UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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AUG 28 1985

SEMS DocID 2261722

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Continuation of Immediate Removal at Shaffer Chemical Site in Minden, West Virginia -- ACTION MEMORANDUM

FROM: Timothy Fields, Jr., Director
Emergency Response Division

THRU: William N. Hedeman, Jr., Director
Office of Emergency and Remedial Response

TO: J. Winston Porter
Assistant Administrator

Attached is a request from the Regional Administrator, Region III, for continuation of immediate removal activities beyond the $1 million statutory limit at the Shaffer Chemical Site in Minden, West Virginia.

While solvent extraction, the alternative selected for this site, is costlier than the option of offsite landfill disposal, it should be noted that the estimated cost difference is less then $300,000. This relatively small price is justified in light of the benefits discussed below.

Given the potential future environmental damage that would result from a release from the landfill to which the PCB materials were sent, the alternative of solvent extraction, which would render the material harmless, appears to be the most long-term cost-effective and environmentally prudent selection. Moreover, EPA is experiencing increasing difficulty in landfill disposal of hazardous wastes, particularly PCBs, not only from the point of the number of landfills which are consistently out of RCRA compliance, but also because of increasingly negative public reactions to landfilling such materials.

Recommendation

Based upon information submitted by Region III, conditions at this site meet the criteria for continuation of Immediate Removal set forth in Section 104(c) of CERCLA and Section 300.65 of the National Contingency Plan. I recommend that you grant an exemption from the $1 million statutory limit for the subject removal action for a ceiling increase of $1,530,000, of which $1,500,000 will be used for cleanup contractors, and to establish a new project ceiling of $2,300,000.

Approve: _____ Date: 8-29-85

Disapprove: _____ _____ Date: _____

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
GENERAL COUNSEL

AUG 26 1985

MEMORANDUM

TO: J. Winston Porter
Assistant Administrator for
Solid Waste and Emergency Response (WH-562A)

FROM: Lisa K. Friedman
Associate General Counsel (LE-132S)

SUBJECT: Shaffer Chemical Site: Removal
Extension Request

We have reviewed the request for an extension of the Shaffer Chemical Site removal action and believe that, except as noted below, it does not present any significant legal issues.

The region is seeking authorization to use a solvent extraction process (at a cost of $1.53 million) to deal with the PCB wastes rather than to dispose of them in an off-site landfill (at a cost of $1.31 million). The region believes that it is worth spending an extra $.22 million on the solvent extraction process because the wastes will be incinerated (which represents a permanent solution) rather than landfilled. In light of the small incremental price, we believe this is a reasonable justification. However, since we expect the incremental costs of permanent solutions to be larger at other sites, it would be advisable to develop guidance on when, and the extent to which, additional expenditures for permanent solutions are appropriate.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: $1,000,000 Exemption Request for CERCLA Immediate Removal Action at the Shaffer Equipment Site, Minden, West Virginia

DATE: AUG 1 5 1985

FROM: Robert E. Caron, On-Scene Coordinator
Emergency Response Section (3HW22)

TO: James M. Seif
Regional Administrator (3RA00)

THRU: Stephen R. Wassersug, Director
Hazardous Waste Management Division

Attached for your review is the additional funding and $1,000,000 exemption request for immediate removal actions being conducted at the above site. The continued response action calls for the use of onsite treatment technologies to achieve final disposal of PCB contaminated soils presently staged onsite.

A funding increase of $1,530,000 is being requested, bringing the total project ceiling to $2,300,000.

Please review the document and if it meets with your approval, forward it directly to Dr. J. Winston Porter, Assistant Administrator of the Office of Solid Waste and Emergency Response, for his review and approval.

Attachment

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Continuation of Removal Activities at the Shaffer Equipment Company Site, Minden, W.V.

DATE: AUG 1 5 1985

FROM: James M. Seif
Regional Administrator (3RA00)

TO: Dr. J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response (WH-562A)

THRU: William N. Hedeman, Jr., Director
Office of Emergency and Remedial Response (WH-584)

ATTENTION: Timothy Fields, Director
Emergency Response Division (WH-548E)

Issue

Continued immediate response actions are estimated to exceed the $1,000,000 statutory limit and further actions to control and stabilize the site cannot be undertaken unless an exemption to Section 104(c) of the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) is granted and an increase in the project ceiling is approved. It is estimated that an additional $1,530,000 will be required to complete the removal action.

Statutory Criteria

Section 104(c)(1) of CERCLA limits Federal Emergency Response to $1,000,000 unless three basic criteria are met:

1. Continued response actions are immediately required to mitigate an emergency.

2. There is an immediate risk to public health and the environment.

3. Such assistance will not otherwise be provided on a timely basis.

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Background

The Environmental Protection Agency (EPA), Region III, initiated emergency action on December 26, 1984, to stabilize and otherwise abate an immediate and significant risk of harm to human life and the environment, posed by the presence of Polychlorinated Biphenyls (PCB) at extremely high levels in both electrical equipment and soils onsite. This action was approved in an immediate removal action memorandum signed by the Regional Administrator on December 26, 1984. (Attached). On February 15, 1985 an additional funding request was approved to continue operations at the site. Approximately $720,000 has been expended from the $800,000 total project ceiling. Work performed to date includes the following:

1. Measuring and sampling of transformers, capacitors, drums, soils and water both on and offsite.

2. Establishment of initial measures to contain a severe offsite migration problem.

3. Remove, transport and dispose of PCB containing transformers, capacitors and drums.

4. Excavation and staging of an estimated 4000 cubic yards of contaminated soils.

5. Backfill and regrade of excavated site.

Discussion

The Shaffer Equipment Site is located on the flood plain of Arbuckle Creek which has a normal flow of approximately 3000 gallons per minute. This creek floods on the average of seven times per year. Recent past flood history has been major in scope, fully involving the Shaffer Site and forcing evacuations downstream. Evidence of stream scouring and flood damage on the Shaffer property indicates that a major flood event would carry contaminants directly into the residential area.

The OSC has determined that removal and disposal of all PCB containing transformers, capacitors, drums and contaminated soils is the most appropriate action to eliminate the direct contact threat posed by the presence of high levels of PCB contamination in soils onsite. Initial efforts have halted PCB migration offsite into the nearby Arbuckle Creek. This offsite migration of PCB has been detected in residential backyards as far as one mile downstream, carried there by past flood events and resultant sediment deposition. Presently, the contaminated soils are staged in a temporary clay lined holding cell located in the flood plain of Arbuckle Creek.

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Site characteristics and property ownership dictated this soil staging area.

Past experience with conventional disposal practices (landfill) for immediate removal projects have demonstrated problems, including:

1. Inacessability to nearby landfills to accept hazardous waste material in a timely fashion.

2. Inacessability to nearby landfills has forced EPA, Region III to look at landfilling options as far west as California and as far south as Alabama. Transportation costs are prohibitively expensive in such cases.

3. Creation of a long term responsibility at these current landfills where EPA can be considered a generator of the hazardous waste material.

Therefore, EPA must consider other options/technologies other than convential landfilling that may not be cost effective from a short term perspective, but are a viable alternative when evaluating the long term disposal options. Site specific detoxifications are available and must be evaluated accordingly.

There are also several advantages to consider when utilizing onsite specific treatment, detoxification or destruction technologies, including:

1. Promote RCRA (i.e. promote resource conservation and recovery).
2. Minimize use of valuable offsite land (resources).
3. Eliminate transportation costs to disposal facilities.
4. Eliminate public threat when transporting hazardous materials.
5. Eliminate EPA liability as a generator should landfill fail.
6. Promote innovative state-of-the-art technology.

The OSC reviewed fifteen different alternative technologies in terms of feasability, availability and cost effectiveness. Contacts were made with industrial, consultant and government entities to seek the most up-to-date information. The OSC utilized the Environmental Response Team, Headquarters OSWER and the TAT contractor to develop and review a report summarizing the technology review. This report entitled "PCB Contaminated Soil Treatment/Disposal Alternatives" is attached to this request.

The following technologies were reviewed:

1. Mobile Incineration with a Rotary Kiln
2. Microwave Plasma Detoxification
3. High Temperature Fluid Wall
4. Solvent Extraction (onsite)
5. Solvent Extraction (in situ)
6. Decontamination of soils using Franklin Solvent
7. Solvent Extraction using the Accurex Process
8. Slurry Wall

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9. Grouting
10. Microencapsulation
11. Macroencapsulation
12. Fixation/Stabilization
13. Hazardous Waste Landfill (onsite)
14. Hazardous Waste Landfill (offsite)
15. Incineration offsite.

Due to site conditions, the nature of the contaminant and the location of the site (flood plain), many of the onsite alternatives are not appropriate since confidence in the integrity of structures and or stabilization is questionable. Since the site is unstable, that is, flooding occurs regularly, it is necessary to remove the contaminant or, at a minimum, reduce the level of the contaminant. With this in mind, review by both the OSC and the above mentioned organizations have identified only three disposal options that are feasable, cost effective, environmentally sound and immediately available. These three options are:

1. Mobile incineration with a Rotary Kiln (onsite)
2. Solvent Extraction (onsite)
3. Hazardous Waste Landfill (offsite).

It should be noted that many of the other alternatives considered appear to be attractive; however, in most cases the processes are in design or demonstration phases of development. Use onsite at this time would require large capital outlay and would not be timely. Attached is a two page comparison summary sheet which lists all the considered alternatives.

Each of the three identified viable alternatives were evaluated as follows:

1. Technical Feasibility
2. Cost
3. Time to complete project
4. Environmental Effectiveness
5. Commercial availability
6. Institutional factors (i.e. permits)
7. Material handling factors
8. Public acceptability
9. Monitoring requirements (real time - long term)
10. Non-site specific application.

Costs and time scales for each alternative are presented below:

<u>Alternative #1</u> - <u>Offsite Hazardous Waste Landfill</u>

This option as described in the PCB regulations requires a proper PCB permitted disposal facility. At present, only two facilities are available within a reasonable distance from this site. These are the Chemical Waste Management Landfill in Emelle, Alabama, and the SCA Landfill in Model City, New York. Of the two landfills, the Emelle location is more desirable since transportation costs are considerably less. (See attached report for more detailed analysis.)

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Costs associated with this option are as follows: (total 4,000 cubic yards)

1. Total Cost at fill	$680,400	($162/ton plus 5% tax)
2. Transportation Cost	525,000	(700 miles @ $3/mile)
3. Labor (loading etc.)	80,000	(approx. 14 days)
4. TAT/USCG/AST	20,000	
5. EPA	5,000	
Total Estimated Costs	$1,310,400	

Time to completion is estimated at 14 days upon approvals at the fill.

Alternative #2 - Mobile Incineration With a Rotary Kiln (onsite)

This option requires a properly permitted mobile unit. At present there are only two units with the potential of being approved in a timely manner. These are the EPA mobile incinerator, presently tied up in Missouri, or a privately owned unit operated by ENSCO. The ENSCO unit is presently available. Costs associated with this option are as follows:

1. Total Cost of incineration ($.20 per pound - 60 to 90 days at 6,000 lb/hour)	$1,600,000.00
2. Labor (material handling) ($2,000/day)	180,000.00
3. TAT - USCG/AST	20,000.00
4. EPA	10,000.00
Total Estimated Costs	$1,810,000.00

Time to completion is estimated at 60 to 90 days upon permit approvals from both EPA and the State of West Virginia.

Alternative #3 - Solvent Extraction

This option requires a TSCA approval, which has already been granted by headquarters. (See attached letter dated July 3, 1985 from EPA Hqtrs.) Studies by both industry and EPA indicate that this option is effective both technically and monetarily. PCB removal efficiency has been demonstrated in excess of 95% utilizing the proposed technique. (See attached report.) Costs associated with this option are as follows:

This will be a two phased project:

1. A full scale field demonstration that proves conclusively the effectiveness of this technique.

Cost

$ 100,000

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2. After satisfactory activities under Phase I, the following is a breakdown of items and cost associated with the total remaining activities.

Cost

1. Total Treatment/Extraction Costs (includes labor and handling of soils and solvent recycle)	$1,100,000
2. Solvent Costs (MEOH and Freon)	300,000
3. Incineration of Recovered Sludge (10,000 gallons @ $10.00/ gallon offsite)	100,000
4. TAT - USCG/AST	20,000
5. EPA	10,000
Total Estimated Costs of Phase I and II	$1,530,000

Total time to complete project is 60-90 days. The system is ready now pending fund approvals.

Conclusions

The investigation into alternative disposal techniques was prompted by the problems surrounding the landfilling of hazardous waste, as described on page three.

Onsite incineration presents problems in both approval requirements and public acceptability. Technically, it is the most sound option, since more complete destruction is achieved. However, public acceptability is a problem. The OSC requested an opinion from the State of West Virginia regarding the use of this option. The State is not in favor for two reasons: public opinion and the physical location of this site. The site is located in a valley surrounded by three large ridges. Air pollution, if it occurred, would concentrate in the valley area placing the population at risk.

Onsite solvent extraction using a closed system has several benefits, including public acceptability. All approvals required are easily secured and in fact have already been issued. PCB recoveries are in excess of 95%. The proposed system design will achieve a PCB recovery which will result in remaining PCB concentrations in the range of 0-25 ppm in extracted soils. A complete outline and analysis of this system is attached. A flow chart and schematic of the system is also included.

A six month exemption request has been submitted under separate cover.

Proposed Actions

Utilizing new onsite treatment technologies, the proposed action will involve:

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1. Demonstration onsite of the soil extraction system to include environmental analysis. This demonstration will be designed to illustrate the effectiveness of the PCB extraction and to identify any environmental impact which might occur as a result of the process.

2. Onsite treatment of the estimated 4,000 cubic yards of contaminated soil utilizing the soil solvent extraction technology which will result in an estimated 10,000 gallons of concentrated PCB sludge.

3. Either offsite fixed facility incineration of the PCB sludge or onsite destruction/detoxification. This onsite detoxification proposal will be dependent upon the proper approvals of the proposed molten salt detoxification equipment by EPA Headquarters, TSCA personnel.

The manner in which the Shaffer Equipment Company site meets the prescribed criteria for the one million dollar exemption is as follows:

1. Continued response actions are immediately required to mitigate an emergency.

An estimated 2,000 people live downstream, within one mile of the site. At present, due to geologic and property ownership factors, the 4,000 cubic yards of contaminated soil is located in the flood plain of Arbuckle Creek, approximately 50 yards from the stream banks. This stream commonly flows at an estimated 3,000 gallons per minute. An analysis of past flood history indicates that Arbuckle Creek can flood on the average of three to seven times a year. Geologically, the stream and the watershed are surrounded on three sides by mountain ridges which commonly result in flash flooding. A serious flood event would involve the Shaffer Equipment Company property and would result in the destruction of the integrity of the holding cell and the resultant carryout of contaminated soils downstream, into the residential area. In fact, past history indicates that this has already occured, since PCB has been found in residential backyards as high as 17 ppm.

2. There is an immediate risk to public health and the environment.

The Centers for Disease Control (CDC) has already certified that the high levels encountered at the site present an imminent and significant public health threat. This highly contaminated soil still remains onsite. As discussed in item 1, a flood event could result in the spread of this contaminated soil directly toward and into the residential area.

3. Assistance will not otherwise be provided on a timely basis.

The responsible parties have declined to undertake corrective actions at this site, due to financial inability to do so. The CERCLA enforcement section has spent considerable effort on investigating other possible responsible parties. Other than a second property owner who owns a small portion of this site, no other viable responsible parties have been

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located. The second property owner has declined to take action since he owns only a small portion of the affected area.

The State of West Virginia does not have the necessary resources to handle a site of this magnitude.

The Shaffer Equipment Company site is not presently on the National Priorities List. Region III SISS personnel are presently scoring this site for possible inclusion of the NPL; however, there is a need for more immediate action.

Request for Ceiling Increase

As discussed previously, the cost to complete this project, utilizing the proposed option, is estimated to be $1,530,000. Based on this estimated cost, I hereby request an increase in the project ceiling, bringing the new total to $2,300,000.

Recommendations

Based on the information contained herein, I recommend that you concur in the $1 million exemption (CERCLA 104(c)(1)) and approve the additional $1,530,000 ($1,500,000 Extramural, $30,000 Intramural) needed to continue emergency response actions and mitigate this immediate threat to public health.

You may indicate your approval or disapproval by signing below. Due to the immediacy of this removal action, I would appreciate rapid consideration of the proposal and approval of the additional funds.

APPROVAL _____ Date 8/15/85

DISAPPROVAL _____ Date _____