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Department of Energy

Ohio Field Office
Fernald Closure Project
175 Tri-County Parkway
Springdale, Ohio 45246
(513) 648-3155

DEC 5 2005

DOE-0036-06

Mr. Michael Murphy, Health Physicist
U.S. Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V-SRF-5J
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Mr. Thomas Schneider, Project Manager
Ohio Environmental Protection Agency
Southwest District Office
401 East Fifth Street
Dayton, Ohio 45402-2911

Dear Mr. Murphy, Mr. Saric and Mr. Schneider:

UPDATE ON PROJECT AREA INTEGRATED ENVIRONMENTAL MONITORING PLAN (IEMP) AIR MONITORS

Reference: Letter, T. Schneider to J. Reising, "Re: Approach for the Reduction of Site Boundary Integrated Environmental Monitoring Plan (IEMP) Air Monitors," dated October 21, 2005

This correspondence transmits an update on the Fernald site project area IEMP air monitors with respect to anticipated relocation and removal. At the Fernald site, there are both project area and site boundary monitors. This letter focuses on the project area IEMP air monitoring locations that currently are in service (Refer to Figure 1) and the following information identifies the dates that alternate power sources will need to be provided to continue operation of these monitors.

Monitors	Relocation
LP2 (Radon, Particulate)	NA
T-28A (Radon)	NA
KNE-B, 22A (Radon, TLD)	February/March
KSE (Radon)	February/March
BSL-A (Radon, Particulate)	NA
T-117A (Radon, Particulate)	February/March
Rally Point 4 (Radon)	NA
KSO-A (Radon)	February/March
47 (TLD)	NA

*NA = not applicable.
Service should continue through the time that removal is approved by U.S. Environmental Protection Agency (EPA) and Ohio Environmental Protection Agency (OEPA).

Specifically during the February/March time-frame, it is anticipated that some of the power poles that currently support the IEMP project area monitors will need to be removed to facilitate decontamination and demolition (D&D) and soil excavation activities in the area. Alternate power sources will need to be determined in order to continue operations of these monitors. Prior to relocation of the power and possible relocation of the monitors, the EPA and OEPA will be contacted in advance. It is anticipated that complete removal of these project area monitors will occur after Silos material has been removed from the site, D&D activities are completed, and soil remediation activities in the area are also completed. It should be noted that there will be some abbreviated times when powering of the monitors will be interrupted to allow for maintenance and relocation operations.

At this time OEPA has two air monitor locations (two particulate and one radon monitor) along the site boundary (east and west side), none are in the project area (i.e., Silos area). It is not expected that these monitors will be impacted prior to the completion of the above activities. If an alternate power source is needed for these monitors or they need to be relocated, the OEPA will be notified in advance (i.e., at least two weeks).

Also enclosed in this transmittal is the request to discontinue service of WPTH-2, which was put in place to monitor Waste Pit area activities (Refer to Enclosure 1). Additionally, Enclosure 1 recommends that the monthly thorium composite monitoring return to its original quarterly frequency. The frequency was increased to monitor Waste Pit area activities, as well. With the completion of these activities including pit waste removal and underlying soil excavation by the end of this calendar year, the monthly monitoring frequency should no longer be required. Removal of WPTH-2 and decrease of the thorium monitoring frequency will be done after approval from EPA and OEPA.

If you have any questions or need further information, please contact me at (513) 648-3139.

Sincerely,

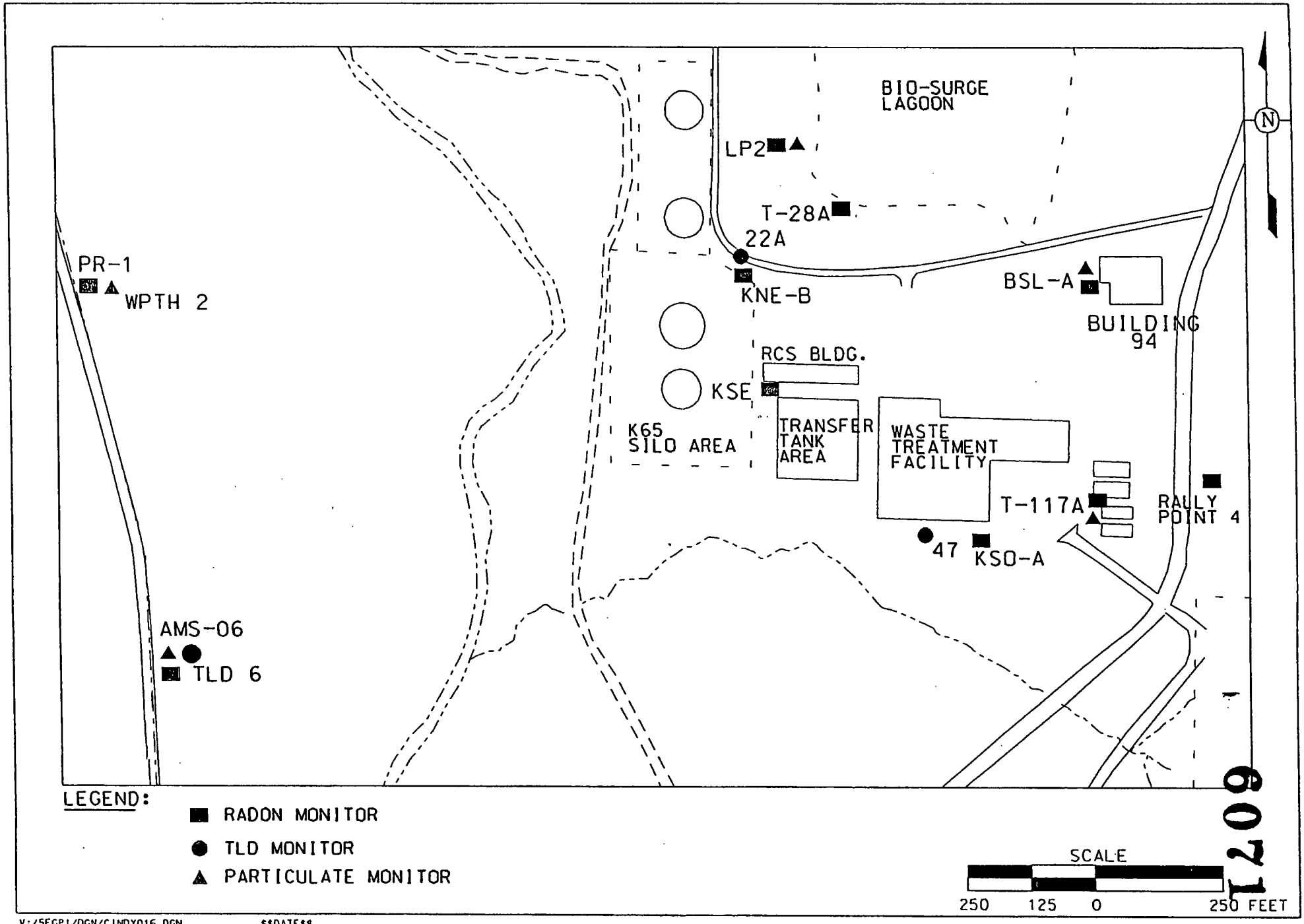
Johnny Reising

Johnny W. Reising
Director

Enclosure: As Stated

cc w/enclosure:
J. Reising, OH/FCP
E. Skintik, DOE-OH
J. Powell, DOE-LM
J. Craig, DOE-LM
C. Jacobson, Stoller, Inc.
M. Lutz, Stoller, Inc.
M. Cullerton, Tetra Tech
G. Jablonowski, USEPA-V, SR-6J
T. Schneider, OEPA-Dayton (3 copies of enclosures)
M. Shupe, HSI GeoTrans
R. Vandegrift, ODH
AR Coordinator, Fluor Fernald, Inc., MS6

c w/o enclosure:
S. Beckman, Fluor Fernald, Inc., MS20
H. Bilson, Fluor Fernald, Inc., MS1
J. Chiou, Fluor Fernald, Inc., MS88
F. Johnston, Fluor Fernald, Inc., MS12
W. Hertel, Fluor Fernald, Inc., MS12
M. Cherry, Fluor Fernald, Inc., MS77
C. Murphy, Fluor Fernald, Inc., MS1
D. Nixon, Fluor Fernald, Inc., MS1
D. Powell, Fluor Fernald, Inc., MS64
P. Spotts, Fluor Fernald, Inc., MS52-3
C. Tabor, Fluor Fernald, Inc., MS12



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PROJECT AREA IEMP AIR MONITORS

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ENCLOSURE 1: PLANNED REDUCTION OF THORIUM MONITORING

BACKGROUND

During the Waste Pits Project, thorium surpassed uranium as the primary contributor to the air inhalation effective dose equivalent (EDE) at the site boundary. Additional monitors and an increased frequency of thorium monitoring were incorporated into the monitoring plan.

THORIUM EDE CONTRIBUTION

With the completion of the Waste Pits Project in August 2005, the EDE contribution from thorium has returned to more historical levels (refer to EDE calculations).

EDE CALCULATIONS THROUGH THIRD QUARTER 2005

Background:

Radionuclide	1st Qtr 2005 AMS-12 Concentration (pCi/m^3)	2nd Qtr 2005 AMS-12 Concentration (pCi/m^3)	3rd Qtr 2005 AMS-12 Concentration (pCi/m^3)	NESHAP Table 2 Ratio Values (Ci/m^3)
U-238	5.6E-006	6.8E-006	8.4E-006	8.3E-015
U-234	6.9E-006	6.3E-006	4.1E-006	7.7E-015
U-235/6	0.0E+000	0.0E+000	3.4E-006	7.4E-015
Th-228	4.4E-006	8.2E-006	9.2E-006	3.1E-015
Th-230	0.0E+000	8.2E-006	7.5E-006	3.4E-015
Th-232	2.1E-006	5.2E-006	3.6E-006	6.2E-016
Ra-226	3.9E-005	2.8E-005	2.5E-005	3.3E-015

Note: 0.0E+000 indicates sample concentration was less than Minimum Detectable Concentration.

Radionuclide	1st Qtr 2005 AMS-12 Ratio (R_1)	2nd Qtr 2005 AMS-12 Ratio (R_2)	3rd Qtr 2005 AMS-12 Ratio (R_3)	Background Year-To-Date EDE Estimate (mrem)
U-238	1.7E-004	2.1E-004	2.5E-004	6.3E-03
U-234	2.2E-004	2.1E-004	1.3E-004	5.6E-03
U-235/6	0.0E+000	0.0E+000	1.1E-004	1.1E-03
Th-228	3.5E-004	6.6E-004	7.4E-004	1.7E-02
Th-230	0.0E+000	6.0E-004	5.5E-004	1.2E-02
Th-232	8.6E-004	2.1E-003	1.4E-003	4.4E-02
Ra-226	2.9E-003	2.1E-003	1.9E-003	7.0E-02
(pCi/m3 / (Ci/m3 * (1E12 pCi/Ci))) = R		**ΣR * 10 = mrem**		

Maximum Indicator:

The highest radionuclide concentrations measured through the third quarter were at AMS-3.

Radionuclide	1st Qtr 2005 AMS-3 Concentration (pCi/m^3)	2nd Qtr 2005 AMS-3 Concentration (pCi/m^3)	3rd Qtr 2005 AMS-3 Concentration (pCi/m^3)	NESHAP Table 2 Ratio Values (Ci/m^3)
U-238	2.7E-005	7.7E-005	5.7E-005	8.3E-015
U-234	1.9E-005	7.5E-005	3.7E-005	7.7E-015
U-235/6	0.0E+000	7.6E-006	9.7E-006	7.4E-015
Th-228	9.0E-006	2.0E-005	2.1E-005	3.1E-015
Th-230	1.8E-005	3.4E-005	3.8E-005	3.4E-015
Th-232	4.3E-006	1.7E-005	1.3E-005	6.2E-016
Ra-226	3.1E-005	8.1E-005	1.2E-004	3.3E-015

Radionuclide	1st Qtr 2005 AMS-3 Ratio (R_1)	2nd Qtr 2005 AMS-3 Ratio (R_2)	3rd Qtr 2005 AMS-3 Ratio (R_3)	AMS-3 Year-To-Date Gross EDE Estimate (mrem)
U-238	8.0E-004	2.3E-003	1.7E-003	4.8E-02
U-234	6.1E-004	2.4E-003	1.2E-003	4.3E-02
U-235/6	0.0E+000	2.6E-004	3.3E-004	5.8E-03
Th-228	7.2E-004	1.6E-003	1.7E-003	4.0E-02
Th-230	1.3E-003	2.5E-003	2.8E-003	6.6E-02
Th-232	1.7E-003	7.0E-003	5.4E-003	1.4E-01
Ra-226	2.4E-003	6.1E-003	9.2E-003	1.8E-01
(pCi/m3 / (Ci/m3 * (1E12 pCi/Ci))) = R				ΣR * 10 = mrem

Radionuclide	AMS-3 Year-To-Date Gross EDE Estimate (mrem)	Background Year-To-Date EDE Estimate (mrem)	Net Year-To-Date EDE Estimate (mrem)	Annual EDE Estimate (mrem)
U-238	4.8E-02	6.3E-03	4.2E-02	0.056
U-234	4.3E-02	5.6E-03	3.7E-02	0.049
U-235/6	5.8E-03	1.1E-03	4.7E-03	0.006
Th-228	4.0E-02	1.7E-02	2.2E-02	0.030
Th-230	6.6E-02	1.2E-02	5.5E-02	0.073
Th-232	1.4E-01	4.4E-02	9.7E-02	0.129
Ra-226	1.8E-01	7.0E-02	1.1E-01	0.151
Gross EDE – Background EDE = Net Year-To-Date EDE				**((Year-To-Date / 3 Qtrs) * 4 Qtrs)**

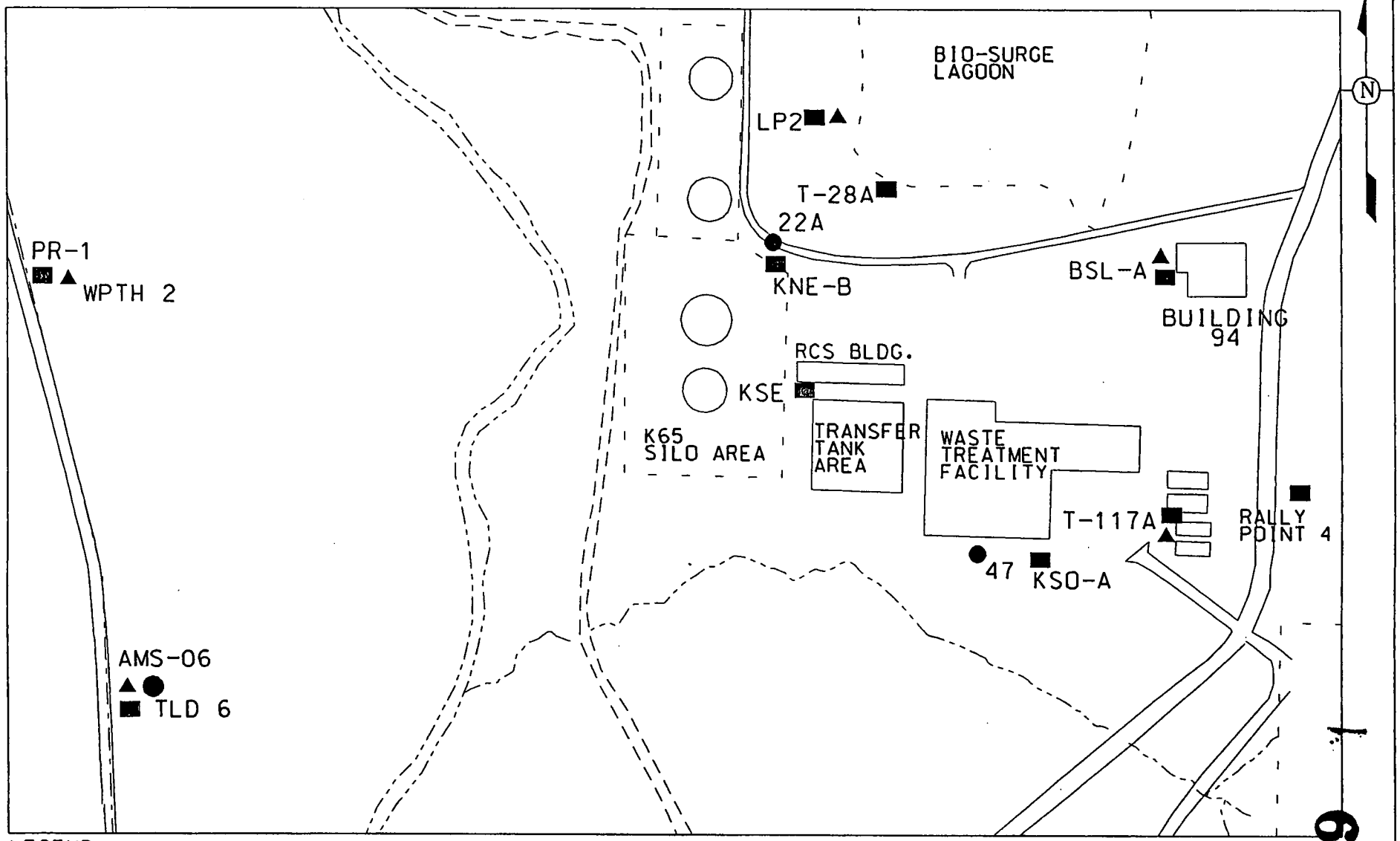
From the dose calculation, the thorium-230 dose contribution would represent less than one percent of the NESAHP Subpart H limit of 10 mrem/year.

PLANNED REDUCTIONS

DOE requests approval for the following:

- Remove the air monitor WPTH-2 from service (after November 22, 2005).
- Complete the monthly thorium composite samples (November composite will be the last).

Note: Isotopic thorium analysis will continue to be performed with the quarterly composites.



LEGEND:

- ■ RADON MONITOR
- ● TLD MONITOR
- ▲ PARTICULATE MONITOR

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PROJECT AREA IEMP AIR MONITORS

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Th-230	0.0E+000	8.2E-006	7.5E-006	3.4E-015
Th-232	2.1E-006	5.2E-006	3.6E-006	6.2E-016
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U-235/6	0.0E+000	0.0E+000	1.1E-004	1.1E-03
Th-228	3.5E-004	6.6E-004	7.4E-004	1.7E-02
Th-230	0.0E+000	6.0E-004	5.5E-004	1.2E-02
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