

266

REVISED K-65 WORK PLAN

3-13-90

DOE-ORO/DOE-FMPC

DOE-566-90

9

WORK PLAN

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Hupper
Britton
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Department of Energy

United States Government

Oak Ridge Operations

memorandum

Carr
Shirley
Peterman
Copy
Peter/Suz
Administrat
Racora

March 13, 1990

DATE: DOE-566-90

REPLY TO: DP-84:Hansen

ATTN OF:

SUBJECT: **REVISED K-65 WORK PLAN**

TO: William R. Bibb, Assistant Manager for Defense Programs, DP-80, ORO

The "Revised K-65 Work Plan" is attached for your information. This Work Plan represents the consensus of the K-65 Sampling Team and has been signed by appropriate team representatives. Considering the knowledge, experience, and commitment demonstrated by the Sampling Team I am confident that the implementation of the plan as outlined will be successful. As a side benefit, the preferred sampling option in the plan will meet or beat the existing Feasibility Study Document Schedule as outlined in the draft FFA.

If you have any questions or comments, please contact Jack Craig, of my staff, at FTS 774-6159.

Ray Hansen
Raymond J. Hansen
Acting FMPC Site Manager

Attachment: As stated

cc w/att.:

- B. J. Davis, DP-84, FMPC
- J. R. Craig, DP-84, FMPC
- F. E. Coffman, IT
- G. K. Hovey, BNI
- W. A. Weinreich, WMCO
- F. F. Haywood, LWA
- H. L. Windecker, ASI

266

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REVISED K-65 WORK PLAN

REVISED K-65 WORK PLAN

Approved By:

Jack R. Craig 2/22/90
 Jack R. Craig Date
 DOE K-65 Sampling Manager

Frank Coffman 3/6/90
 Frank Coffman Date
 International Technology Corporation

Gale K. Hovey 3/9/90
 Gale Hovey Date
 Bechtel National Inc.

William A. Weinreich 2/23/90
 William A. Weinreich Date
 WMCO

Fred F. Haywood 2/23/90
 Fred Haywood Date
 Lee Wan & Associates

Harry Windecker 2/28/90
 Harry Windecker Date
 Advanced Sciences, Inc.

246

REVISED K-65 WORK PLAN

The following K-65 Work Plan outlines activities which are aimed at addressing two areas of concern with respect to the K-65 silos. The first area involves the sampling of the K-65 residues which is needed to support the ongoing Remedial Investigation/Feasibility Study at the FMPC and Operable Unit #4 schedules. The second area includes addressing concerns and managing the risks associated with the structural integrity of the K-65 silos by initiating the removal action decision process.

K-65 Residue Sampling

Due to recent difficulties in retrieving representative residue samples from the K-65 Silos at the FMPC, DOE has formed a team of sampling experts to select and implement a revised sampling method. The team is comprised of personnel from DOE, Westinghouse Materials Company of Ohio (WMCO), International Technology Corporation (IT), Advanced Sciences, Inc. (ASI), Bechtel National Inc., and Lee Wan & Associates. The selected team represents extensive knowledge and experience from sampling projects at Three Mile Island, DOE's Niagara Falls Storage Site, and numerous other projects throughout the world.

The team has concluded that two sampling methods should be pursued concurrently, one being the preferred sampling method and another being an alternative sampling method.

4

266

Prior to the sampling effort the team has also chosen to lower a video camera into the manways of each silo. The video camera is one inch in diameter and will be used to determine the location and depth of existing holes in the residues from prior sampling attempts so they can be avoided in future sampling activities. Attempts will also be made to use the camera while it is being lowered into the existing holes to determine if material stratification exists. This camera and its operation will be provided by Bechtel National Inc. and was successfully used for the Three Mile Island Unit 2 reactor core investigation. Information gained from the video survey will be used to refine the sampling procedures. This effort will help to ensure that the sampling of the residue material is successful.

The preferred method for sampling the K-65 Silo residues as selected by the team is the use of a "Wink" Vibra Corer sampler. This Vibra Corer will be used to take one core sample from the 4 manways of Silo 1 & 2 (total of 8 core samples). The Wink Vibra Corer differs from the sampling unit previously used in that 1) it vibrates in the x, y, and z directions, as opposed to the y direction only, which will provide for better material break-up and allow the material to more easily travel up the inner lexan tube, 2) the Wink Vibra Corer has a much thinner cutting edge which will tend to prevent material from becoming trapped or compacted in the end of the tube, 3) the Wink Vibra Corer allows the lexan tube to be immediately adjacent to the Vibra Corer cutting edge (as opposed to 8" above) which allows material to travel more easily up the

216

tube, and 4) the Wink Vibra Corer is much lighter in weight (approximately 200 lbs. vs. 900 lbs.) which will allow the sampling tube to travel into the material at a slower rate to avoid clogging the end of the sampling tube.

For these reasons along with confidence and advice from the inventor of the Wink Vibra Corer (Fred Wink), the sampling team believes this is technically the best method for sampling the K-65 Silo residues. International Technology Corporation (IT) will use its site specific knowledge and previous vibracore experience to develop the procedures and perform the sampling with the new Vibra Corer. The sampling team will review, concur and sign-off on the procedures prior to initiation of sampling. The procedures will include lessons learned from previous sampling attempts.

The alternate sampling method includes cutting a new 14" diameter hole in each of the silo domes at a location specified by the sampling team near the side wall. These new holes would be used to retrieve one undisturbed core sample from each silo by use of a hollow stem auger for geotechnical analysis. A hand auger would also be used to take samples from 3 manways of each silo for purposes of determining the consistency of the residue material throughout the silos and for radiological, chemical and treatability studies. International Technology Corporation (IT) will also develop the necessary related procedures and perform the alternate sampling if needed. The sampling team will review, concur and sign-off on the procedures prior to initiation of the

6

266

alternate sampling. The procedures will include lessons learned from previous sampling attempts.

Bechtel National, Inc. will perform a structural analysis to evaluate the effect of cutting a new hole in the dome and will also develop the procedures for cutting the hole. The sampling team will review the results of the structural analysis. The sampling team will also provide input to the structural analysis including access considerations and locating equipment on the berm. The design and procedures needed for the alternate sampling method will be generated in parallel with the implementation of the preferred sampling alternative. This will allow the sampling team to respond quickly if the preferred sampling method fails to retrieve representative samples.

K-65 Removal Action

As a result of the structural analysis reports done by Camargo (1986) and Bechtel National Inc. (1990), DOE has initiated three related actions. These actions include 1) tasking WMCO to evaluate the feasibility of continuous or intermittent operation of the K-65 silo radon treatment system to reduce radon emissions and thus minimize the quantity of radon released in the event of a dome collapse, 2) tasking Bechtel National Inc. (BNI) to prepare an Engineering Evaluation/Cost Analysis (EE/CA) document to support a Removal Action to be undertaken prior to final remediation of the K-65 Silos, and 3) tasking Bechtel National Inc. (BNI) to evaluate

7

266

the personnel and point loading limits of silos 1 and 2, for use in future silo projects.

Attachment 1 is a list of the Sampling Team technical contacts for DOE, WMCO, IT, ASI, Bechtel, and Lee Wan. The U.S. EPA and Ohio EPA will be involved throughout the planning and implementation process in order to keep each agency fully informed.

8

ATTACHMENT 1

SAMPLING TEAM TECHNICAL CONTACTS

DOE: Jack Craig
ASI: Harry Windecker
IT: Mustaq Khan
WMCO: Pat Hopper
Bechtel: Russ Barber
Lee Wan: Fred Haywood