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LEAD RELEASE AT THE FMPC

01/17/90

WMCO:R:90-065
WMCO/DOE-FMPC
14
LETTER

[redacted]

Westinghouse
Materials Company
of Ohio

PO Box 398704
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972

WMCO:R:90-065
January 17, 1990

DOE-1540-89

Mr. James A. Reafsnyder
Site Manager
U.S. Department of Energy
P.O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Reafsnyder:

LEAD RELEASE AT THE FMPC

Reference: 1) DOE-1540-89, Letter to President, WMCO from J. A. Reafsnyder, "Lead Release at the FMPC," dated August 31, 1989.

2) WMCO:R:89-215, W. A. Weinreich to J. A. Reafsnyder, "Lead Release at the FMPC," dated August 4, 1989.

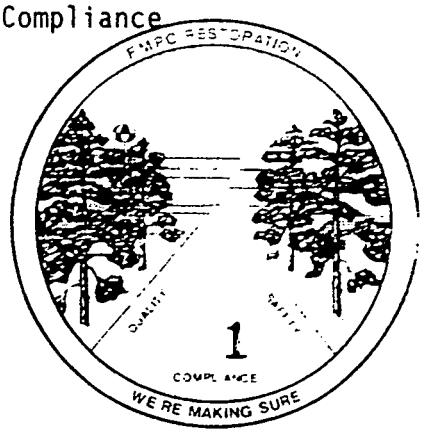
In reference letter #1 DOE has requested WMCO to revise and provide additional information in order to complete the transmittal letter of August 4, 1989 (ref. #2). Specifically, additional information was requested on four items relative to the lead release at the FMPC. These items are listed on attachment A to this letter with WMCO responses addressing each of the DOE concerns. In addition, the attachment to the August 4 letter has been updated to include information requested by DOE (see attachment B to this letter). This information is provided so that DOE can determine the need for and, if necessary, prepare a preliminary assessment as described in 40 CFR 300.64.

Recently, WMCO reviewed the USEPA memorandum "Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites" (see attached copy). This memo is a directive to the EPA Regions from EPA Headquarters that sets an interim soil cleanup level for total lead at 500 to 1000 ppm for CERCLA remedial actions. EPA considers these limits to be protective for direct contact at residential settings. In response to this guidance, WMCO recommends that the total lead levels for soil for the Grit Blast Residue cleanup be set at 500 ppm.

Please contact Ms. S. G. Schneider, Manager of Solid Waste Compliance on extension 6740 if you have any questions.

Yours very truly,

W. A. Weinreich, Vice President
FMPC Restoration



c: S. L. Bradley
W. H. Britton
C. J. Brown
M. J. Galper
J. T. Grumski
J. P. Hopper
S. Kottner
P. C. Mohr
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SWC File

DW:89:0260

ATTACHMENT A

LEAD RELEASE AT THE FMPC

1. **In the fourth paragraph [of ref. #2], it does not state the date of notification to the regulatory agencies for the release, the quantity of the release and the impact area.**

   DOE OROC notified the National Response Center (NRC), OEPA and EPA Region V on June 22, 1989. The quantity of lead released is estimated at 12 pounds.

2. **In the fifth paragraph, it indicates that a program of cleanup to remove this lead contamination was initiated in accordance with the referenced "Grit Blast Material Clean Up Plan." A copy of this WMCO document is not included as an appendix to this report as it states.**

   The Grit Blast Material Cleanup Plan is currently being updated to reflect the current status of the cleanup activities and will be issued to DOE by February 3, 1990.

3. **In the sixth paragraph, it is unclear what type of contamination was removed from the trench and when it was completed. Furthermore, in the same paragraph, it indicates that four samples were collected from four locations. It does not disclose the exact locations of these samples, sampling methods and analytical results. The information is needed to determine whether any on-site and/or off-site contamination should be a concern.**

   The lead contamination removed from the trench consisted of grit blast residue and paint particles. This was initiated and completed on June 22, 1989.

   The four sampling locations in question are shown on the attached map. They were chosen to assess any potential off-site contamination resulting from storm water flow that could have washed grit or paint into Paddy's Run. Sample locations were chosen where storm water drainage is directed from the facility toward Paddy's Run. After the sampling was completed, it was noted that the actual location of sample #1 was not the intended sampling location. The intended location was near the point where the drainage ditch on the east side of the storm water retention basin enters the Paddy's Run tributary. The actual sampling location is south of that point, further downstream in the tributary. Collection of sample #1 was not redone at the originally intended location, the four actual samples were believed to be adequate for making an initial assessment of any off-site migration of lead contamination.

   Samples were obtained with the use of a shovel and subsequently placed into sample jars. No standard method for sample collection was consulted prior to sampling. All four samples were analyzed for total and leachable (EP Toxic) lead. The analytical results are attached, sample numbers correspond with locations.

4. **The EP toxicity cannot be used as the "clean" levels for soil. Ohio EPA uses two alternative standards for naturally occurring elements or compounds for hazardous waste closures. The same standards should also be applicable for the CERCLA related clean up.**

   The OEPA alternatives are established "clean" levels for soils as set forth in the Ohio EPA "Closure Plan Review Guidance". These levels were initially considered for the Grit Blast Residue cleanup limits. More recently, WMCO has obtained the USEPA memorandum, "Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites" (attached). This document establishes a cleanup level for total lead at 500 to 1000 ppm, which EPA considers protective for direct contact at residential settings. Based on this information, WMCO proposes that the total lead levels for soil for the Grit Blast Residue cleanup be set at 500 ppm.

LEAD RELEASE AT THE FMPC

The Code of Federal Regulations, 40 CFR 300.64, indicates that a preliminary assessment of a release or threat of a release identified for possible response pursuant to 40 CFR 300.65 shall, as appropriate, be undertaken by the lead agency as promptly as possible. The assessment is to be based on readily available information, including (although not limited to):

(1) Identification of the source and nature of the release;
(2) evaluation of the threat to public health;
(3) Evaluation of the magnitude of the potential threat;
(4) Evaluation of factors necessary to make determination of whether a removal action is necessary.

Presidential Order 12580 delegated "lead agency" authority to the Department of Energy for DOE facilities. The following discussion provides the information needed by DOE to decide if a preliminary assessment document or a removal action is required.

During the week of June 5, 1989, WMCO personnel noted the presence of grit material at the Plant 2/3 Pad. Based on prior grit blast activities to remove old lead-based paint from structures preparatory to repainting, samples of the grit material were collected and subjected for analysis of lead content. The initial areas from which samples were taken included the Plant 2/3 Pad area, and the nearby collection trench and sump.

Analysis of the grit blast residue showed concentrations of leachable lead exceeding 5 ppm. OROC notified the NRC, OEPA, and EPA Region V on June 22, 1989. The quantity of lead released was estimated at 12 pounds.

A review was initiated to determine the circumstances leading to the presence of the grit blast residue, and the extent of the associated lead contamination. A program of cleanup to remove the surface contamination was begun. A description of this program and a review of the circumstances by which this lead contamination was produced will be included in the Grit Blast Material Cleanup Plan to be issued February 3, 1989.

The presence of lead contamination mixed with grit blast residue in the collection trench and sump raised the possibility that storm water flow from the trench to Paddy's Run Creek could have allowed lead contamination to leave the FMPC site boundaries. Immediate action was taken to remove the lead contaminated grit blast residue and paint particles from the trench. This action was initiated and completed on June 22, 1989.

In addition to contamination removal, four samples were collected to assess any potential off-site contamination resulting from storm water flow that could have washed grit or paint into Paddy's Run. Sample locations (see sample location Map) were chosen where storm water drainage is directed from the facility toward Paddy' Run. After the sampling was completed, it was noted that the actual location of sample #1 was not the intended sampling location. The intended location was near the point where the drainage ditch on the east side of the storm water retention basin enters the Paddy's Run tributary. The actual sampling location is south of that point, further downstream in the tributary. Collection of sample #1 was not redone at the originally intended location, the four samples were believed to be adequate for making an initial assessment of any off-site migration of lead contamination.

Samples were obtained with the use of a shovel and subsequently placed into sample jars. No standard method for sample collection was consulted prior to sampling. All four samples were analyzed for total and leachable (EP Toxic) lead. The analytical results are attached, sample numbers correspond with locations.

Analysis of uranium and thorium concentrations in the samples gave results below the site limits for uncontrolled areas, as listed in WMCO site Procedure FMPC-720. In addition, total lead analysis demonstrated that no threat to public health resulted from the on-site release of lead-contaminated paint residues. The total lead concentrations were below the upper limit of the Ohio EPA Alternative B "Clean " levels for soils (39 ppm) found in the OEPA "Closure Plan Review Guidance". Concentrations were also well under limits (500-1000 ppm total lead) recommended by EPA in the "Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites". Thus, no off-site contamination exceeding allowable values have been detected at the most likely locations where rainwater carry-off could occur, and the ongoing cleanup activities should preclude any future off-site release of the lead contaminated grit blast and paint particles.

At present, the initial FMPC site surface cleanup is nearly complete, only the substation area remains to be cleaned. At the completion of the initial cleanup, soil samples will be collected and analyzed for total lead concentrations. Data will be used to determine any necessary additional cleanup activities and can also be used by DOE to assess the need for a removal action. Site surface cleanup and sampling will be discussed in detail in the Grit Blast Material Cleanup Plan to be issued.

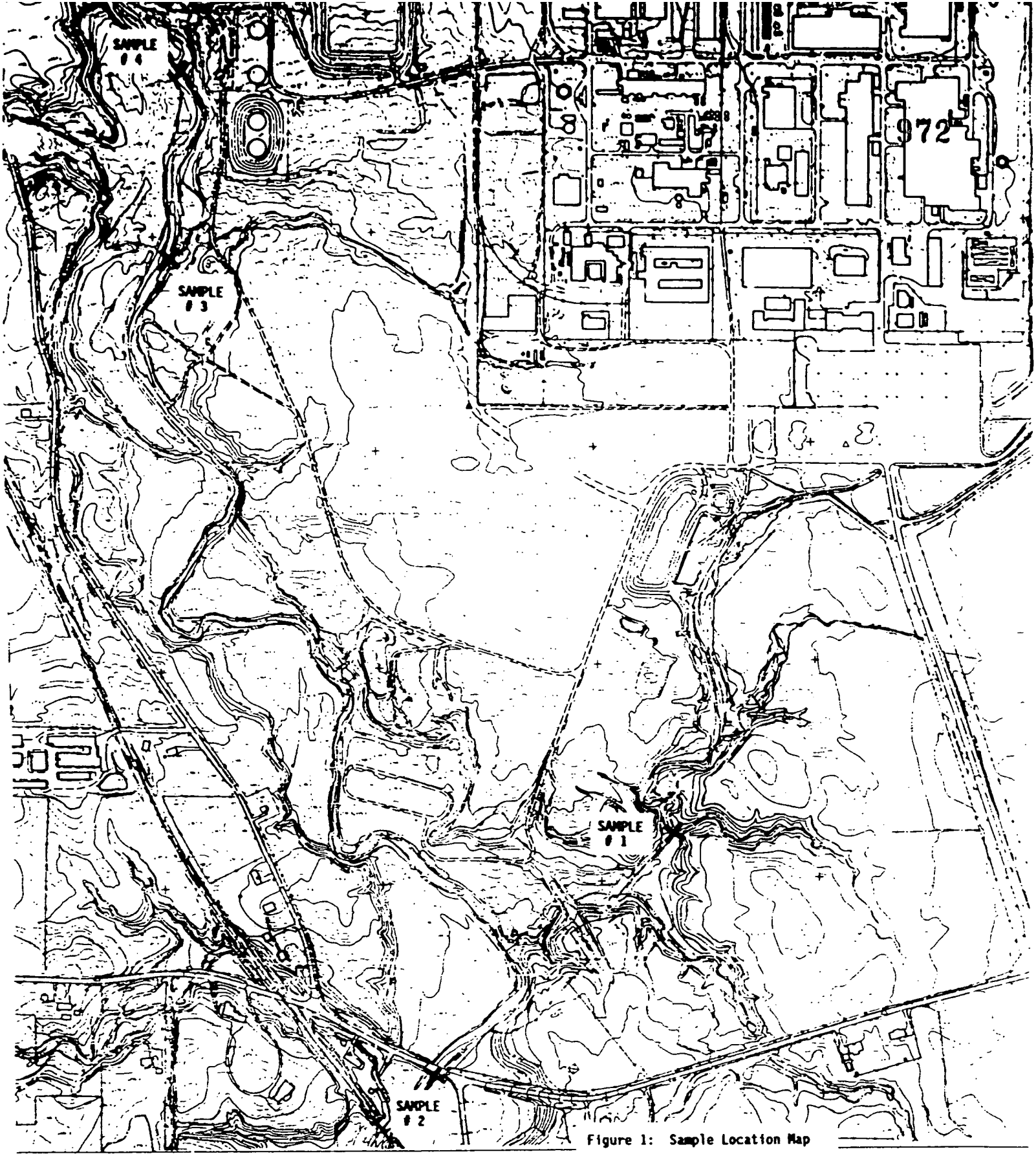

Figure 1: Sample Location Map

Westinghouse Materials Company of Ohio
Feed Material Production Center

REDUCED DRAW
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WESTINGHOUSE MATERIALS COMPANY OF OHIO
FMPC LABORATORIES
RESULTS OF ANALYSES

Customer Name:	WASTE OPERATIONS	Chain of Custody:	N
Customer Sample Number:	#1	Lab Sample Number:	890622-059
Date Sample Received:	22-JUN-1989	Date Sample Completed:	
Date Sampled:	22-JUN-1989	Sampled By:	
Material Description:	SEDIMENT SILT/SOIL	Req. Number:	

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
	4018		U-234 - Thermal Anl MS	--------	Wt.% (U)		
	4018		U-235 - Thermal Anl MS	--------	Wt.% (U)		
	4018		U-236 - Thermal Anl MS	--------	Wt.% (U)		
	4018		U-238 - Thermal Anl MS	--------	Wt.% (U)		
7001		7001	Total Th - XRF Anl	<23	ppm	SW BOLIN	6-JUL-1989
		7001	Total U - XRF Anl	<11	ppm	SW BOLIN	6-JUL-1989

WESTINGHOUSE MATERIALS COMPANY OF OHIO
FMPC LABORATORIES
RESULTS OF ANALYSES

Customer Name:	WASTE OPERATIONS	Chain of Custody:	N
Customer Sample Number:	#1	Lab Sample Number:	890622-059
Date Sample Received:	22-JUN-1989	Date Sample Completed:	
Date Sampled:	22-JUN-1989	Sampled By:	
Material Description:	SEDIMENT SILT/SOIL	Req. Number:	

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
			Tot. Pb - GFAA Anl INORG	--------			
			Total Pb - ICP Anl INORG	38.6	mg/kg	GJ KUNZE	10-JUL-1989
00	1054	1060	Pb - GFAA Anl INORG	< 1.0	mg/L	KH HILBERT	30-JUN-1989

WESTINGHOUSE MATERIALS COMPANY OF OHIO
FMPC LABORATORIES
RESULTS OF ANALYSES

Customer Name: WASTE OPERATIONS
Customer Sample Number: #2
Date Sample Received: 22-JUN-1989
Date Sampled: 22-JUN-1989
Material Description: SEDIMENT SILT/SOIL
Chain of Custody: N
Lab Sample Number: 890622-060
Date Sample Completed:
Sampled By:
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
	4018		U-234 - Thermal AnL MS	--------	Wt.% (U)		
	4019		U-235 - Thermal AnL MS	--------	Wt.% (U)		
	4019		U-236 - Thermal AnL MS	--------	Wt.% (U)		
	4019		U-238 - Thermal AnL MS	--------	Wt.% (U)		
7001		7031	Total Th - XRF AnL	<23	ppm	RN BOLIN	6-JUL-1989
		7001	Total U - XRF AnL	<11	ppm	RN BOLIN	6-JUL-1989

WESTINGHOUSE MATERIALS COMPANY OF OHIO
FMPC LABORATORIES
RESULTS OF ANALYSES

Customer Name: WASTE OPERATIONS
Customer Sample Number: #2
Date Sample Received: 22-JUN-1989
Date Sampled: 22-JUN-1989
Material Description: SEDIMENT SILT/SOIL
Chain of Custody: N
Lab Sample Number: 890622-060
Date Sample Completed:
Sampled By:
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
			Tot. Pb - GFAA AnL INORG	--------			
			Total Pb - ICP AnL INORG	< 7.6	mg/kg	GJ KUMZE	10-JUL-1989
1060	1054	1060	Pb - GFAA AnL INORG	< 1.0	mg/L	RH HILBERT	30-JUN-1989

WESTINGHOUSE MATERIALS COMPANY OF OHIO
FMPC LABORATORIES
RESULTS OF ANALYSES

Customer Name:	WASTE OPERATIONS	Chain of Custody:	N
Customer Sample Number:	#3	Lab Sample Number:	890622-061
Date Sample Received:	22-JUN-1989	Date Sample Completed:	
Date Sampled:	22-JUN-1989	Sampled By:	
Material Description:	SEDIMENT SILT/SOIL	Req. Number:	

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
			Tot. Pb - GFAA AnL INORG	--------			
			Total Pb - ICP AnL INORG	12.5	mg/kg	GJ KUNZE	10-JUL-1989
1089	1054	1060	Pb - GFAA AnL INORG	< 1.0	mg/L	RH HILBERT	30-JUN-1989

WESTINGHOUSE MATERIALS COMPANY OF OHIO
FMPC LABORATORIES
RESULTS OF ANALYSES

Customer Name:	WASTE OPERATIONS	Chain of Custody:	N
Customer Sample Number:	#3	Lab Sample Number:	890622-061
Date Sample Received:	22-JUN-1989	Date Sample Completed:	
Date Sampled:	22-JUN-1989	Sampled By:	
Material Description:	SEDIMENT SILT/SOIL	Req. Number:	

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
	4018		U-234 - Thermal AnL MS	--------	Wt.% (U)		
	4018		U-235 - Thermal AnL MS	--------	Wt.% (U)		
	4018		U-236 - Thermal AnL MS	--------	Wt.% (U)		
	4018		U-238 - Thermal AnL MS	--------	Wt.% (U)		
7001		7001	Total Th - XRF AnL	<23	ppm	RN BOLIN	6-JUL-1989
		7001	Total U - XRF AnL	<11	ppm	RN BOLIN	6-JUL-1989

WESTINGHOUSE MATERIALS COMPANY OF OHIO
FMPC LABORATORIES
RESULTS OF ANALYSES

Customer Name: WASTE OPERATIONS
Customer Sample Number: #4
Date Sample Received: 22-JUN-1989
Date Sampled: 22-JUN-1989
Material Description: SEDIMENT SILT/SOIL
Chain of Custody: N
Lab Sample Number: 890622-062
Date Sample Completed:
Sampled By:
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
			Tot. Pb - GFAA AnL INORG	--------			
			Total Pb - ICP AnL INORG	28.7	ug/kg	GJ KUNZE	10-JUL-1989
1090	1084	1090	Pb - GFAA AnL INORG	< 1.0	ug/L	RH HILBERT	30-JUN-1989

WESTINGHOUSE MATERIALS COMPANY OF OHIO
FMPC LABORATORIES
RESULTS OF ANALYSES

Customer Name: WASTE OPERATIONS
Customer Sample Number: #4
Date Sample Received: 22-JUN-1989
Date Sampled: 22-JUN-1989
Material Description: SEDIMENT SILT/SOIL
Chain of Custody: N
Lab Sample Number: 890622-062
Date Sample Completed:
Sampled By:
Req. Number:

Activity Number	Preparation Procedure No.	Analysis Procedure No.	Analysis	Result	Units	Analyst	Date Completed
	4018		U-234 - Thermal AnL MS	--------	Wt.% (U)		
	4018		U-235 - Thermal AnL MS	--------	Wt.% (U)		
	4018		U-236 - Thermal AnL MS	--------	Wt.% (U)		
	4018		U-238 - Thermal AnL MS	--------	Wt.% (U)		
7001		7001	Total Th - XRF AnL	<23	ppm	RN BOLIN	6-JUL-1989
		7001	Total U - XRF AnL	<11	ppm	RN BOLIN	6-JUL-1989

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

OSWER Directive #9355.4-02

MEMORANDUM

SUBJECT: Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites.

FROM: Henry L. Longest II, Director
Office of Emergency and Remedial Response

Bruce Diamond, Director
Office of Waste Programs Enforcement

TO: Directors, Waste Management Division, Regions I, II, IV, V, VII and VIII
Director, Emergency and Remedial Response Division, Region II
Directors, Hazardous Waste Management Division, Regions III and VI
Director, Toxic Waste Management Division, Region IX
Director, Hazardous Waste Division, Region X

PURPOSE

The purpose of this directive is to set forth an interim soil cleanup level for total lead, at 500 to 1000 ppm, which the Office of Emergency and Remedial Response and the Office of Waste Programs Enforcement consider protective for direct contact at residential settings. This range is to be used at both Fund-lead and Enforcement-lead CERCLA sites. Further guidance will be developed after the Agency has developed a verified Cancer Potency Factor and/or a Reference Dose for lead.

BACKGROUND

Lead is commonly found at hazardous waste sites and is a contaminant of concern at approximately one-third of the sites on the National Priorities List (NPL). Applicable or relevant and appropriate requirements (ARARs) are available to provide cleanup levels for lead in air and water but not in soil. The current

National Ambient Air Quality Standard for lead is 1.5 ug/m^3. While the existing Maximum Contaminant Level (MCL) for lead is 50 ppb, the Agency has proposed lowering the MCL for lead to 10 ppb at the tap and to 5 ppb at the treatment plant[1]. A Maximum Contaminant Level Goal (MCLG) for lead of zero was proposed in 1988[2]. At the present time, there are no Agency-verified toxicological values (Reference Dose and Cancer Potency Factor, ie., slope factor), that can be used to perform a risk assessment and to develop protective soil cleanup levels for lead.

Efforts are underway by the Agency to develop a Cancer Potency Factor (CPF) and Reference Dose (RfD), (or similar approach), for lead. Recently, the Science Advisory Board strongly suggested that the Human Health Assessment Group (HHAG) of the Office of Research and Development (ORD) develop a CPF for lead, which was designated by the Agency as a B2 carcinogen in 1988. The HHAG is in the process of selecting studies to derive such a level. The level and documentation package will then be sent to the Agency's Carcinogen Risk Assessment Verification Exercise (CRAVE) workgroup for verification. It is expected that the documentation package will be sent to CRAVE by the end of 1989. The Office of Emergency and Remedial Response, the Office of Waste Programs Enforcement and other Agency programs are working with ORD in conjunction with the Office of Air Quality Planning and Standards (OAQPS) to develop an RfD, (or similar approach), for lead. The Office of Research and Development and OAQPS will develop a level to protect the most sensitive populations, namely young children and pregnant women, and submit a documentation package to the Reference Dose workgroup for verification. It is anticipated that the documentation package will be available for review by the fall of 1989.

IMPLEMENTATION

The following guidance is to be implemented for remedial actions until further guidance can be developed based on an Agency verified Cancer Potency Factor and/or Reference Dose for lead.

Guidance

This guidance adopts the recommendation contained in the 1985 Centers for Disease Control (CDC) statement on childhood lead poisoning[3] and is to be followed when the current or predicted land use is residential. The CDC recommendation states that "...lead in soil and dust appears to be responsible for blood levels in children increasing above background levels when the concentration in the soil or dust exceeds 500 to 1000 ppm". Site-specific conditions may warrant the use of soil cleanup levels below the 500 ppm level or somewhat above the 1000 ppm level. The administrative record should include background documents on the toxicology of lead and information related to site-specific conditions.

The range of 500 to 1000 ppm refers to levels for total lead, as measured by protocols developed by the Superfund Contract Laboratory Program. Issues have been raised concerning the role that the bioavailability of lead in various chemical forms and particle sizes should play in assessing the health risks posed by exposure to lead in soil. At this time, the Agency has not developed a position regarding the bioavailability issue and believes that additional information is needed to develop a position. This guidance may be revised as additional information becomes available regarding the bioavailability of lead in soil.

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Blood-lead testing should not be used as the sole criterion for evaluating the need for long-term remedial action at sites that do not already have an extensive, long-term blood-lead data base[1].

EFFECTIVE DATE OF THIS GUIDANCE

This interim guidance shall take effect immediately. The guidance does not require that cleanup levels already entered into Records of Decisions, prior to this date, be revised to conform with this guidance.

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[1] In one case, a biokinetic uptake model developed by the Office of Air Quality Planning and Standards was used for a site-specific risk assessment. This approach was reviewed and approved by Headquarters for use at the site, based on the adequacy of data (due to continuing CDC studies conducted over many years). These data included all children's blood-lead levels collected over a period of several years, as well as family socio-economic status, dietary conditions, conditions of homes and extensive environmental lead data, also collected over several years. This amount of data allowed the Agency to use the model without a need for extensive default values. Use of the model thus allowed a more precise calculation of the level of cleanup needed to reduce risk to children based on the amount of contamination from all other sources, and the effect of contamination levels on blood-lead levels of children.

REFERENCES

1. 53 FR 31516, August 18, 1988.
2. 53 FR 31521, August 18, 1988.
3. Preventing Lead Poisoning in Young Children, January 1985, U.S. Department of Health and Human Services, Centers for Disease Control, 99-2230.