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APR 14 2006

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DOE-0105-06

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Dear Mr. Saric and Mr. Schneider:

SILO 1&2 RADIOLOGICAL CHARACTERIZATION INFORMATION ALONG WITH THE ALARA AND AIR SAMPLING PLAN FOR THE OPERABLE UNIT 4 COMPLEX SILOS 1&2 REMEDIATION FACILITY ABOVE-GRADE DECONTAMINATION AND DISMANTLEMENT IMPLEMENTATION PLAN

As stated in Subsection 2.2, Paragraph 2 of the Operable Unit 4 Complex (OU4) Silos 1&2 Remediation Facility Above-Grade Decontamination and Dismantlement (D&D) Implementation Plan, just prior to D&D, the Silos 1&2 Remediation Facility will be surveyed so that debris disposition can be established based on survey results and the radiological characterization information for Silos 1&2 Remediation Facility will be issued with a submittal letter to the regulatory agencies.

Additionally, as stated in Subsection 2.4, Paragraph 9 of the Operable Unit 4 Complex (OU4) Silos 1&2 Remediation Facility Above-Grade Decontamination and Dismantlement (D&D) Implementation Plan, prior to the start of D&D activities, the Silos 1&2 Remediation Facility Demolition ALARA and Air Sampling Plan will be provided to the regulatory agencies.

This letter transmits the Silos 1&2 Remediation Facility radiological characterization information for submittal to the regulatory agencies. Likewise, The Air Sampling Plan for Demolition of the Silos 1&2 Waste Treatment and Packaging Facility, TTA Building and Radon Control System (RCS) (SD-3011) is included as supporting documentation to the Implementation Plan.

Mr. James A. Saric
Mr. Tom Schneider

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If you have any questions or require additional information, please contact Ed Skintik at (513) 246-1369 or me at (513) 648-3139.

Sincerely,



Johnny W. Reising
Director

Enclosures

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Enclosure: Characterization of the Silos 1&2 Remediation Facility Complex

Recent radiological surveys were compiled for the Silos 1&2 Remediation Facility Complex and are summarized in the following table:

Silos 1&2 Remediation Facility Complex
Radiological Contamination Survey Summary

Component Number	Alpha Removable (dpm/100 cm ²)		
	Avg Value	Max Value	Sample Points
Building 94B – Silos 1&2 Remediation Facility	178.5	2575	32
Building 94C – Silos 1&2 Transfer Tank Area	<MDA (1)	<MDA	100
Building 94D – Silos 1&2 Carbon Bed Facility	<MDA	<MDA	2
Building 94E – Silos 1&2 Radon Control System	<MDA	<MDA	9
Building 94G – Silos 1&2 Electrical Building	<MDA	<MDA	72
Building 94J – AWR Continuous Emissions Monitoring Building	<MDA	<MDA	30
Building 94L – Silos 1&2 Continuous Emissions Building	<MDA	<MDA	80

(1) MDA – Minimum Detectable Activity

SUPPORTING DOCUMENT	DOCUMENT NO: SD-3011	Effective Date:03/30/2006
FLUOR CLOSURE PROJECT ESH&Q SAFETY AND HEALTH Radiological Control	Air Sampling Plan For Demolition of the Silo 1&2 Waste Treatment and Packaging Facility, TTA Building and Radon Control System (RCS)	
	<input type="checkbox"/> POSITION PAPER <input checked="" type="checkbox"/> TECHNICAL BASIS	
	AUTHOR: Daniel Thiel	Revision No: 0
	Approval: <u>Tristan M. Tritch</u> Date <u>3/28/06</u> Tristan M. Tritch Radiological Control Manager	
Concurrence Signature: <u>Christine Co</u> Date: <u>3/28/06</u> Radiological Compliance		

Supersedes - None

SUMMARY LOG

Revision Number	Effective Date	Description of Revision	Pages effected
0		Initial Issuance	All

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1.0 SCOPE

The purpose of this plan is to specify and document radiological (occupational) air monitoring protocols and controls in support of demolition of the Silo 1&2 Remediation Complex including the TTA Building and the Radon Control System. This plan is specific to Silo 1&2 Complex demolition activities and is not intended to support activities outside of project area boundaries or activities. Inventory Removal and Safe Shutdown are not in the scope of this D&D project Safe Shut Down activities will be covered under the existing Air sampling Plan SD-2073 revision 11.

2.0 PROJECT DESCRIPTION

Building 94B – Silos 1&2 Waste Treatment and Packaging Facility (WT&PF)

The Silos 1&2 Waste Treatment and Packaging Facility (94B) was used to process K-65/bentonite waste material retrieved from the Transfer Tank Area (TTA) tanks to allow it to be shipped to an off-site disposal facility. Polymer was used to promote settling. Cement, fly ash and chemical solutions were added to the slurry to produce a stable waste form suitable for shipment and final disposal. The vessel vent system consists of three vent headers that connect the facility's process vessel vents to the RCS system (Buildings 94D and 94E). The Container Handling System includes: empty container receiving, staging and preparation; container identification; container filling, transfer and inspection; lid replacement/fastening; and loading of product containers on trucks. The empty container receiving equipment is located outside the Remediation Facility in a covered area. The containers are transferred for staging, preparation transfer and filling to separate rooms on the ground floor of the facility via conveyors. The Railcar Loading Area contains a bridge crane that has the capacity to load containers directly onto trucks or railcars.

Surface decontamination will be performed to reduce potential airborne contamination resulting from the D&D activities. Building 94B will be dismantled using a track-hoe mounted, hydraulic shear and backhoe. Material take-off estimates identify that the majority of debris from structural dismantlement will consist of piping & conduit/wire, miscellaneous systems & equipment and structural & miscellaneous steel.

Building 94C – Silos 1&2 Transfer Tank Area (TTA)

Building 94C (Silos 1&2 Transfer Tank Area) is a concrete structure that provides secondary containment of stored wastes and radiation shielding. The TTA system staged residues received from Silos 1&2 (34A&B) in the four 750,000-gallon storage tanks for transfer to the Silos 1&2 Remediation Facility (94B). Slurry and sluice equipment modules are located on the deck over each of the four tanks. The facility has a valve and piping network that was for receiving and transferring the slurried material and piping for induced draft ventilation of the TTA tanks for transfer of off-gases to the RCS facility to removing radon from gas streams. Surface decontamination will be performed to reduce potential airborne contamination resulting from the D&D activities. Process piping will be removed for placement in the OSDF. The equipment located over the tanks will be removed using a crane. It is anticipated that, based on survey results, the remainder of the facility will be free of contamination. The concrete walls will be demolished using a hoe-ram. The tanks will be dismantled using a track-hoe mounted, hydraulic shear and backhoe. Material take-off estimates identify that the majority of debris from structural dismantlement will consist of piping & conduit/wire, miscellaneous systems & equipment and structural & miscellaneous steel and concrete.

Building 94D – Silos 1&2 Carbon Bed Facility

Surface decontamination will be performed to reduce potential airborne contamination resulting from the D&D activities. The activated carbon will be removed from the system. Emission controls will be incorporated into the activated carbon removal process. The concrete shielding and walls will be demolished using a hoe-ram. The steel shell and carbon steel plates will be dismantled using a track-hoe mounted, hydraulic shear and backhoe. Material take-off estimates identify that the majority of debris from structural dismantlement will consist of miscellaneous systems & equipment and structural & miscellaneous steel and concrete.

Building 94E – Silos 1&2 Radon Control System (RCS)

Building 94E (Silos 1&2 Radon Control System RCS) is a sixteen-ft tall, steel frame structure that houses the RCS process equipment. This includes the desiccant drying system, condensate holdup tanks, filters, and fans. The first floor of the RCS building houses the roughing filters, chilling coils, desiccant dryers, and condensate tanks.

Surface decontamination will be performed to reduce potential airborne contamination resulting from the D&D activities. The building equipment and steel frame structure will be dismantled using a track-hoe mounted, hydraulic shear and backhoe. Material take-off estimates identify that the majority of debris from structural dismantlement will consist of miscellaneous systems & equipment and structural & miscellaneous steel.

3.0 LIKELY SOURCES OF AIRBORNE RADIOACTIVITY

The principal sources for the generation of airborne radioactivity includes:

- RCS, TTA and WT&P facility operational system disassembly and removal
- Residual material disturbance

RCS

The RCS is not expected to have any carry over of K-65 material from the K-65 silos or support systems. If there were carry over of K-65 material, most of it would be trapped in the roughing filters or the desiccant dryers. Carbon from the carbon beds will be removed prior to commencing D&D activities.

TTA and WT&P

The WT&P facility is comprised of several major systems and components, including the Feed Preparation System, Processor Feed System, Product Additive System, Processor System, Supernatant Water System, Sluice/Flushwater System, Vessel Vent System, Sampling System, Container Receipt and Preparation System, Container Filling System, HVAC System, and several utility support systems, each of which could contain residual materials.

4.0 ENGINEERING /ADMINISTRATIVE CONTROLS FOR AIRBORNE RADIOACTIVITY

Water suppression will be the main source of controlling airborne emissions during demolition activities.

- An Airborne Radioactivity Area will be established around the perimeter of the Silos 1&2 Remediation Complex. Radiological Work Permits will be required to access this area.
- Airborne particulate monitoring will be performed around the perimeter of the Silos 1&2 Remediation Complex.
- Respiratory protection will be required for access to the Silos 1&2 Remediation Complex Airborne Radioactivity Area.
- High Contamination / Contamination Areas will be established over the Silo 1&2 Demolition Complex once work begins on contaminated systems.
- Contaminated systems within the Silos 1&2 Remediation Complex will be opened and vacuumed as part of safe shutdown operations prior to demolition activities.
- Highly contaminated mixers will be sealed and removed without being disassembled.
- Operations will be performed with heavy equipment to minimize the number of workers entering Airborne Areas.
- Radiological Work Permits will be provided for all activities to be conducted in Radiological Areas (ARAs, HRAs and CAs). RWP's will specify RCT coverage, area and personnel monitoring, work controls and PPE requirements.

Air Sampling Plan For Demolition of the Silo 1&2 Waste Treatment and Packaging Facility, TTA Building and Radon Control System (RCS)	DOCUMENT NO: SD-3011
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5.0 DESCRIPTION OF AIR MONITORING EQUIPMENT

GENERAL WORK AREAS

Upon securing the HVAC system two (2) working level (WLX's) monitors will be used to assess radon working level concentrations on the second floor of the WT&PF. These WLX's will be located above the Receipt Tank and Feed Tank Rooms. In addition two additional WLX's will be stationed on the first floor. All 4 WLX's will be in operation until it can be confirmed that the source term is no longer present in significant quantities. In addition ambient radon (gas) concentrations will be monitored at various locations within WT&PF with portable RAD-7's. These samplers will be moved to various locations within the WT&PF until it can be demonstrated that the source term is no longer present in significant quantities.

Particulate air samplers will be stationed near work locations and at the control point until it can be demonstrated that the source term is no longer present in significant quantities.

Due to the nature of the demolition work and the use of heavy equipment; general area air sampling will only be performed on an as needed basis. Particulate Air sampling for K-65 (Silo 1&2) materials will be counted for gross alpha activity, after a seven day decay period. The activity will be assessed against the effective K-65 DAC of 2 E-11 uCi/ml (Reference 40700_RAD-0004 Silos 1 and 2 Material Effective Derived Air Concentration, Fluor Fernald; dated March 2000.)

BOUNDARY MONITORING

Air sampling for Particulate and Radon daughters will be performed at the boundary of the Airborne Radioactivity Area boundary for the silo 1&2 Remediation Facility D&D boundary. Air sampling for K-65 (Silo 1&2) materials will be counted for gross alpha activity, after a seven-day decay period. The activity will be assessed against the effective K-65 DAC of 2 E-11 uCi/ml (Reference 40700_RAD-0004 Silos 1 and 2 Material Effective Derived Air Concentration, Fluor Fernald; dated March 2000.) Monitoring for Radon daughters will be performed with WLX's or Stationary Alpha-Nuclear monitors at the four corners of the Airborne Area Boundaries. Boundary Air samples include:

- #1 Southwest of the TTA Building at the SW corner of the Airborne Boundary (Particulate & WL)
- #2 West of the TTA Building (Particulate only)
- #3 Northwest of the RCS Facility at the NW corner of the Airborne Boundary (Particulate and WL)
- #4 Northeast corner of the RCS at the middle of the Western Airborne Boundary (Particulate only)
- #5 West of the WT&PF at the NE corner of the Airborne boundary (Particulate and WL)
- #6 East of the Cargo Bay (Particulate only)
- #7 Southeast of the WT&PF at the SE boundary of the Airborne Area (Particulate and WL)

The control point for all Silos Demolition Projects is T-199. A particulate air sampler will be stationed in this trailer to maintain the trailer at less than 2% of the appropriate DAC (Th-230 during Silo 3 D&D activities changing to the K-65 once Silo 3 D&D work is completed).

PERSONNEL MONITORING

Personal Air Sampling (PAS) will be conducted for assessment of potential particulate intake through the use of lapel samplers for 100% of personnel entering Airborne Radioactivity Areas in the Silo 1&2 Remediation, TTA and RCS Demolition complex.

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6.0 RESPONSE TO ABNORMAL AIR SAMPLE RESULTS

A single air sample result greater than or equal to 1 DAC for any isotope of concern, in an occupied un-posted area:

- A. Stop the work activity;
- B. Notify the Site Assistant Emergence Duty Officer and Site Radiological Control Manager;
- C. Post the area as an Airborne Radioactivity Area;
- D. Evaluate air monitoring results from adjacent and adjoining areas;

A single air sample result >30% DAC but < 1DAC for any isotope of concern other than radon, in an un-posted area:

- A. Promptly take action to limit or mitigate personnel exposures (e.g., prevent or limit occupancy, prescribe respiratory protection, etc.) in the area;
- B. Notify the Site Radiological Control Manager and Silos Radiological Engineer
- C. Notify Internal Dosimetry
- D. Evaluate prior sampling data for potential to exceed 12 DAC-hrs in one week
- E. Evaluate air monitor placement;

If isotopes other than uranium are worked and weekly particulate air sampling results average greater than 2% of the effective DAC in an un-posted area or at the ARA boundary;

- A. Notify Silos Radiological Engineering and the Site Radiological Control Manager;
- B. Notify Internal Dosimetry for bioassay determination.

NOTE: The above actions are not intended to establish sequential criteria and may not be all-inclusive. Responsible project personnel such as a Radiological Engineer are most likely to be the first persons to recognize the above conditions (from air sampling data) and should initiate the process prioritizing the actions dictated by the severity of potential worker exposure

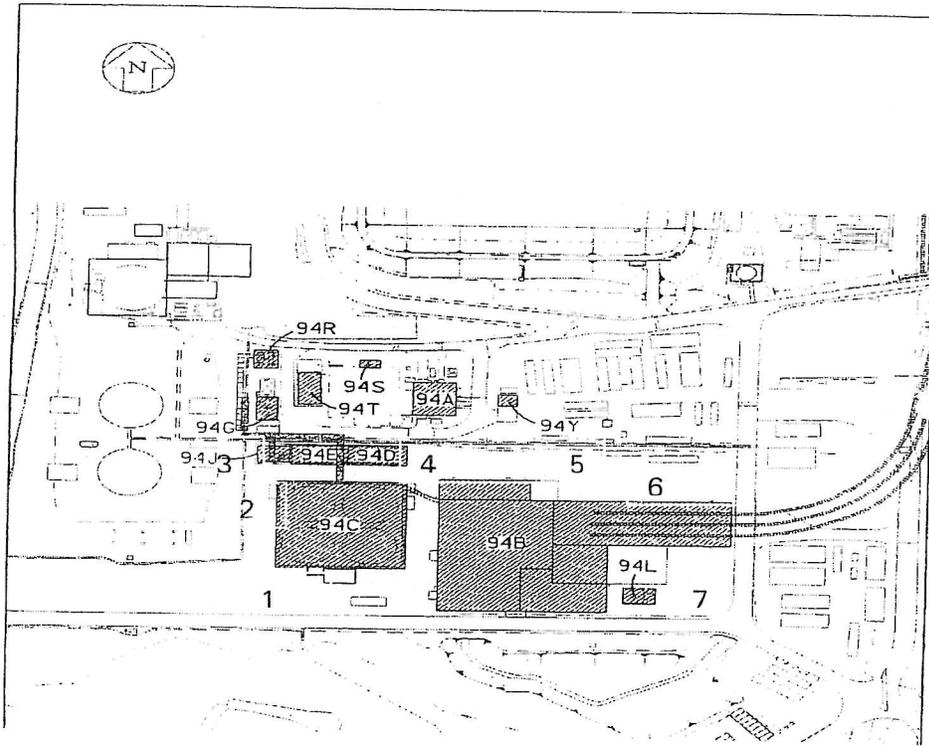


FIGURE 1-1 Silos 1&2 Remediation Facility