



Department of Energy

Idaho Operations Office
1955 Fremont Avenue
Idaho Falls, ID 83415

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Mr. Brian Monson
Hazardous Waste Program Manager
Waste Management and Remediation Division
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706

Mr. Dennis Faulk
INL Program Manager
US EPA Region 10-Hanford Project Office
309 Bradley Blvd., Suite 115
Richland, Washington 99352

SUBJECT: Request for Concurrence on Leaving Piping with Leaded Joints beneath CPP-601 and CPP-602 as Impracticable to Remove (WDP-RWMC-11-068)

Dear Mr. Monson and Mr. Faulk:

In accordance with closure plans for CPP-601 and CPP-602, the contaminant source terms remaining after completion of the Hazardous Waste Management Act/Resource Conservation and Recovery Act (HWMA/RCRA) closure activities and the Comprehensive Environmental Response, Compensation and Liability Act Decontamination & Demolition Non-Time Critical Removal Action (CERCLA D&D NTCRA) were to be assessed under CERCLA for remaining risk. During the preparation of the non-radiological source term to support this CERCLA risk assessment, previously unidentified lead was determined to have been used to seal cast iron pipe sections that were buried beneath these buildings. It was not known that this piping contained lead when the practicability of the removal of other lead in these facilities was initially evaluated. Based upon the available information, the lead in the pipe joints beneath CPP-601 and CPP-602 should be considered as impracticable to remove and should be managed as part of the contaminant source term within the soils beneath these buildings that are designated as CERCLA sites CPP-80, CPP-117, CPP-118, CPP-119, CPP-120, CPP-121, CPP-122, and CPP-123.

The CERCLA NTCRA for these two facilities were based upon the concept of leaving the existing concrete structures intact over contaminated soils to prevent the infiltration of precipitation through the contaminated soils beneath the buildings. Removal of the lead seals in the piping joints would require disrupting these structures and working in those contaminated soils.

Enclosed is further information on the leaded joints in the cast iron piping that was left beneath CPP-601 and CPP-602 that should be considered as impracticable to remove. In accordance with previous discussions for CPP-601 on leaving lead impracticable to remove, your concurrence is requested to leave this piping in place. The lead should be considered a part of the CERCLA source term beneath these buildings. HWMA/RCRA landfill closure plan for CPP-601 implements a groundwater monitoring program that will effectively monitor the soils beneath these buildings, including those areas that contain the piping with leaded joints.

If you have further questions or need additional information, please contact Nicole Hernandez at (208) 526-8949 or hernannk@id.doe.gov.

Sincerely,



Kathleen E. Hain, FFA/CO Project Manager
Idaho Cleanup Project

Enclosure

cc: Rebecca Gerhart, OEA Risk Evaluation Unit, EPA Region 10
Robert Bullock, Idaho Department of Environmental Quality
M. E. (Hoss) Brown, CWI
Frank Webber, CWI
Marcia Pratt, CWI
Howard Forsythe, CWI
Dave Eaton, CWI
ARDC, CWI, MS 3915

10/31/11

Lead filled joints in cast iron piping identified beneath CPP-601 and CPP-602

Summary

During the preparation of a non-radiological source term to support risk assessments for the completion of the removal action report(s) for CPP-601 and CPP-602 lead was identified as having been used to seal cast iron piping that was buried beneath these buildings. It was not known that this piping contained lead when the practicability of the removal of other lead in these facilities was evaluated. Based upon the available information, the lead in the pipe joints beneath CPP-601 and CPP-602 should be considered as impracticable to be removed and should be managed as part of the contaminants within the CERCLA sites beneath these buildings that encompass this piping.

Further Information

Releases of radioactively contaminated liquids from cast iron PEW piping beneath CPP-601 and CPP-602 were the source of some of the contamination below those buildings that were the basis for identifying these areas as CERCLA sites. The remedy selected by the OU 3-13 and 3-14 RODs for INTEC CERCLA group 2 (sites beneath buildings) was a deferred action until the buildings were D&D'd. After D&D the contaminated soils were to be evaluated to determine if RAOs were met. These buildings are within the OU 3-14 industrial use area for which future residential use was determined to not be a viable alternative. As such, compliance with the RAOs required a demonstration of acceptable risk to workers and to the aquifer. As the contaminated soils for both buildings are more than -10' bgs, the contaminated soils do not present an unacceptable risk to workers.

The radioactively contaminated soils beneath both buildings were included in risk and dose assessments that supported the Engineering Evaluation/Cost Analysis (EE/CA) for the CPP-601 and CPP-640 facilities. Those risk and dose assessments determined that these soils did not present an unacceptable risk to human health or the environment and leaving the soils in place was in compliance with the RAOs. As such the Action Memorandum for CPP-601 and CPP-640 determined that the end state for these two facilities would be to leave the contaminated parts of these building in place by grouting them full to place them in a long term stable configuration. The CPP-602 facility was not further addressed in the CPP-601/640 Action Memorandum but was covered by the General D&D Action Memorandum. The plan for the D&D of CPP-602 as a CERCLA NTCRA was discussed with the CERCLA agencies. The plan was to remove the building leaving the basement floor essentially intact to act as a shield to inhibit the movement of precipitation through the contaminated soils. The northwest corner of the basement floor (furthest point from contaminated soils) was to be fractured to prevent the basement from filling with water. Areas such as the waste trench, sumps, the elevator shaft, and the denitrator pit that was lower than the basement floor, were to be filled with grout to prevent water from building up in those areas. Those actions were accomplished.

The cast iron piping beneath CPP-601 is within the RCRA landfill closure boundaries. The CPP-602 closure plan stated that cast iron lines beneath CPP-602 were to be left in place and after completion of the closure plan managed as part of the CERCLA sites beneath the buildings and were not subject to further HWMA/RCRA closure activities. As the cast iron lines beneath CPP-601 and CPP-602 were not considered to be intact (based upon known previous releases from these lines), no attempt was made to rinse those lines beneath the basement floors in order to prevent the spread of previous releases. As the basement floors for both facilities were to be left intact, no attempt was made to remove these lines.

Upon completion of the CPP-602 NTCRA, a risk assessment was performed to demonstrate protection of human health and the environment and if necessary, to determine the potential need for institutional control. During the performance of the non-radiological risk assessment, lead was identified as having been used to seal the joints in sections of the cast iron piping. Approximately 14 kg of lead was estimated as having been used in the PEW piping below CPP-602. Approximately 74 kg was estimated as having been used in the PEW piping below CPP-601. Further review showed that another 74 kg of lead had been used in cast iron service waste piping beneath the CPP-602 basement floor. There was no cast iron service waste piping below CPP-601.

The soils beneath CPP-601 and CPP-602 are designated as CERCLA sites CPP-80, CPP-117, CPP-118, CPP-119, CPP-120, CPP-121, CPP-122, and CPP-123. A non-radiological risk assessment demonstrates that the non-radiological constituents do not present an unacceptable risk. Removing the cast iron piping beneath CPP-601 would have required working in cramped locations in the vent tunnels to remove concrete flooring and soils that were significantly contaminated and impracticable to remove. Removing the cast iron piping below CPP-602 would have compromised the ability of the floor to act as a shield to prevent movement of water through the contaminated zone. CPP-601 and adjacent facilities CPP-640 and CPP-627 have been closed together as a RCRA landfill. CPP-602 is immediately adjacent to the CPP-601. All of these facilities are located within the OU 3-14 Industrial Use Area (IUA). The CERCLA Agencies have determined that institutional controls will be required indefinitely for this area.

It is proposed that the cast iron piping with leaded joints beneath CPP-601 and CPP-602 be included in the non-radiological contaminant inventory for the CERCLA sites beneath these buildings. This information along with the risk assessments will be included in the CPP-601 and CPP-602 NTCRA Removal Action Report(s) which will be placed in the Administrative Record.

As part of the lessons learned from this event, other buildings at INTEC were reviewed to determine the potential implications of use of leaded joints on cast iron piping. The initial results are that all of the original construction at INTEC including CPP-601, 602, 603, 604, 605, and 606 utilized leaded joints in cast iron piping. The leaded joints in the still active buildings will be addressed as they are subject to D&D and NTCRAs. Other newer INTEC buildings appear to have utilized either stainless steel, carbon steel, or plastic piping and do not appear to have leaded joint issues.

Leaded joints evaluation in piping beneath CPP 601 and CPP-602

In CPP-601 there were leaded joints in the PEW piping. In CPP-602, there were leaded joints in both PEW piping and service waste piping.

CPP-601 PEW piping	KGs of lead per joint	No. of Joints	Total KGs
4" joints	0.93	80	74.2
CPP-601 PEW total KGs			74.2

CPP-602 PEW	KGs of lead per joint	No. of Joints	Total KGs
3" joints	0.73	9	6.6
4" joints	0.93	8	7.4
CPP-602 PEW total KGs			14.0

CPP-602 Service Waste	KGs of lead per joint	No. of Joints	Total KGs
2" joints	0.52	8	4.2
3" joints	0.73	20	14.6
4" joints	0.93	60	55.6
CPP-602 Service waste total KGs			74.4

Reference: Information on amount of lead per joint from table 6 for XH cast iron piping, Lead Required to Caulk Cast Iron Soil Pipe Joints, *Cast Iron Soil Pipe & Fittings Handbook*, Cast Iron Soil Pipe Institute, Chattanooga, Tennessee, 2006.