertac Site soil. In addition, the risk assessor used a slope factor of 156,000 kg-day/mg for 2,3,7,8-TCDD that is substantially greater than the slope

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[2] Dermal Exposure Assessment: Principles and Applications, Interim Report, U.S. EPA, 1992

[3] This factor is most simply addressed by a modification in the assumed exposure frequency but could also be addressed by calculating exposure concentrations for the entire Containment Area rather than only the impacted areas.

factor of 100,000 kg-day/mg which corresponds to the risk-specific dose of dioxin (0.01 grams TEV per kilogram of body weight results in one additional cancer in one million) stated in the Plan (page 22).

A risk assessment performed using the appropriate site-specific factors discussed above would yield a surface soil cleanup criterion for dioxin well above the 20 ppb dioxin that EPA has used in Arkansas in the past; e.g., the Arkwood, Arkansas site. As stated in the Plan (page 4), a risk assessment conducted by ENVIRON Corporation showed that a 50 ppb cleanup standard for dioxin was only marginally outside the acceptable range for industrial site workers even though it excluded the clean portions of the Containment Area as requested by EPA. Hercules believes that EPA should specify a NTE surface soil cleanup standard for dioxin for the Containment Area of the Site in the range bounded by 20 ppb, as used at the Arkwood, Arkansas, site, and 50 ppb as determined by ENVIRON Corporation. The NTE concentration should be based upon considerations of site-specific conditions, as allowed under EPA Risk Assessment Guidance under Superfund. It should also recognize that the number of exposed individuals will be four or less so that the benefit of cleanup in reducing cancers will be very small.

Remedial Technology Selection for Site Soil

The EPA acknowledges that dioxin has very low solubility in water and adsorbs tenaciously onto soil. Therefore, there is negligible potential for the dioxin to migrate from a hazardous waste landfill. Hercules supports the EPA's conclusion that dioxin contaminated soil can be safely disposed of in an on-site hazardous waste landfill. Hercules does not agree, however, that application of that remediation technology should be limited to soil containing less than 260 ppb dioxin. None of the site soil is a principal threat, especially when compared to the thousands of tons of concentrated wastes which have been, or will be, destroyed by incineration; e.g., the Vertac drummed wastes and the residual chemicals from the central process area. The cost effectiveness of incinerating contaminated soil is less than one millionth of the cost effectiveness of treating the hazardous wastes from Operable Unit I, e.g., the French drain oily phase liquids[4]. Also, because there is only one commercial incinerator permitted to incinerate dioxin contaminated soil, being forced to use that very expensive facility to treat soil, which can be safely landfilled, may be sufficient grounds for refusing to implement that remedy.

Based on both the technical effectiveness of landfilling dioxin contaminated soil and the very low cost effectiveness of incinerating such soil, Hercules believes that all excavated dioxin

[4] The cost to incinerate soil which contains one pound of hazardous substance when the hazardous substance is present at a concentration of 450 ppb (the average dioxin concentration in the 8 grids planned for incineration) was quoted at $4,440,000. The cost to incinerate one pound of French drain leachate, which is composed entirely of hazardous substances, was quoted as $2. The ratio of these costs is 2.2 million to one.

contaminated surface soil should be placed in the on-site hazardous waste landfill that will be constructed as part of Operable Unit I remediation.

Landfilling all excavated dioxin contaminated surface soil will reduce short-term risks and have additional benefits. If all such soil is landfilled, the soil can immediately be placed in the landfill after excavation instead of waiting for analytical results to determine which disposal option is required. Such analyses would be necessary to avoid the very high cost of incineration for soil which meets the criteria for landfilling. This would have a significant impact on shortening the time to remediate the Site. Hercules' earlier discussions with ADPC&E indicated that ADPC&E would concur with such a remedy if it is specified in the Record of Decision (ROD)[5]. Landfilling on the Site would also eliminate the need to transport the soil over public highways to an off-site incinerator as called for in the Plan. In addition, it will not be necessary to pretreat soil to remove inert material (rocks, etc.) before shipment off site. Such pretreatment is performed to avoid the very high cost of incinerating inert materials. Avoiding pretreatment will also reduce short-term risk.

The Feasibility Study evaluated capping of contaminated soil in place and found the technology to be both technically and economically appropriate for areas of low contaminant concentrations. The very low potential for dioxin to migrate through soil, as supported by the low bioavailability, as mentioned above, is supportive of covering contaminated soil in place with a layer of clean soil. Therefore, Hercules recommends that capping for some areas of low contaminant concentrations, e.g., areas with surface soil concentrations between the NTE concentration and 100 ppb, in the Containment Area with clean soil be selected as an optional remediation technology. This would be of particular application where the addition of clean soil is required for site grading purposes.

Capping some areas of low contaminant concentration would have the additional benefit of minimizing the size of the landfill. Hercules is aware that the Jacksonville community would like the landfill size to be minimized. If an NTE soil concentration of 50 ppb dioxin is selected and areas with surface soil concentrations up to 100 ppb are capped, the soil requiring excavation would be reduced over 40%. If a lower NTE concentration is selected, the reduction would be even greater. Capping some areas where soil would otherwise be excavated and placed in the landfill would comply with community wishes.

Tetrachlorobenzene Spill Area

The assessment of potential risk to human health from exposure to contaminated soil in the tetrachlorobenzene (TCB) spill area indicated that 500 ppm of TCB in soil provided an

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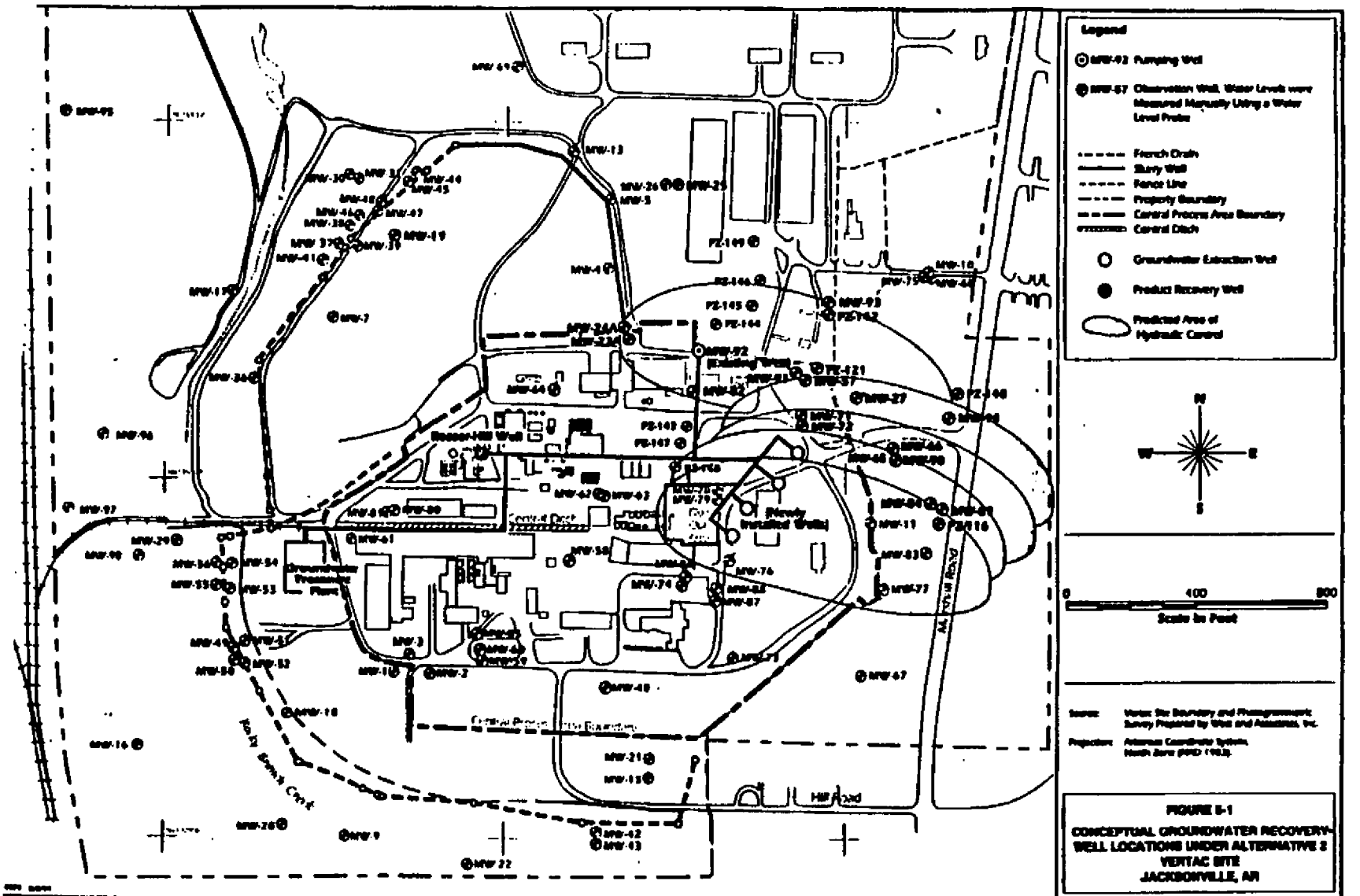
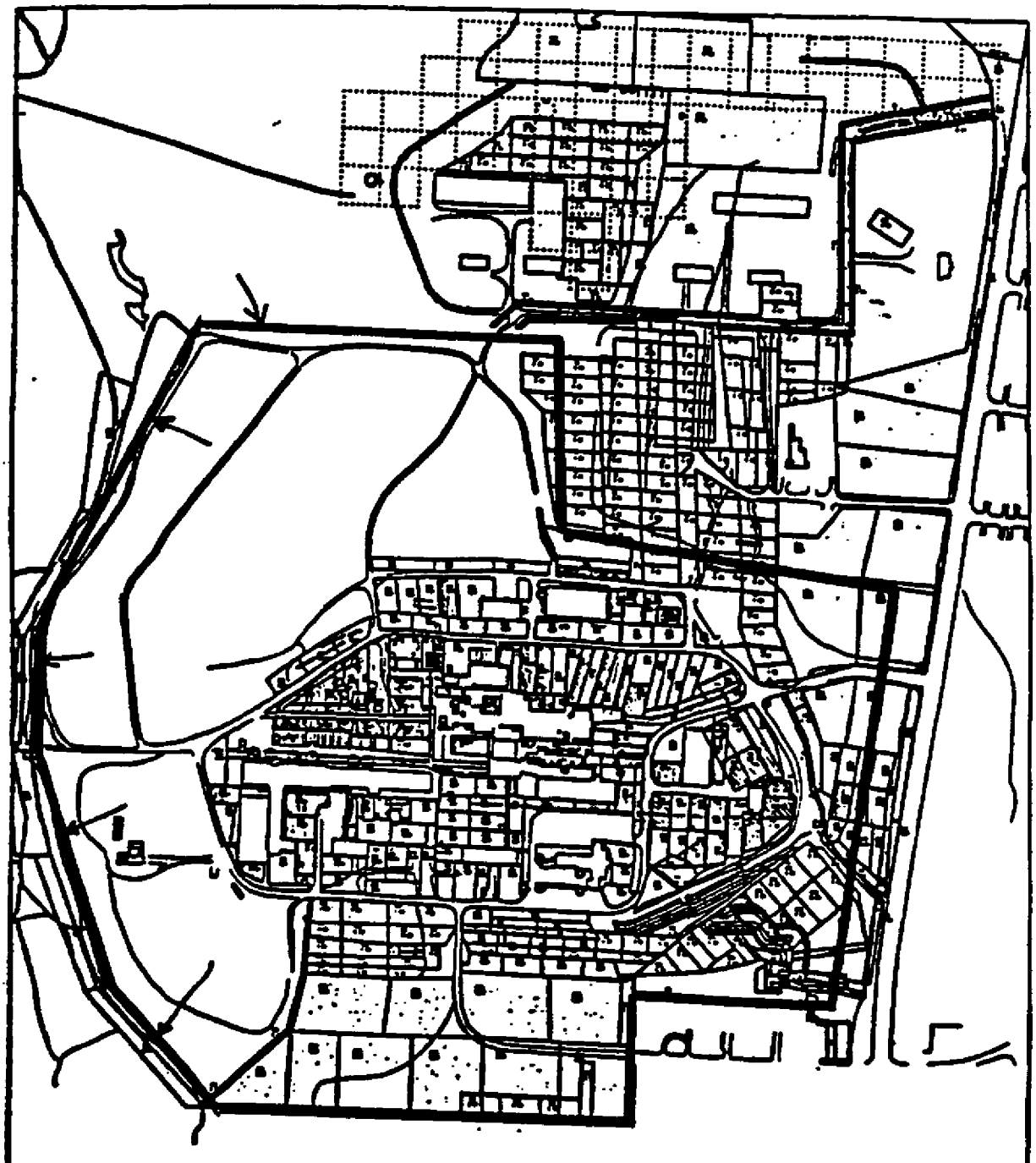
[5] Conversation of February 14, 1995, between T. J. Grimes of Hercules Incorporated and Mr. Randall Mathis, Director, ADPC&E

cc: R. Ehrhart, U.S. EPA, Region VI (Dallas)
M. S. Ramesh, U.S. EPA, Region VI (Dallas)

ATTACHMENT 1



ATTACHMENT 2



Location of Proposed Fence at the Vertac Site, Jacksonville, Arkansas

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acceptable risk if exposure of workers is limited. The Feasibility Study evaluated only two remedial technologies, thermal desorption and incineration, for TCB contaminated soil. Although evaluation of other technologies was focused on dioxin contaminated soil, Hercules believes these evaluations apply to TCB contaminated soil as well. Specifically, Hercules believes soil which contains up to ten times the no-action level of 500 ppm TCB should be placed in the on-site landfill for permanent containment. Soil containing more than 5000 ppm TCB and any crystalline TCB should be sent off site for treatment in a RCRA facility. Although incineration is the most likely treatment for these materials, the ROD for these materials should allow other permitted treatments or recovery options to be evaluated and selected during the remedial design period. One potential option would be to melt the crystalline TCB and physically separate it by filtration from soil for reuse or disposal.

Summary

In summary, as stated above, Hercules does not dispute the application of the 5 ppb dioxin (TEV) cleanup criterion for surface soil in the Developable Area because that criterion may make it easier to attract firms to locate in that area. However, Hercules believes that the cleanup criterion for the Containment Area should be between 20 and 50 ppb dioxin (TEV) and that the protectiveness of this criterion to human health is supported by a risk assessment performed with the appropriate use of EPA guidance to site-specific conditions.

Hercules also supports EPA's proposal to place contaminated soil in an on-site landfill. However, Hercules believes the plan to require incineration of some soil is arbitrary and ignores the fact that this soil can also be safely placed in the landfill.

Covering areas of low dioxin concentrations with clean soil is a remediation technology which was shown by the Feasibility Study to be protective of health and the environment. Hercules believes it is arbitrary not to use this technology in areas of low dioxin concentrations.

Finally, Hercules has cooperated with the EPA and ADPC&E in performing an RI/FS for the Site and by agreeing to remediate some of the on-site areas left behind by the Vertac Chemical Corporation. Hercules hopes that the EPA will issue a ROD that will not prevent continued cooperation.

Sincerely,

Douglas J. Keilman
Technical Director
Health & Environment

DJK/ltr
wp/i:ou2ppa.ltr

EPA

EPA TO RELEASE SUPPLEMENTAL PROPOSED PLAN FOR OPERABLE UNIT 2 MEDIA (SOILS)

VERTAC SUPERFUND SITE, JACKSONVILLE, ARKANSAS

❧ ❧ ❧ ❧ ❧

000010

The U.S. Environmental Protection Agency (EPA) has modified its preferred remedy for Operable Unit 2 media, consisting of soils, foundations, and underground utilities, at the Vertac Superfund Site, in Jacksonville, Arkansas. In order to accomplish this, EPA is releasing a Supplemental Proposed Plan to the public explaining EPA's new cleanup proposal for soil at the Vertac Site.

Under the supplemental cleanup proposal, the Vertac site will be roughly divided in half from east to west, except for a strip along Marshall road which will serve as a buffer zone for the nearby community. After remediation, the northern half of the site will have unrestricted access for commercial/industrial development. The southern half of the site, however, will remain fenced and access will be restricted to on-site maintenance workers because contamination will remain in place under a soil cap after remediation that will prevent any future development of the property.

This Supplemental Proposed Plan for Operable Unit 2 and all other information that is being considered or relied on for selecting the final remedy for the site is available for public review and comment at the following information repositories:

Jacksonville City Hall
#1 Industrial Drive
Jacksonville, AR 72076

U.S. Environmental Protection Agency, Region 6
7th Floor Reception Area
1445 Ross Avenue
Dallas, TX 75202-2733

Arkansas Department of Pollution Control & Ecology
8001 National Drive
Little Rock, AR 72209

On March 5, 1996, EPA will conduct an informal open house at the new Jacksonville Community Center (next to City Hall) from 6:30 p.m. to 9:00 p.m. to discuss the Supplemental Proposed Plan. The public is encouraged to attend for a short EPA presentation. Afterwards, EPA will be available to meet with citizens in small groups to discuss any questions or comments on the new proposal. Because this is not a formal public meeting, a court reporter will not be present to record oral comments. EPA, however, encourages all citizens to provide written comments during the public comment period.

The comment period for the Supplemental Proposed Plan begins on March 6, 1996 and ends on April 4, 1996. During that time, written comments may be submitted to:

Donn Walters
Community Involvement Coordinator
U.S. EPA, Region 6
1445 Ross Avenue (6SF-P)
Dallas, TX 75202-2733

(Note: The comment period will not be extended beyond 30 days, because the initial Proposed Plan for OU2 and the supporting analysis and information for that proposal, including the Remedial Investigation and Feasibility Study reports, have been available to the public since May 26, 1995.)

Jacksonville Patriot February 27, 1996

EPA

EPA TO RELEASE SUPPLEMENTAL PROPOSED PLAN FOR OPERABLE UNIT 2 MEDIA (SOILS)

VERTAC SUPERFUND SITE, JACKSONVILLE, ARKANSAS

110000

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Community Involvement Coordinator
U.S. EPA, Region 6
1445 Ross Avenue (6SF-PI)
Dallas, TX 75202-2733

(Note: The comment period will not be extended beyond 30 days, because the initial Proposed Plan for OU2 and the supporting analysis and information for that proposal, including the Remedial Investigation and Feasibility Study reports, have been available to the public since May 26, 1995.)

Arkansas Democrat Gazette February 28, 1996

EPA

EPA TO RELEASE SUPPLEMENTAL PROPOSED PLAN FOR OPERABLE UNIT 2 MEDIA (SOILS)

VERTAC SUPERFUND SITE, JACKSONVILLE, ARKANSAS

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000012

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The comment period for the Supplemental Proposed Plan begins on March 6, 1996 and ends on April 4, 1996. During that time, written comments may be submitted to:

Donn Walters
Community Involvement Coordinator
U.S. EPA, Region 6
1445 Ross Avenue (6SF-P)
Dallas, TX 75202-2733

(Note: The comment period will not be extended beyond 30 days, because the initial Proposed Plan for OU2 and the supporting analysis and information for that proposal, including the Remedial Investigation and Feasibility Study reports, have been available to the public since May 26, 1995.)

North Pulaski Leader February 28, 1996

EPA

EPA TO RELEASE SUPPLEMENTAL PROPOSED PLAN FOR OPERABLE UNIT 2 MEDIA (SOILS)

VERTAC SUPERFUND SITE, JACKSONVILLE, ARKANSAS

The U.S. Environmental Protection Agency (EPA) has modified its preferred remedy for Operable Unit 2 media, consisting of soils, foundations, and underground utilities, at the Vertac Superfund Site, in Jacksonville, Arkansas. In order to accomplish this, EPA is releasing a Supplemental Proposed Plan to the public explaining EPA's new cleanup proposal for soil at the Vertac Site.

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The comment period for the Supplemental Proposed Plan begins on March 6, 1996 and ends on April 4, 1996. During that time, written comments may be submitted to:

Dawn Walters
Community Involvement Coordinator
U.S. EPA, Region 6
1445 Ross Avenue (6SF-P)
Dallas, TX 75202-2733

[illegible]

03/22/96

COMMENTS

EPA would like your comments on the Supplemental Proposed Plan, and the Administrative Record File for the Vertac site. Write your comments below, and then fold, tape, stamp, and mail this form. All significant comments will be addressed in the Responsiveness Summary for the site. If you would like to receive a copy of the Responsiveness Summary, you must include your name and address.

The proposal modifications to "The Jacksonville Plan" is a betrayal to the city of Jacksonville and to its citizens.

For over 10 years we have had a PROMISE from the EPA to leave Jacksonville's Vertac site "clean enough to support a park". Now the comment of the decade as far as I'm concerned is "WE FORGOT ABOUT THE GROUND WATER," which is a statement made during the Public Meeting 3/5/96 at Jacksonville's Community Center by the EPA representative.

City officials, business owners, and citizens who have been in support of EPA's efforts and "The Jacksonville Plan" have given this support because we trusted that the plan and the vows of the EPA were honest. Now we are told that EPA has every intention of leaving Jacksonville's Vertac site useless for future use/development. We find that EPA is not concerned with our citizen's best interests.

I go on record as being emphatically opposed to the proposed modifications and urge the EPA to keep the commitment to Jacksonville.

000015

Emma Knight

Emma Knight
Jacksonville City Council, Ward 1, Position 1
Owner-Principal Broker, Coldwell Banker Quality Real Estate Services, Inc.

HERCULES

Hercules Incorporated
Hercules Plaza
1313 North Market Street
Wilmington, DE 19894-0001
(302) 594-5000

March 25, 1996

Via Facsimile and Regular Mail
No. of Pages: 1
Fax No.: 214/665-6648

Ms. Jane Saginaw
Regional Administrator
U.S. Environmental Protection Agency
Region VI
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

000016

Subject: Vertac Superfund Site, Operable Unit II
Jacksonville, Arkansas

Dear Ms. Saginaw:

Hercules Incorporated has recently been informed that it may be Region VI's intention to not follow through with the Supplemental Proposed Plan of Action for the Vertac Superfund Site, despite the approval of the EPA's National Dioxin Review Group and the statement by the Agency for Toxic Substances Disease Registry that the revised approach for OU-II is protective of human health and the environment.

Since the concerns of the citizens of Jacksonville have been provided to the Agency, Hercules would like an opportunity to present its position. While Hercules will be submitting formal comments to the Region concerning the Supplement Plan, I would like to take this opportunity to share with you that Hercules finds it very disturbing that the EPA would reconsider approaches which are excessive in terms of protection to human health and cost.

It should be noted that Hercules has continued to work with Region VI in developing and executing a plan of action despite ongoing litigation since 1980. Hercules is also concerned that abandonment of the Supplemental Proposed Plan of Action suggests that the EPA is no longer interested in reaching a global settlement and completing the remediation.

I would very much appreciate the opportunity to meet with you to discuss our position and to determine if we can work together to solve this challenge. To this end, I shall be calling your office the week of March 25, 1996 to arrange an appointment.

Sincerely,

Marshall Steinberg, Ph.D.
Vice President
Health & Environment

MS/cap
Saginaw.ms

cc: M. B. Keehan, Hercules, Wilmington, DE
R. Mathis, ADPC&E, Little Rock, AR

From: Helen L. Thompson
To: ANDERSON-MARLENE
Date: Monday, March 25, 1996 1:36 pm
Subject: LETTER FROM HERCULES, INC.

MARLENE/CONNIE: RA SAGINAW RECEIVED A FAX THIS MORNING FROM HERCULES, INCORPORATED DATED TODAY. THE LAST PARAGRAPH SAID THEY "WOULD APPRECIATE THE OPPORTUNITY TO MEET WITH HER TO DISCUSS THEIR POSITION AND TO DETERMINE IF THEY CAN WORK TOGETHER TO SOLVE THIS CHALLENGE." THEY SAID THEY WILL CALL HER THIS WEEK.

IS THE TIMING ON THE VERTAC SUPERFUND SITE SUPPLEMENTAL PROPOSED PLAN OF ACTION APPROPRIATE FOR THE ACTING DRA TO MEET WITH THEM AFTER APRIL 12; I.E., PUBLIC COMMENT PERIOD.

THERE IS A COPY OF THE LETTER AT THE FRONT DESK FOR YOUR ACTION AND ADVICE. THANKS.

CC: SANCHEZ-CONNIE

Received 04/01/96

Questions regarding present Vertac site remedy:

1) Why is new precedent being set in regards to the allowable amount of dioxin being placed into an on-site landfill?

2) There have been rumors that ground water contamination has been discovered off-site (over by the railroad). Will EPA release ALL of the groundwater results and provide the community with a groundwater plum dispersion map? Will EPA also present an outlook groundwater plum dispersion map showing what will happen over the next 5 -10 years?

3) Aptus in Coffeyville has just lowered their cost, $ per pound, for incinerating waste. Has Aptus's new costs been factored into the benefit analysis?

4) Who is going to maintain the "dirty" area if Hercules Chemical declares bankruptcy? If EPA then is the agency willing to provide binding guarantees to the community?

5) What is EPA going to do with the existing landfill - the one which was improperly built by the same company who is now going to do this one? (Company names change but the same people have will be involved.)

6) Why is EPA backing off from it's previous Record of Decision - especially with all of the new information regarding the toxicity of dioxin.

610000

Mrs. L. E. Wright
2405 Chapel Hill Rd.
Jacksonville, AR 72076
501-982-2502

3-28-96

John Loyd (right) of United We Stand shows Doug Keilman of Hercules how 300-foot grassy field in front of Vertac would enhance the area. (Leader photo by David Parker)

000020

PHOTO TAKEN DURING FINAL PUBLIC MEETING HELD ON Monday April 1, 1996...

Mr. Keilman arrived unannouced and either he or someone on his staff invited the Little Rock news media to the meeting . unfortunately or fortunately they arrived as the meeting was over.

A lady came to the meeting with Mr. Keilman (I think it was a member of his staff) and she asked several questions about the wells that will (or may be) outside the the fence..

I asked her to reduce her comments to writting and I would insure that they were forwarded along with our package.

At the time of mailing...No response or comments were receied.

Submitted by:

JOHN LOYD APRIL 4, 1996

Exposure Investigation

000021

VERTAC, INCORPORATED

JACKSONVILLE, PULASKI COUNTY, ARKANSAS

CERCLIS NO. ARD000023440

AUGUST 11, 1997

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia

EXPOSURE INVESTIGATION II

VERTAC, INCORPORATED

JACKSONVILLE, PULASKI COUNTY, ARKANSAS

CERCLIS NO. ARD000023440

000022

Prepared by:

Exposure Investigation and Consultation Branch
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation

BACKGROUND

In April 1997, the Agency for Toxic Substances and Disease Registry(ATSDR)conducted a second environmental exposure investigation (EI) at two residences where one of the inhabitants in each home participated in the Arkansas Department of Health's serum dioxin health study. Health scientists conducted the second EI to confirm the qualitative environmental sampling results for 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) found in the first EI[1]. The initial EI identified 2,3,7,8-TCDD and other dioxins/furans in residential surface soil and indoor wipe/dust samples. However, the analytical results had significantly low percent recoveries for the contaminants. Conclusions from the results were that 2,3,7,8-TCDD (up to approximately 10 parts per billion [ppb] in one sample) is present in the areas sampled, but the results could not be used to make a scientifically defensible public health decision for the residents.

The Exposure Investigation Section, the health assessor, and the Arkansas Department of Health (ARDOH) agreed that environmental sampling should be repeated. In addition, because the presence of 2,3,7,8-TCDD was confirmed in the first EI, they agreed that serum dioxin testing would be offered to the four residents of the homes. Refer to attachments 1 and 2 for the results of the first EI and the respective workplan.

METHODS

With coordination from the(ARDOH) and permission from the homeowners, ATSDR collected surface soil, indoor dust, and indoor surface wipe samples for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and TCDD equivalent analyses. Sample locations approximated those of the first exposure investigation. Refer to the attached workplan for a more detailed description of activities (Attachment 2).

Investigators collected three composite surface soil samples and two indoor floor dust samples at one residence. They collected two composite surface soil samples, two wipes from surfaces of utility shelves used for canned goods storage, two indoor floor dust samples, and one dust trip blank at the second residence.

Samples were shipped to Midwest Research Institute (MRI) for analyses through an Inter Agency Agreement with the Division of Federal Occupational Health. Data Chem weighed the surface dust samples before their shipment to MRI. We requested a four-month analytical turnaround time.

One resident agreed to serum dioxin testing. This resident participated in the health study, making it this person's third serum dioxin test. The American Red Cross (Little Rock, AR) drew and shipped the blood sample to the Centers for Disease Control

and Prevention (CDC) Center for Environmental Health laboratories for analyses. Results of this test are pending.

RESULTS

Table 1 summarizes the results of the environmental sampling.

Table 1. Environmental Sampling Result Summary for Two Residential Properties Near the Vertac National Priorities List Site Samples Collected April 15, 1997

Sample Type	Number of Samples	2,3,7,8-TCDD* Concentration Range	TCDD Equivalents
Surface Soil Composite	5	0.172 - 2.81** ug/kg	0.18 - 2.8 ug/kg
Indoor Surface Wipe***	2	13.0** - 14.0 ng/m2	13.4 - 14.7 ng/m2
Indoor Surface Dust	4	ND - 0.697 ug/kg	0.17 - 0.71ug/kg
Surface Dust Blank	1	ND	ND

* TCDD = tetrachlorodibenzo-p-dioxin
** = concentration exceeded the upper limit of the calibration range
*** = from shelving
ug/kg = microgram (ug) contaminant per kilogram (kg) of soil or dust or part per billion (ppb)
ng/m2 = nanogram (ng) contaminant per square meter of surface
ND = not detected

000024

DISCUSSION

The Agency for Toxic Substances and Disease Registry's (ATSDR's) policy regarding dioxins in soil indicates that a level of 1 microgram per kilogram of soil (ug/kg) or part per billion, (ppb) or less of 2,3,7,8-TCDD equivalents in residential surface soil is protective of public health [2-5].

In one residence, the TCDD equivalents (TEQ) in 2 of the 3 surface soil samples exceeded 1 ppb (2.8 and 1.6 ppb TEQ). These levels confirm the results of the first exposure investigation. The indoor dust results of this residence did not exceed the 1 ppb action level; the back door and front door entryway results identified 0.26 and 0.71 ppb TEQ, respectively. The indoor areas

sampled should reflect worst case concentrations from contaminated soil track-in. If this is the case, then levels in dust elsewhere in the home should be lower.

In the other residence, TEQ levels in the two surface soil samples were below 1 ppb (0.18 and 0.48 ppb TEQ). Similarly, the indoor surface dust samples from the back and front entryways were below the soil action level (0.17 and 0.6 ppb TEQ). However, wipe sample results of the pantry utility shelving revealed the presence of 2,3,7,8-TCDD. The shelving, in a utility room in the garage, is used to store canned goods. Wipe sample results are not used for quantitative purposes; the results indicate that the contaminant is present. The use of the shelving for storing food items suggests that dermal and oral exposure to 2,3,7,8-TCDD is possible.

CONCLUSION

The levels of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) equivalents (TEQ) in one residence's soil and in the other residence's utility shelving pose a public health concern.

The number of environmental samples collected does not provide sufficient information to determine the extent of the TEQ contamination at either residence, or in adjacent yards. The results do indicate that TCDD equivalents are present in these residents' environment and that exposures are likely. Additional sampling will be necessary for better characterization of the source and extent of TCDD contamination in this area.

RECOMMENDATIONS

1. Stop exposures to the contaminated shelving.

2. Conduct additional residential surface soil sampling to determine the extent of environmental contamination.

3. Offer serum dioxin testing to the other occupants of the two homes.

Lynn C. Wilder, CIH

Attachments

REFERENCES

1. Exposure Investigation, Vertac Site, Jacksonville, Arkansas. February 1997, ATSDR DHAC EICB.

2. Memorandum, From: Vernon N. Houk, M.D., Assistant Surgeon General, Director, Center for Environmental Health, Subject: Missouri Dioxin Sites Cleanup, To: Barry L. Johnson, Ph.D., Assistant Administrator, ATSDR, Date: May 8, 1987.

3. Letter, From: Morris Kay, Regional Administrator, U.S. Environmental Protection Agency, Region VII, To: Renate D. Kimbrough, Center for Environmental Health, Centers for Disease Control, Date: January 16, 1987.

4. Letter, From: Barry L. Johnson, Ph.D., Assistant Administrator, ATSDR, To: Mr. David Wagner, Director, Waste Management Division, U.S. Environmental Protection Agency, Region VII, Date: July 30, 1987.

5. Dioxin Issue Paper, Prepared by: Office of Regional Operations, Office of the Assistant Administrator, and Division of Health Assessment and Consultation, ATSDR, U.S. Public Health Service. Approved by: Barry L. Johnson, Ph.D., Assistant Surgeon General, Assistant Administrator, ATSDR, February 10, 1993.

EXPOSURE INVESTIGATION

VERTAC SITE
JACKSONVILLE, ARKANSAS

February 1997

000027

U.S. Department of Health and Human Services
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia

BACKGROUND

In October 1996 an environmental exposure investigation (EI) was conducted at two residences where one of the inhabitants participated in the health study. The EI was requested by the ATSDR health assessor to determine if the homes/yards contained 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). Filling in this data gap would assist in determining the reason for 2 of the occupants' serum dioxin levels increasing, while all other study participants' levels decreased.

METHODS

With coordination from the Arkansas Department of Health (ARDOH) and permission from the homeowners, ATSDR collected surface soil, indoor dust, and indoor surface wipe samples for 2,3,7,8-TCDD and TCDD equivalent (TEQ) analyses. Refer to the attached workplan for a more detailed description of activities.

At one residence, the following samples were collected: 3 composite surface soil; 1 indoor floor surface wipe; 2 indoor floor dust samples; and 1 dust trip blank. At the second residence, the following samples were collected: 2 composite surface soil; 1 indoor floor surface wipe; 3 utility shelf surface wipes (used for canned goods storage); 1 indoor floor dust sample; and 1 trip blank.

Samples were shipped to Midwest Research Institute (MRI) for analyses, through the EICB Inter Agency Agreement with the Division of Federal Occupational Health. The surface dust samples were sent to Data Chem for dust sample weight prior to shipment to MRI. A four-month analytical turnaround time was requested.

RESULTS

Sample results indicated the presence of 2,3,7,8-TCDD and other polychlorinated dioxins and furans. However, the analytical quality assurance tests (spike sampling) indicated that there was a low recovery of the contaminants from the sample extraction process (6 to 17%). Therefore, the data was considered to be qualitative, not quantitative, which renders the data inadequate to make a health determination.

Because the presence of 2,3,7,8-TCDD was found, ATSDR and the Arkansas Department of Health determined that a second exposure investigation was necessary. The next EI would resample the environment and offer serum dioxin testing to each of the 4 residents. This message, along with a copy and explanation of their individual results, was delivered to the residents in-person by the ARDOH. Both households agreed to retesting.

CONCLUSION

The quality of the analytical results for the environmental samples was not precise enough to make a public health impact determination. On a qualitative basis, the data revealed that 2,3,7,8-TCDD and other dioxins and furans are present in the areas sampled.

Additional sampling is needed to better quantitate the potential for adverse health impacts.

RECOMMENDATIONS

Resample indoor surface dust, wipe, and surface soil to better quantitate the concentrations of dioxins.

Offer serum dioxin testing to the occupants of these two homes.

Evaluated the results, when they become available.

000029

Lynn C. Wilder, CIH

attachment

Indoor Dust Sampling Protocol
Exposure Investigation
Vertac NPL Site, Jacksonville, Arkansas
(CR# 6004)

Introduction

The Arkansas Department of Health (ADH), through a grant from ATSDR's Division of Health Studies (DHS), conducted an exposure study in March 1991. This investigation found elevated dioxin (2,3,7,8-TCDD) levels in blood lipid for the residents who had been living within 1300 yards of the Vertac NPL site for 15 years or more. In March 1995, a second investigation of blood dioxin levels was conducted by ADH for the same participants. It was reported that two individuals (from different families) had dioxin levels that had increased from their 1991 results. One participant's levels increased from 90 ppt to 103 ppt; the other participant's levels increased from 80 ppt to 126 ppt. Dioxin levels for all other participants decreased from 1991 to 1995.

An ATSDR health assessor presented these results to the exposure investigation section (EIS) on August 14, 1996. The EIS, with concurrence from the ADH, agreed that the situation met the criteria for an exposure investigation (EI). This EI is being conducted to determine if there is an indoor/residential source of dioxin (2,3,7,8-TCDD and total dioxin equivalents (TEQ)) exposure present in the residences of the 2 participants whose dioxin levels were observed to have increased from 1991-1995.

Objective:

In an attempt to better characterize possible sources of exposure to dioxin (2,3,7,8-TCDD and TEQ) in the home, this exposure investigation will:

1) assist in determining if dioxin is present in surface (0- to 3-inch depth) soils near the main residential entryway (leading it to be tracked indoors),

2) determine if dioxin is present in indoor dust (floors), and

3) determine if dioxin is present on any items in the home that may have been brought from the Vertac facility.

This information will be useful to the residents and state and local health agencies in determining if a possible source of dioxin exposure is present in the home. If one or more sources are found, recommendations will be made to mitigate or stop exposures.

Initial Contacts:

The Arkansas Department of Health is scheduling the sampling with residents and ATSDR.

EIS has briefed DHS on our plans to sample (they are supportive of this effort). This EI should not interfere with other ongoing health investigation activities.

Target Areas:

The residences of the two individuals who were observed to have elevated dioxin levels will be the focus of this EI. Areas to be sampled include surface soil near the main entryway; indoor dust (floor) sample from main entryway; indoor dust (floor) sample from main living area; and a wipe sample of any materials once located at the Vertac facility.

Consent Forms:

Prior to collecting any environmental samples, the resident/property owner will be asked to provide consent for access and sampling. They will be requested to sign a consent form (attached).

Sample Collection:

Up to two surface (0-3") soil samples will be collected from each individual's yard: one sample will be collected near the entryway used the most; based on professional judgement, if another sample is needed, it will be collected from a high-use, unvegetated area of the yard.

Two floor dust samples will be collected inside of each home. One sample will be collected from the main entryway floor and another sample will be collected from the main living area (or other area where the individual spends the bulk of their time). A 1/4 square-meter template will be used to measure the area sampled. For each sample, a composite of 4 adjacent template areas will be collected. Samples will be collected using the "Cincinnati method" (low volume pump with cassette filter). A minimum of 10 grams of dust should be collected for analysis to allow a detection limit of 1 ppt.

If the individual informs the sampling team that some of the materials in the home used to be in the Vertac facility, then 2-3 wipe samples will be collected from these objects. Sampling will focus on areas that are the most accessible to the residents. Wipe samples will be collected using isopropyl alcohol wipes. A 1/4 square-meter template will be used to measure the area sampled.

Sampling Handling and Storage:

Samples will be handled, stored, and shipped in accordance with applicable Environmental Protection Agency (EPA) and Department of Transportation (DOT) guidelines.

Chemical Analysis of Samples:

Through an Interagency Agreement with Division of Federal Occupational Health, samples will be analyzed for dioxins using EPA method 8290 (9/94). A 1- to 2-month turnaround time for analysis is expected.

QA/QC:

One trip blank will be sent with the samples
Calibration data
Matrix spike

Presentation of Results:

Sample results from individual homes will be provided to the respective resident along with an interpretation of the information. Recommendations for followup actions will be provided if contaminant levels are found above background.

An exposure investigation report will be provided to the ATSDR health assessor, DHS, the ADH, and to the Regional Office for comment/followup activities.

Follow-up Activities:

Depending on the analytical results, follow-up activities may include:

-If contamination is found, recommendations will be made to reduce or eliminate exposure. ADH will work with the residents to ensure that exposure is stopped.

-If contamination is found, the health assessor may request another EI to offer serum dioxin testing to the spouses and other occupants of the 2 residences investigated in this EI.

-If residential contamination is not found, a recommendation to investigate other possible sources of exposure will be made.

Sampling Protocol
Exposure Investigation II
Vertac NPL Site, Jacksonville, Arkansas
(CR# 6004)

Introduction

The Arkansas Department of Health (ADH), through a grant from ATSDR's Division of Health Studies (DHS), conducted an exposure study in March 1991. This investigation found elevated dioxin (2,3,7,8-TCDD) levels in blood lipid for the residents who had been living within 1300 yards of the Vertac NPL site for 15 years or more. In March 1995, a second investigation of blood dioxin levels was conducted by ADH for the same participants. It was reported that two individuals (from different families) had dioxin levels that had increased from their 1991 results. One participant's levels increased from 90 ppt to 103 ppt; the other participant's levels increased from 80 ppt to 126 ppt. Dioxin levels for all other participants decreased from 1991 to 1995. The ATSDR Division of Health Assessment and Consultation's Exposure Investigation Section (EIS), with concurrence from the ADH, agreed that the situation met the criteria for an exposure investigation (EI). This EI was conducted in October 1996 and involved the collection of surface soil, indoor dust and wipe sampling for 2,3,7,8-TCDD and total dioxin equivalents (TEQ)) in the residences of the 2 participants whose dioxin levels were observed to have increased from 1991-1995.

Results of the initial EI revealed the presence of 2,3,7,8-TCDD and other dioxin/furans in residential surface soil and indoor wipe/dust samples. However, analytical results had significantly low percent recoveries for the contaminants. Conclusions from the results were that 2,3,7,8-TCDD (up to 10 ppb in one sample) is present in the environments sampled, but the results cannot be used to make a scientifically defensible public health decision for the residents. The EIS and SSAB, with agreement from the ADH, agreed that environmental sampling/testing should be repeated. In addition, because the presence of 2,3,7,8-TCDD was confirmed in the EI, it was agreed that serum dioxin testing would be offered to the 4 residences of the two homes.

Objective:

Verify the levels of dioxin (2,3,7,8-TCDD and TEQ) in the homes/yards of the two residences by resampling and testing. Determine if the occupants of these homes have serum dioxin levels above the national average.

This information will be useful to the residents and state and local health agencies in determining if a possible source of dioxin exposure is present in the home. If one or more sources are found, recommendations will be made to mitigate or stop exposures.

Initial Contacts:

The Arkansas Department of Health is scheduling the sampling with residents, the American Red Cross, and ATSDR.

EIS has briefed SSAB, and DHS on our plans to resample and offer serum dioxin testing (they are supportive of this effort). This EI should not interfere with other ongoing health assessment or investigation activities.

The ATSDR Regional Representative has informed EPA Region VI of our findings to date and our plans to retest.

Target Areas:

The residences of the two individuals who were observed to have elevated serum dioxin levels will be the focus of this EI. Areas to be sampled are the same as in the original exposure investigation (surface soil near the main entryway; indoor dust (floor) sample from main entryway; indoor dust (floor) sample from main living area; and a wipe sample of materials once located at the Vertac facility).

Occupants of these residents will be given the choice to have their blood tested to determine if their serum dioxin level(s) is above the national average.

Consent Forms:

Prior to collecting any environmental samples, the resident/property owner will be asked to provide consent for access and sampling. They will be requested to sign a consent form (attached). If the residents accept the offer for serum dioxin testing, they will be requested to sign a separate consent form (attached).

Sample Collection:

Environmental samples will be collected in the same general areas as in the first EI and will include surface soil, indoor floor dust, and indoor surface wipe samples.

The ADH is arranging to have a phlebotomist available to draw blood.

Sampling Handling and Storage:

Environmental samples will be handled, stored, and shipped in accordance with applicable Environmental Protection Agency (EPA) guidelines. Biological samples will be packaged, stored, and shipped according to CDC guidelines.

Chemical Analysis of Samples:

Through an Interagency Agreement with Division of Federal Occupational Health, samples will be analyzed for dioxin using EPA method 8290 (9/94). A 1-month turnaround time for analysis is expected.

Blood serum samples will be analyzed for 2,3,7,8-TCDD and TEQ by the CDC's Centers for Environmental Health (CEH) laboratory. A 2- to 3-week analytical turnaround is expected.

QA/QC:

One trip blank will be sent with the environmental samples
Calibration data
Matrix spike

Presentation of Results:

Sample results from individual homes and persons tested will be provided to the respective resident along with an interpretation of the information. Recommendations for follow-up actions will be provided if contaminant levels are found above background.

An exposure investigation report will be provided to the ATSDR health assessor, DHS, the ADH, and to the EPA Regional Office for comment/follow-up activities.

Follow-up Activities:

Depending on the analytical results, follow-up activities may include:

-If contamination is found, recommendations will be made to reduce or eliminate exposure. ADH will work with the residents to ensure that exposure is stopped.

-If residential contamination is not found, a recommendation to investigate other possible sources of exposure will be made.

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EPA

EPA ANNOUNCES AN EXPLANATION OF SIGNIFICANT DIFFERENCES (ESD) IN THE REMEDY FOR THE VERTAC SUPERFUND SITE JACKSONVILLE, ARKANSAS

The U. S. Environmental Protection Agency (EPA) has determined that a significant change is required regarding the selected remedy for the Soils, Foundations, and Underground Utilities, for Operable Unit 2 (OU2) at the Vertac Superfund Site in Jacksonville, Arkansas. Based on an Exposure Investigation (EI) that was finalized on August 11, 1997, the EPA determined that a change was needed since the signing of the September, 1996 Record of Decision (ROD).

The significant difference is the additional consolidation of dioxin-contaminated residential soils from the Jacksonville Residential Areas Superfund Site (JRA Site), Jacksonville, Arkansas, in the on-site hazardous waste landfill that was constructed as part of Operable Unit 1 (OU1) for the Vertac Site. The JRA Site is located approximately 1,000 feet east of the Vertac Site, consisting of four residential properties near the intersection of McArthur Boulevard and Lee Street. The JRA Site TCDD (tetrachlorodibenzo-p-dioxin) soil contamination is extremely similar to the type of contaminant encountered in the soil at the Vertac Site, along with the TCDD concentrations as a percentage of the total dioxin. As a result, the most prudent method of handling the excavated soil from the JRA Site is to be consistent with the handling of the Vertac soil addressed in OU2. The OU2 contaminated soil at the Vertac Site is being consolidated or "entombed" in the Consolidation/Containment Unit or Resource Conservation and Recovery Act (RCRA) Subtitle C compliant landfill, which is a hazardous waste landfill (vault) that was constructed as part of OU1 at the Vertac Site.

The complete documentation for the EPA's modified remedy, called an Explanation of Significant Differences (ESD) is available for public review at the following information repositories:

Jacksonville City Hall
#1 Industrial Drive
Jacksonville, AR 72076

Arkansas Department of Pollution Control & Environment
8001 National Drive
Little Rock, AR 72209

U. S. EPA, Region 6
7th Floor Reception Area
1445 Ross Avenue
Dallas, TX 75202-2733

The Administrative Record File for the Vertac Site, a record of all information that is being considered or relied on when selecting the final remedy for the site, is available at these repositories.

If you have any questions about the Vertac site, or need additional information, please contact:

Donn Walters
Community Relations Coordinator
U.S. EPA, Region 6
1445 Ross Avenue (6SF-PO)
Dallas, TX 75202-2733
toll free at 1-800-533-3508

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Jacksonville Patriot March 2, 1998

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