



Department of Energy

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JUL 12 2007

Mr. Allen Burnett, Chair
Citizens Advisory Board
111 Memorial Drive
Paducah, Kentucky 42001

PPPO-02-454-07

Dear Mr. Burnett:

**RESPONSE TO CITIZENS ADVISORY BOARD CONSENSUS
RECOMMENDATION 07-03 (CONTINUED USE OF WEST KENTUCKY
WILDLIFE MANAGEMENT AREA DURING REMEDIATION OF SOIL AND
RUBBLE PILES)**

The U.S. Department of Energy (DOE) received the Citizen Advisory Board's (CAB) Consensus Recommendation 07-03, dated January 18, 2007. The CAB recommended that DOE (a) expedite development and implementation of the Sampling and Analysis Plan (SAP) and remediation of the contaminated soil and rubble piles; (b) maintain institutional controls as necessary to protect the public health and safety; and, (c) provide maximum access to the West Kentucky Wildlife Management Area (WKWMA) consistent with protection of the public health and safety during investigation and remediation efforts.

DOE believes that its actions are and continue to be consistent with the recommendations of the CAB, including protection of human health and the environment. Since the discovery of contamination in soil piles adjacent to Little Bayou Creek in November of 2006, DOE has taken aggressive actions to identify, control, and characterize soil piles along the Paducah Gaseous Diffusion Plant's outfall ditches and creeks. DOE promptly identified and radiologically surveyed the soil pile areas and rubble piles to determine the need for institutional controls consistent with 10 *CFR* § 835. To prevent potential exposure to the public, areas exceeding two times background were posted and roped off. Site personnel routinely brief both WKWMA staff and the United States Enrichment Corporation protective forces regarding these areas and provide a map of the controlled areas for distribution to users of the area. Authorized users of the licensed area of the plant are required to check in with WKWMA and the protective forces. Due to the location of the relatively small number of soil piles requiring control, DOE has minimized impact to the users of the licensed area of the plant. Additional characterization of the soil pile areas and rubble piles is required to determine the nature and extent of contamination. DOE will continue to coordinate with the WKWMA staff to minimize impacts as characterization activities continue. This does not prevent DOE from implementing further controls or restricting further access to the licensed areas of the plant in order to protect human health and the environment, as necessary.

DOE continues to work closely with the Commonwealth of Kentucky (KY) and the U.S. Environmental Protection Agency (EPA) to develop a sampling and analysis plan to expeditiously characterize the soil pile areas and rubble piles. DOE's commitment to accelerate the characterization of the soil piles areas and rubble piles is illustrated by actions taken, including 1) segregating the sampling areas so that field activities would begin more quickly, 2) committing to KY and EPA a schedule for the development and implementation of sampling analysis plans, 3) requesting accelerated and real-time reviews by KY and EPA, and 4) initiating sampling after discussions with KY and EPA without final approval of the sampling and analysis plans by KY and EPA. As characterization data becomes available, DOE will, in consultation with KY and EPA, determine what remediation actions are necessary. A summary that delineates specific actions taken by DOE and PRS pertaining to the identifying and characterization of these areas is enclosed.

DOE appreciates the support provided by the CAB as this project has unfolded. If you have any questions or require additional information, please contact Mitch Hicks at (270) 441-6820.

Sincerely,



Reinhard Knerr
Paducah Site Lead
Portsmouth/Paducah Project Office

Enclosure:
Paducah Soil Pile Area/Rubble Pile Actions Summary

cc w/enclosure:
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W. Murphie, PPPO/Lexington
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cc w/o enclosure:
M. Hicks, PPPO/PAD

Paducah Soil Pile Area/Rubble Pile Actions Summary

Background

On November 2, 2006, Paducah Remediation Services, LLC (PRS) radiological control technicians (RCTs) discovered a series of soil mounds located on the western bank of Little Bayou Creek, which is east of the Paducah Gaseous Diffusion Plant (PGDP). The Radiation Control Technicians (RCTs) discovered surface contamination above observed background, with radiological survey results as high as seven times background. The area covered by these mounds is approximately 1400 feet long and 20 feet wide. The estimated volume of the mounds bordering Little Bayou Creek is 6000 cubic yards.

The area in which the mounds are located is on the Department of Energy (DOE) reservation. This area is considered part of the buffer area for the Paducah Gaseous Diffusion Plant. This portion of the DOE reservation is licensed to the Kentucky Department of Fish and Wildlife Resources for wildlife management, conducting controlled bow hunts, and bird-dogs field trials.

Actions to Date

- 11/2/06 – Soil piles found through routine monthly field screening.
- 11/3/06 – Occurrence Report initiated; DOE notified/briefed the Kentucky Department of Environmental Protection (KDEP) and the Environmental Protection Agency (EPA).
- 11/03/06 through 12/27/06 – Completed field screening of Bayou Creek, Little Bayou Creek, and Outfall ditches against 10 *CFR* § 835 standards (i.e., areas exceeding two times background were posted with signs and roped for radiological purposes to prevent access by and exposure to the public). A few grab samples were taken on 11/09/06.
- 12/14/06 – Met with EPA/KDEP to discuss approach for addressing soil piles. All agreed conceptually to a three-phased approach. Phase I is an initial response that scans the soil piles to meet the 10 *CFR* § 835 requirements and restricts public access – completed 12/27/06. Phase II is the Site Evaluation, which includes development of a Sampling and Analysis Plan (SAP) and more in-depth fieldwork (intrusive soil sampling) is done. Results from the sampling and fieldwork will be evaluated to determine if an action is necessary. Phase III is the removal of soil, if necessary.
- 12/18/06, 12/21/06, and 01/04/07 – Held conference calls with EPA and KDEP to discuss draft outline and objectives for Sampling and Analysis Plan to be used to sample soil piles.
- Phase I was completed 12/27/06. Phase I included the screening of soil piles along Little Bayou Creek, North-South Diversion Ditch, and Bayou Creek to meet 10 *CFR* § 835 standards. Areas exceeding two times background were posted with signs and roped for radiological purposes to prevent access by, and exposure to, the public.
- 01/09/07 – DOE Radiological Control Technicians (RCTs) performed a radiological survey of concrete rubble identified by KDEP. The survey identified a one square foot area of contamination on an irregularly shaped concrete slab that has been used to reinforce a road base along a levee. The slab is approximately one square meter on the surface, and is 8 to 9 inches thick. The average measured level of radioactivity is less than the DOE limit for fixed contamination per 10 *CFR* § 835, *Occupational Radiation Protection*. In addition, the material meets the free-release criteria in accordance with both DOE Order 5400.5, *Radiation Protection of the Public and the Environment*, and 10 *CFR* § 835. RCTs completed a survey of other KDEP identified rubble piles as well as the area adjacent to the concrete slab and did not discover any additional areas of radioactive contamination.
- 01/18/07 - Updated the Federal Facilities Agreement (FFA) Managers and CAB members of actions to date and path-forward regarding the Soil Piles, including the status of the SAP.

- 01/23/07 – Performed a radiological survey of 5 soil pile areas south of Ogden Landing Road, none of which appeared to be associated with creek dredging operations. All results were less than 2 times background and are not planned for additional characterization at this time.
- 01/24/07 - Met with KDEP in Frankfort and EPA via phone to discuss draft Solid Waste Management Unit (SWMU) Notification letter in response to EPA 12.11 and KDEP 12.06 and 12.12 letters; extension granted to 02/16/07
- 01/31/07 – DOE and PRS held a Comment Response meeting to resolve issues, questions and clarification regarding the SAP.
- 02/09/07 - The DOE issued the D1 Soil Piles Sampling and Analyses Plan and Addenda 1-A to the regulators. DOE has requested a 30 day review and/or approval. Per the FFA, Kentucky and EM are allowed 90 days.
- 02/12/07 – At the request of the Commonwealth of Kentucky, PRS removed the concrete slab from Ballard Wildlife Management Area (to be disposed in the C-746 Landfill) as identified on 01/09/07.
- 02/16/07 – DOE issued SWMU Notification letter to KDEP/EPA in response to EPA 12/11 and KDEP 12/06 and 12/12 letters; 93 soil areas and 29 rubble areas were identified as SWMUs.
- 02/22/07 - DOE/PRS/EPA/KDEP held a conference call to discuss the schedule related to comment responses for the Soil Piles Sampling and Analysis Plan and Addenda 1-A.
- 02/26/07 – KDEP provided written comments to DOE regarding the Soil Piles SAP and associated Addenda 1-A. A conference call was held Friday 03/02/07 to discuss draft responses to the comments.
- 03/02/07 - DOE/PRS/KDEP held a conference call to discuss and clarify comments from KDEP associated with the Soil Piles Sampling and Analysis Plan and Addenda 1-A.
- 03/13/06 – EPA provided written comments to DOE regarding the soil piles SAP.
- 03/14/07 – DOE and PRS completed pin flagging subunit 2 of 1-5 (areas to be sampled in Addendum 1-A).
- 03/15/07 – DOE/PRS/KDEP/EPA discussed EPA (3/13/07) and KDEP (2/26/07) comments and their resolution regarding the Soil Pile SAP and Addendum 1-A.
- 03/15/07 – DOE/PRS updated the Citizens Advisory Board and presented details of the Soil Pile SAP and Addendum 1-A (pending changes as a result of KDEP and EPA comments and their final approval). DOE/PRS has kept the CAB updated every month since November 2006.
- 03/15/07 - DOE and PRS has received bids from the laboratories regarding Lab Statements of Work for implementation of Soil Piles SAP 1, Addenda 1-A and will have contracts in place prior to sampling.
- 03/19/07 – Training has been conducted for field team as related to GET, Rad II, XRF, and other site specific training.
- 03/19/07 - Received equipment for implementation of Soil Piles SAP, Addenda 1-A including PCB test kits, XRF metals detector, sampling bowls, trowels, and many other items.
- 03/22/07 – Held conference call between DOE, PRS and Argonne to discuss SAP changes and proposal to regulators for resolving comments related to SAP and Addenda 1-A.

- 03/26/07 – PRS held an internal field readiness review and was conditionally approved to implement work, pending regulator approval of the SAP and Addenda 1-A.
- 03/27/07 – DOE and PRS held a conference call with regulators as related to resolution of comments on the SAP and Addenda 1-A, including proposed changes as a result.
- 03/29/07 – DOE forwarded to EPA and KDEP a working redline D2 draft of the SAP and Addendum 1-A
- 04/02/07 – DOE received comments from KDEP on the D2 working redline draft of the D2 SAP and Addendum 1-A
- 04/03/07 – Received comments from EPA on the D2 working redline draft of the D2 SAP and Addendum 1-A
- 04/04/07 - PRS collected radiation screens for isotopic analyses (one for each subunit 1-5) to help with DOT shipping requirements of samples
- 04/11/07- DOE obtained verbal concurrence from EPA and Kentucky during the Senior Managers Meeting that the SAP and Addendum 1-A was sufficient to begin sampling. However, sampling activities are still "at-risk" activities.
- 04/12/07- PRS held field briefings with sampling crew on approved work package to initiate sampling 04/13/07 at Subunit 2 of Soil Pile I.
- 04/13/07 – Sampling activities for Soil Pile I (subunits 1-5) was initiated with 21 samples collected today from subunit 2, 18 samples collected for field analyses (PCBs, metals and rad) and 3 for laboratory analyses (PCBs, metals and rad).
- 04/18/07 – All locations for samples to be collected within Soil Pile I, subunits 1-4 were pin-flagged.
- 04/19/07 – All locations for samples to be collected within Soil Pile I, subunit 5 were pin-flagged, completing this task for all of Soil Pile I.
- 04/19/07 – DOE and PRS have revised the SAP and Addendum 1-A to incorporate EPA and KDEP comments regarding the D2 working redline draft of the D2 SAP and Addendum 1-A.
- 04/23/07 & 04/24/07 - Held net meeting/conference call with the regulators regarding the SAP Addendum # 2, status of field work, and submittal of Addendum 1-A.
- 04/25/07 – The D2 SAP and Addendum 1-A was submitted to the regulators for final approval.
- 04/25/07 – 90 discrete soil samples for PCBs, metals and radiological field analyses from 30 locations have been collected from 3 blocks within subunit 2 of Pile I. Six composite samples for PCBs metals, and radiological laboratory analyses have also been collected to date from 2 blocks within subunit 2 of Pile I. This represents approximately 4% complete (30 of 769 field sample locations and 6 of 204 lab sample composites) for collection of samples from soil pile I and buffer areas.
- 05/01/07 – 270 surface soil samples for PCBs, metals and radiological field analyses from 75 locations have been collected from 3 blocks within subunit 2 of Pile I. 15 surface composite samples for PCBs metals, and radiological laboratory analyses have also been collected to date from 3 blocks within subunit 2 of Pile I. This represents approximately 9% complete (75 of 769 field sample locations and 15 of 204 lab sample composites) for collection of samples from soil pile I and buffer areas. In addition, all surface area of subunits 1-5 of Pile I have been radiologically surveyed with the coordinates documented using a GPS unit.
- 05/02/07 – Subunit area 5 was down-posted on May 2nd as a result of the radiological walkover. Only limited data was previously available for this area; however, recent data indicated all results below 2x background and posting is not required according to 10 CFR 835.

- 05/11/07 – 1299 surface soil and quality control samples for PCBs, metals and radiological field analyses from 383 locations have been collected from subunits 1-5 of Pile I. 40 surface composite samples for PCBs, metals, and radiological laboratory analyses have also been collected to date from subunits 1 and 2 of Pile I. This represents approximately 43% complete (383 of 769 field sample locations and 40 of 204 lab sample composites) for collection of samples from soil pile I and buffer areas. In addition, all surface area of subunits 1-5 of Pile I have been radiologically surveyed with the coordinates documented using a GPS unit.
- 05/16/07 – DOE hosted a meeting between EPA, KDEP, PRS and Argonne to discuss Soil and Rubble Area activities and scoping regarding SAP Addenda and verification sampling. An update was also provided regarding field work implementation for SAP Addendum 1-A.
- 05/18/07 – 1923 surface soil and quality control samples for PCBs, metals and radiological field analyses from 641 locations have been collected from subunits 1-5 of Pile I. 98 surface composite samples for PCBs, metals, and radiological laboratory analyses have also been collected to date from subunits 1-5 of Pile I. This represents approximately 76% complete (641 of 769 field sample locations and 98 of 204 lab sample composites) for collection of samples from soil pile I and buffer areas. Remaining are tree core samples and all of the depth samples for subunits 3 and 4.
- 05/21/07 – DOE and PRS held a conference call to discuss DOE comments on the Soil Area SAP, Addendum 2, which includes characterization of soil areas along Bayou Creek located on the West side of the PGDP.
- 05/23/07 – Tree core samples were collected from 5 trees (one in each subunit 1-5) to be analyzed for PCBs, metals and radiological parameters. No additional tree samples are planned at this time.
- 05/30/07 – DOE, EPA, KDEP, PRS and Argonne held a conference call to discuss Soil and Rubble Area activities including; 1) regulator status approving the D2 SAP and Addendum 1-A, 2) DOE status submitting Addendum 2, 3) the Addendum 1-A field work status, 4) Rubble Piles SAP strategy and 5) the Verification SAP.
- 06/06/07 – DOE and PRS received 10 comments from KDEP on D2 SAP and Addendum 1-A, for the Soil Piles.
- 06/06/07 – DOE, EPA, KY and PRS held a conference call to discuss finalizing the soil piles SAP and Addendum 1-A, and EPA's outstanding issue with PCB characterization of the soil piles.
- 06/06/07 – DOE HQ visited the Paducah Site, including soil pile "I" where sampling activities have been ongoing. A brief presentation of the soil and rubble areas was presented to HQ by DOE and PRS.
- 06/08/07 – DOE, KDEP and the PRS held a conference call to discuss finalizing the soil piles SAP and Addendum 1-A and KDEP's ten comments received on 06/06/07. An agreement was reached on how to resolve each comment and will therefore be incorporated into the D2-R1 revision once EPA comments are received and resolved.
- 06/14/07 – PRS initiated sub-surface soil sampling at subunits 3 and 4 (actual soil piles) as subunits 1, 2 and 5 have been completed.
- 06/15/07 – PRS collected two initial sub-surface soil samples at one subunit 4 (actual soil pile) location. The two discrete samples were sent to the lab for PCB, metals and radiological analyses as well as the field lab for similar analyses.
- 06/18/07 – DOE received EPA comments on the soil piles D2 SAP and Addendum 1-A. A comment resolution meeting will be held and then comments incorporated for final approval of the document.
- 06/18/07 – DOE, KDEP (including the Cabinet for Health and Family Services) and PRS held a conference call to discuss finalizing the soil piles SAP and Addendum 1-A and Cabinet for Health and Family Services comments received on 06/18/07. An agreement was reached on how to resolve comments and will be incorporated into the D2 R1 revision once EPA comments are resolved.

- 06/20/07 – A meeting was held at Paducah between DOE, KDEP and EPA to discuss the status of SAP and 1-A Addendum, field work for 1-A, Addendum 2, Verification SAP, and the details of the Rubble Piles SAP. A tentative agreement was reached regarding a removal action; all agreed that the characterization data should be evaluated initially and then a decision will be made regarding an action, if warranted.
- 06/21/07 – The status of soil pile activities was provided at the FFA Managers Meeting, including status of sampling activities at Pile I and associated field results for PCBs, metals, and Uranium.
- 06/26/07 – A comment resolution conference call was held with EPA to address comments on the D2 SAP and Addendum 1-A as a result of comments received 06/18/07. A draft comment response summary will be provided and once agreed upon the document will be revised and re-submitted for final approval.

Near-Term Planned Actions

- Obtain regulatory approval of the SAP and Addenda 1-A as soon as possible
- Continue to hold conference calls/meetings with the regulators to discuss status and scoping of soil and rubble area activities.
- Complete sampling at Pile I in July as noted in the SAP and Addendum 1-A
- Issue to the regulators Addendum 2 of the SAP for review and approval