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ENGINEERING CHANGE NOTICE

Page 1 of 3

1. ECN 611275

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. Date
Supplemental [] Direct Revision [x] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	P. A. Olsen, TWRS Rad. Con. Organization, R3-12, 372-2842	9/20/94
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11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)		n/a Cog. Engineer Signature & Date	n/a Cog. Engineer Signature & Date

12. Description of Change

Changed document to current standards.

13a. Justification (mark one)							
Criteria Change	[X]	Design Improvement	[]	Environmental	[]	As-Found	[]
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13b. Justification Details

Change in DOE order criteria required change in document.

14. Distribution (include name, MSIN, and no. of copies)

(see front page)

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15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[X]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
n/a		

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog. Eng. P. A. Olsen, Sig., p. 3.		PE	
Cog. Mgr. S. L. Bump, Sig., p. 3.		QA	
QA J. Verderber, Sig., p. 3.		Safety	
Safety M. N. Islam, Sig., P. 3.		Design	
Environ. n/a		Environ.	
Other		Other	
		DEPARTMENT OF ENERGY	
		Signature or a Control Number that tracks the Approval Signature	
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ENGINEERING DATA TRANSMITTAL

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16. KEY

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1	1	Cog.Eng. P. A. Olsen		8/31/94	R3-12	D. L. Kelly			S5-20	4	4
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* * * * * * * * * * * * * *

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

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9/20/94
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SUPPORTING DOCUMENT

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Kim Bror 9/20/94

6. Author

Name: P. A. Olsen

Signature

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7. Abstract

Tank Farm facilities' compliance with the workplace air sampling (WPAS) program has been assessed. Requirements, bases for determining compliance and recommendations are included. In the current condition all buildings are in compliance with the WPAS program.

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RECORD OF REVISION	(1) Document Number WHC-SD-SQA-TA-20011	Page 1

(2) Title

Technical Assessment of Workplace Air Sampling Requirements at Tank Farm Facilities

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		(5) Cog. Engr.	(6) Cog. Mgr. Date
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SUPPORTING DOCUMENT

TECHNICAL ASSESSMENT OF COMPLIANCE WITH

WORK PLACE AIR SAMPLING REQUIREMENTS

AT TANK FARMS

Radiological Control Organization
Safety Function:
Nuclear Safety Standards and Requirements
Westinghouse Hanford Company

Pamela A. Olsen

Rev. 1

CONTENTS

1.0 PURPOSE

The purpose of this Technical Work Document is to satisfy WHC-CM-1-6, the "WHC Radiological Control Manual." Article 551.4 of that manual states a requirement for a documented study of facility workplace air sampling programs (WPAS). This first revision of the original Supporting Document covers the period from January 1, 1994 to December 31, 1994.

WHC-CM-1-6 is the primary guidance for radiological control at Westinghouse Hanford Company (WHC). It was written to implement DOE N 5480.6 "U.S. Department of Energy Radiological Control Manual" as it applies to programs at Hanford which are now overseen by WHC. As such, it complies with Title 10, Part 835 of the Code of Federal Regulations. In addition to WHC-CM-1-6, there is HSRCM-1, the "Hanford Site Radiological Control Manual" and several Department of Energy (DOE) Orders, national consensus standards, and reports that provide criteria, standards, and requirements for workplace air sampling programs (see references). This document provides a summary of these, as they apply to WHC facility workplace air sampling programs. This document also provides an evaluation of the compliance of Tank Farms' workplace air sampling program to the criteria, standards, and requirements and documents compliance with the requirements where appropriate Where necessary, it also indicates changes needed to bring specific locations into compliance.

2.0 SCOPE

The criteria, standards, and requirements contained in this document apply only to airborne particulate sampling in the workplace. While many of the same requirements apply to air sampling and monitoring for facility effluent streams and for the environmental ambient air sampling program this document excludes them. The compliance appraisal in this document assumes the placement of fixed workplace air sampling equipment in facility areas that are routinely occupied or traversed as part of facility operations, and such sampling systems are strongly recommended for this purpose. Air sampling for non-routine activities and in areas not covered in this document is conducted as described in WHC-CM-4-12, "Health Physics Practices Manual." If potential airborne contamination is suspected, a Radiation Work Permit (RWP) will be included in the work package to specify the air sampling requirements for personnel protection. Conclusions concerning compliance to requirements and changes necessary for compliance apply only to Tank Farm facilities.

3.0 CRITERIA, STANDARDS, AND REQUIREMENTS

The Department of Energy, through Title 10, Part 835 of the Code of Federal Regulations, "Occupational Radiation Protection.", and DOE Order 5480.11, "Radiation Protection for Occupational Workers.", requires its contractors to conduct air sampling to detect and evaluate airborne radioactive material in the workplace. In DOE Order 5480.4, "Environmental Protection, Safety, and Health

Protection Standards.", DOE lists a wide variety of federal laws and codes and national consensus documents to which compliance is mandatory. Included in the list are several American National Standards Institute (ANSI) standards that form the basis for workplace air sampling. A compilation of the criteria and standards applicable to workplace air sampling programs is contained in WHC-SD-GN-TA-30001," Criteria for Westinghouse Hanford Company Workplace Air Sampling Program". Compliance to the requirements of SD-SQA-CSD-001 is not required by WHC, however, it is recognized historically as good work practice, and refers to documents for which compliance is mandatory.

A description of the contents and selected criteria and standards are provided below for those Federal Regulations, DOE Notices, DOE Orders and ANSI standards that apply to workplace air sampling and monitoring. The criteria from WHC-CM-1-6 to assess the requirements of such monitoring are the most immediate, but all the criteria listed below should be adhered to. Though this assessment deals only with equipment type and location, some documents listed below address calibration and record keeping requirements and are included for information.

10 CFR 835

"Paragraph 835.403 (a)(1)

Air sampling shall be performed in occupied areas where, under typical conditions, an individual is likely to receive an annual intake of 2 percent or more of the specified ALI values. For a given radionuclide, and lung retention class, the ALI is the product of the DAC listed in appendix A of this part, and the constant 2.4×10^9 ml...

Paragraph 835.403 (a)(2)

Real-time air monitoring, using continuous air monitors ...shall be performed in normally occupied areas where an individual is likely to be exposed to a concentration of airborne radioactivity exceeding 1 DAC as specified in appendix A of this part or where there is a need to alert potentially exposed individuals to unexpected increases in airborne radioactivity levels.

Paragraph 835.403 (a)(3)

For the airborne radioactive material that could be encountered, real-time air monitors shall have alarm capability and sufficient sensitivity to alert potentially exposed individuals that immediate action is necessary in order to minimize or terminate inhalation exposures.

Paragraph 835.403 (b)

Monitoring of radiation in the workplace shall be performed using stationary (area) or portable radiation instruments, or a combination thereof..."

DOE N 5480.6.

"Article 555.1

Selection of air monitoring equipment should be based on the specific job being monitored. Air monitoring equipment includes portable and fixed air sampling equipment and continuous air monitors.

Article 555.2

Air sampling equipment shall be used in occupied areas where, under normal operating conditions, a person is likely to receive an annual intake of 2 percent or more of the specified Annual Limit of Intake (ALI) values...

Article 555.3

Continuous air monitoring equipment shall be installed in occupied areas where a person without respiratory protection is likely to be exposed to a concentration of radioactivity in air exceeding 1 DAC, or where there is a need to alert potentially exposed workers to unexpected increases in the airborne radioactivity levels.

Article 555.4

Air sampling equipment should be positioned to measure air concentration to which persons are exposed. If this cannot be achieved, a program of personal breathing-zone air sampling should be initiated.

Article 555.5

Air monitoring equipment shall be routinely calibrated and maintained at a frequency of at least once per year. Continuous air monitors should be capable of measuring 1 DAC when averaged over 8 hours (8 DAC-hours) under laboratory conditions.

Article 555.6

Continuous air monitoring equipment required by Article 555.3 shall have alarm capability and sufficient sensitivity to alert personnel that immediate action is necessary in order to minimize or terminate inhalation exposures."

(THE CRITERIA IN WHC-CM-1-6 ARE ESSENTIALLY THE SAME AS THOSE OF DOE N 5480.6 AND OF HSRCM-1. THE ONLY AREAS OF DIFFERENCE DEAL WITH PROGRAMS OUTSIDE THE SCOPE OF THIS DOCUMENT.)

DOE Order 5480.4.

Mandatory ES&H (environmental protection, safety, and health) Standards (Policy Requirements) listed in Attachment 2 to this order include ANSI N42.18-1974, ANSI

N317-1980, and ANSI N323-1978. In addition, ANSI N13.1-1969 is listed in Attachment 3 to this order as a reference ES&H standard.

DOE Order 5480.11.

"9.g.(3). Workplace, (a) Air Monitoring

Data obtained from air monitoring shall be used for assessing the control of airborne radioactive materials in the workplace; it should not normally be used to evaluate the dose equivalent to radiation workers.

9.m.(3). Monitoring and Area Control Records

Records that establish the conditions under which individuals were exposed, such as facility radiological conditions (as generated by the monitoring programs) and surveys for the release of personal property and workplace surfaces, shall be kept to provide a chronological, historical record pursuant to Section 5 of ANSI N13.6-1972.

9.m.(4). Monitoring Methods Records

Records shall be kept to document the appropriateness, quality, and accuracy of monitoring methods, techniques, and procedures in use during any given period pursuant to Section 6 of ANSI N13.6-1972. Changes in equipment, techniques, and procedures are to be documented and the documents maintained."

ANSI N13.1-1969 (R1982) Guidance to Sampling Airborne Radioactive Materials in Nuclear Facilities.

"4.2.1. Sampling in a Zone Occupied by Workers.

The sample should ideally be drawn from a point or series of points within the breathing zone of the worker. . . . The [workplace air sampler] location should be selected to be as close to the breathing zone as is practical without interfering with the work and the worker. . . . with judicious placing of the sampling point and correlation with true breathing zone samplers, the fixed-position samplers can be useful. Routinely obtained samples from fixed locations will signal changes in general air concentration. . . .(Fixed head) air samplers may be installed slightly above head height and in front of the worker, or they may be installed at the front face of the hood, gloved box, or other enclosure used to contain the radioactive material processed."

ANSI N13.6-1966 (R1989). Occupational Radiation Exposure Records Systems.

"5.6. Airborne Radioactive Material Monitoring Records.

The records of analyses of airborne radioactivity should include
. . .

(2) General location of sampling station, i.e., building and room
(3) Specific location where sample was taken
(4) Purpose of sample collected, e.g., routine air sample or air sample for special evaluation
(5) type of sample collection equipment used, e.g., filter, impactor, or evacuated ion chamber
. . ."

ANSI N42.18-1980 (R1991). Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents

This standard applies to stack samplers/monitors. It does not apply to workplace air sampling/monitoring. However, it does contain requirements that are also appropriate for workplace air sampling.

"**5.4.10. Calibration**

A thorough primary calibration of the entire system shall be performed at least once using a radionuclide (liquid, solid, or gaseous) of known concentration . . .

Systems where the concentration of radionuclides changes significantly between the sample point and the detector, as in off-line particulate monitoring, shall be tested by using radioactive material or a known tracer such as dioctyl phthalate (DOP) to determine the loss in the sample lines."

ANSI N317-1980 (R1991). Performance Criteria for Instrumentation Used for Inplant Plutonium Monitoring.

"**5.3. Fixed monitoring Instruments**

5.3.1. Airborne contamination monitors are normally . . . (CAMs). The following criteria apply to those instruments. More information is contained in ANSI N42.18-1974].

(1) MDL shall be 1 MPC of Pu-239 in 8 hours (8 MPC-hours) [now 8 DAC-hrs]
. . .
(16) Air sample lines between air inlet and filter media should be eliminated where possible and where not possible shall be designed to meet sampling criteria contained in ANSI N13.1-1969.
(17) A thorough primary calibration of the entire system shall be performed at least once using a radionuclide of known concentration. . . . Traceability to a national standard shall be maintained. . . . Flow rate measuring devices associated with the system shall be calibrated to determine actual flow rate at the conditions of temperature and pressure under which the system will be operated. These flow rate devices shall be periodically recalibrated."

ANSI N323-1978 (R1983). Radiation Protection Instrumentation Test and Calibration.

This standard applies to portable radiation protection instruments used for detection and measurement of levels of ionizing radiation fields or levels of radioactive surface contamination. It is not directly applicable to workplace air sampling. It is included here because,in some cases, the level of surface contamination (and the determination of potential airborne concentrations based on the surface contamination) may be the determining factor in deciding whether or not workplace air sampling is required.

WHC-SD-GN-TA-30001. "Criteria for Westinghouse Hanford Company Workplace Air Sampling Program."

This document contains criteria and standards for workplace air sampling. Though adherence to this document is not required, it is given here because it's contents are recognized as good work practice. Criteria and standards are provided for sampling locations, sampling instruments and equipment, sample analysis and data review, and documentation and records. The criteria and standards for sampling locations and sampling instruments and equipment include the following.

Monitoring Systems for Rapid Detection and Alarm.

Rapid detection and alarm is accomplished through the use of continuous air monitors (CAMs).

- Rapid detection and alarm must be provided in any circumstance where equipment or containment failure could cause rapid increase of airborne contaminant levels exceeding acceptable and ALARA workplace concentrations.

- Ambient air monitoring systems shall be placed in locations strategic to the workplace to permit representative measurement of airborne contamination.

- Monitors for rapid alarm shall be positioned for maximum sensitivity in detecting an off-standard condition in a minimum response time.

- The system must provide both visual and audible alarms to potentially affected workers at a detection level of at least 8 DAC-hours for aerosols of the nuclides of concern.

- The sample delivery and collection portion of the system must minimize sample losses, withstand service conditions, and exhibit a high efficiency for the collection and detection of radioactive aerosols.

Ambient Air Sampling Systems.

Ambient air sampling is accomplished usually by fixed head samplers.

- o Ambient air monitoring systems shall be placed in locations strategic to the workplace to permit representative measurement of airborne contamination.

- o The system shall be located to optimize both representative and operationally oriented sampling for the purposes of determining the effectiveness of process containment systems and the recording of work area ambient airborne contamination levels.

- o The sample orientation and the collection media used must optimize the representative sampling of aerosols in the workplace environment. Collection media must have a high efficiency for aerosol collection and permit a high efficiency for subsequent counting or analysis.

- o The sampling device shall be either a part of a fixed, multiple device installation, or a single portable unit. In either case, a reliable source of vacuum shall be provided to draw at least 60 lpm (2 cfm) under expected conditions of media loading at each sampler.

Breathing Zone Air Sampling Systems.

Breathing zone air sampling is normally done using fixed head air samplers.

- o Breathing zone air sampling systems shall be placed in locations strategic to the worker in an effort to obtain a representative measurement of the inhalation hazard to personnel.

- o Positioning of samplers shall take into account possible sources of airborne activity, ventilation patterns, dilution, and occupancy factors. The system must be periodically reevaluated to allow for possible changes in any of these factors.

- o Breathing zone air samplers shall be required at any location where personnel have the potential for inhalation of 2 % ALI resulting from chronic radioactive airborne contamination concentrations.

Personal air sampling (PAS) devices, such as lapel samplers, may also be used to obtain data relative to worker inhalation hazards. If used, the following criteria apply.

- o The PAS devices shall be designed and function to conform to the guidance provided in NUREG/CR-4033.

- o The PAS devices shall be Mine Safety and Health Administration approved.

4.0 TECHNICAL BASES FOR REQUIRING WORK PLACE AIR SAMPLING

4.1 BASES FOR REQUIRING A WPAS SYSTEM

There are three bases for requiring a WPAS system in a room or building. First, there must be a potential to exceed 2% of any ALI. Second, if the 2% ALI limit is exceeded, it must be breathed by a person who is there as part of a normal or routine work assignment. Third, if the conditions for the first and second bases are met, there must also be a potential for a single failure or abnormal event to result in worker exposure to the 2 % ALI. All three bases must be present for an air sampling system to be required.

There must be a potential for a worker to be exposed to one DAC in a room/building over a prolonged period of time for continuous air monitoring, i.e. installation of a continuous air monitor (CAM), to be required. In a room/building where a worker could be exposed to 40 DAC-hours (100 mrem) in typical work shift due to significant increases in the concentration of airborne radioactive material, a CAM is also required.

4.1.1 Potential to Exceed 2% of ALI

The potential to exceed 2% of any ALI is evaluated by reviewing historical and current airborne radioactivity data and by calculating potential airborne radioactivity concentrations based on source terms available and possible single failure events. The potential for a worker to exceed 2% of ALI is also dependent on the amount of time spent in the room or building and is the limiting factor at occupancies greater than 90 minutes per day. For 90 minutes or less occupancy, the potential for 2 % of ALI will not be reached before 10 % DAC, at which time respiratory protection would be used in most cases. Source terms include radioactive materials being used or transported in the building or room and surface contamination levels present in equipment (e.g., gloveboxes) and on floors. If airborne radioactivity data or calculations indicate 2% of any ALI has been or could be exceeded, the first basis for requiring a sampling program pertains to the building or room in question. system.

4.1.2 Personnel Present

If the building or room is routinely occupied or traversed by personnel as part of their normal job, the second basis is met. Routine occupancy is not absolutely defined, and is evaluated on a case by case basis. In general, routine occupancy, as used in this document, means individuals are present in a room or building, without respiratory protection, for more than 90 minutes a day.

4.1.3 Single Failure or Abnormal Event

Historical data and industry data such as component failure rate information are

used to evaluate the possibility that a single failure could result in airborne radioactivity concentrations that could cause an individual to exceed 2% ALI. The potential for an abnormal event is determined through review of existing safety analysis documents and, where necessary, by room- or building-specific safety evaluation.

4.2 BASES FOR DECLARING WPAS NOT REQUIRED

If any of the three bases for requiring a sampling system is not present, then a sampling system is not required.

4.2.1 No Potential to Exceed 2% of ALI

If there is no potential to exceed 2% of ALI, a sampler is not required. Reasons why no potential exists include no radioactive material present, radioactive material is in a form that will not produce airborne contamination, insufficient radioactive material is present to expose a worker to 2% ALI.

For surface contamination, the concentration present must be less than that required to produce 2% of DAC (which would result in 2% ALI if a exposure is for an entire working year of 2000 hours), assuming a resuspension factor of 10^{-6}. A lower value may be used for specific nuclides and material forms when empirical data is available. Using the 10^{-6} resuspension factor, the surface contamination required to achieve 2% of DAC in a room is 880 dpm/100 cm^2 alpha (based on Pu-239) and 8.8 x 10^5 dpm/100 cm^2 beta-gamma (based on Sr-90). These values assume the required surface contamination is present over the entire horizontal surface area of the room.

4.2.2 Personnel not Routinely Present

If personnel are not routinely present (not more than 90 minutes per day), a sampling system is not required. [NOTE: For respiratory protection purposes, monitoring of any job where the potential exists to exceed 10% of DAC, using instrumentation specified by Health Physics is required regardless of the time the job takes.] Areas entered only to take periodic (not more often than daily) samples or periodically record instrument readings are generally considered to not require WPAS systems.

4.2.3 No Single Failure or Event

A WPAS system is not required in any room or building where two or more barriers exist between the potential source and the individual. The two barriers can be can be structural and/or physical and must prevent release of material to the breathing zone of the worker. Examples of barriers include gloveboxes, directed air flow, closed source material containers, etc.

5.0 BACKGROUND

5.1 GENERAL

The effort to bring workplace air sampling programs into compliance with applicable changes in the requirements began with the publication WHC-SD-GN-TA-30001 in January 1994. This document assesses workplace air sampling with the requirements in this publication.

5.2 TANK FARMS FACILITIES BACKGROUND

The Tank Farms facilities, located in the 200 East and 200 West Areas, were included in the air flow studies and upgrade program. The Tank Farms WPAS program was evaluated in 1990 in the initial issuance of this document and the West Tank Farms document WHC-SD-SQA-TA-20013. At that time, the facilities were upgraded to compliance with the requirements for workplace air sampling. Since 1990 there has been no change to the facilities which would affect the current program.

6.0 TANK FARMS FACILITIES WORKPLACE AIR SAMPLING PROGRAM

6.1 GENERAL

The East Tank Farms facilities include tank farms A, AN, AP, AR, AW, AX, AY, AZ, B, BX, BY, and C, and associated buildings. A general view of the arrangement of the 200 East area tank farms is provided in figure 1. The West Tank Farms facilities include tank farms S, SX, SY, T, TX, TY, and U, and associated buildings. 200 West area tank farms view is provided in figure 2.

6.2 BUILDINGS/ROOMS EXEMPT FROM WORKPLACE AIR SAMPLING

The following buildings/rooms are exempt from workplace air sampling requirements for the reasons indicated.

East Tank Farms Building/Room	Reason Exempt
101-106A, air lift circulators	Circulator lines capped off. Not routinely occupied.
242-A	
Control room, HPT corridor, AMU room, change rooms	No source of airborne contamination. No potential to exceed 2% ALI.
Cells	Not routinely occupied.
244-A lift station	No source of airborne contamination.

271-A control room	No source of airborne contamination. No potential to exceed 2 % ALI.	
401-A condenser room	Not routinely occupied	
431-A	Not routinely occupied.	
501-A	Not routinely occupied.	
701-A compressor/ generator bldg.	No potential to exceed 2 % ALI.	
A08 valve/sample pit	No routinely occupied.	
A-241-1 leak detection lateral building	Not routinely occupied.	
A-241-2 leak detection lateral building	Not routinely occupied.	
271-AN control room	No source of airborne contamination. No potential to exceed 2 % ALI.	
273-AN compressor building	No source or airborne contamination. No potential to exceed 2 % ALI.	
AN-803 water services building	No source of airborne contamination. No potential to exceed 2 % ALI.	
271-AP control room	No source of airborne contamination. No potential to exceed 2 % ALI.	
273-AP compressor building	No source of airborne contamination. No potential to exceed 2 % ALI.	
801-AP water services pit	No source of airborne contamination. No potential to exceed 2 % ALI.	
244-AR		
Control room	Not routinely occupied.	
Containment garage	Not routinely occupied.	
Canyon	Not routinely occupied.	
271-AW control room	No potential to exceed 2% ALI.	
272-AW garage	No source of airborne contamination. No potential to exceed 2 % ALI.	

273-AW compressor building	No source of airborne contamination. No potential to exceed 2 % ALI.
801-AX-A instrument building	Not routinely occupied.
801-AX-B instrument building	Not routinely occupied. No potential to exceed 2 % ALI.
2702-AX change room	Low level contamination outside of building. No potential to exceed 2 % ALI.
801-AY instrument building	Creation of significant airborne radioactivity would require failure of air lift circ. piping and check valves. No potential to exceed 2 % ALI.
801-AZ instrument building	Same as 801-AY. No potential to exceed 2% ALI.
801-AX-A instrument building	Not routinely occupied. No potential to exceed 2% ALI.
244-BX stack instrument building	Not routinely occupied.
BY-301 instrument building	Not routinely occupied.
BY-302 compressor building	Not routinely occupied.
BY control room	Not routinely occupied.
271-CR control room	Not routinely occupied.
Change rooms (MO-825, MO-820, MO-818, MO-824, MO-822, MO-816, MO-815)	No potential to exceed 2% ALI.
401-C storage building	Not routinely occupied.
209-E critical assembly room	Not routinely occupied.
209-E mixer room	Not routinely occupied.
East/West vent system valve station	Not routinely occupied.

702-A Front Side	Not routinely occupied.
702-A Back Side	Not routinely occupied.
West Tank Farms Building/Rooms	Reason Exempt
242-T	
Cells	Not routinely occupied.
242-S	
Control Room	No potential to exceed 2 % ALI.
Cells	Not routinely occupied.
241-SX-271 Instrument Building	Not routinely occupied. No potential to exceed 2 % ALI.
241-T-701 Compressor Building	Not routinely occupied. No potential to exceed 2 % ALI.
Change Trailers (MO-817, MO-819, MO-823, MO-821)	No potential to exceed 2 % ALI.
DACS Trailer	No potential to exceed 2 % ALI.
272-WA Van garage	No source of airborne contamination. No potential to exceed 2 % ALI.

6.3 LOCATION OF REQUIRED SAMPLING/MONITORING EQUIPMENT

The location of all required workplace air sampling equipment are provided in Figures 3 and 4.

Building/Room	Justification
242-A Condenser Room	There is the possibility of being exposed to greater than 2 % ALI with only one barrier between exposure and source. There is air sampling and air monitoring equipment located as recommended in the air flow study report.
242-T Control Room	Although there is no potential to exceed 2 % ALI, the Safety Analysis Report for 242-T requires sampling in the control room.

7.0 EVALUATION OF PROGRAM COMPLIANCE TO REQUIREMENTS

The buildings/rooms requiring workplace air sampling that are in compliance with workplace air sampling are listed in section 6.3. In 802-AX-A instrument building, although there are no personnel routinely occupying this area (< 90 min./day), there is the possibility of being exposed to contamination that could cause greater than 2 % ALI. On a monthly basis, there are individuals located in the building for a whole shift. A portable air sampler will be used when personnel are located in the building for an extended period of time.

8.0 REFERENCES

10 CFR 835, "Occupational Radiation Protection."

DOE N 5480.6, "U.S. Department of Energy Radiological Control Manual"

DOE Order 5480.4, "Environmental Protection, Safety, and Health Protection Standards."

DOE Order 5480.11, "Radiation Protection for Occupational Workers"

WHC-CM-1-6, WHC Radiological Control Manual.

ANSI N13.1-1969 (R1982), Guidance to Sampling Airborne Radioactive Materials in Nuclear Facilities.

ANSI N13.6-1966 (R1989), Occupational Radiation Exposure Records Systems.

ANSI N42.18-1980 (R1991), Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents.

ANSI N317-1980 (R1991), Performance Criteria for Instrumentation Used for Inplant Plutonium Monitoring.

ANSI N323-1978 (R1983), Radiation Protection Instrumentation Test and Calibration.

WHC-SD-GN-TA-30001, "Criteria for Westinghouse Hanford Company Workplace Air Sampling Program," Westinghouse Hanford Company 1994.

SD-WM-SAR-010, "Aging Waste Safety Analysis Report," 1989.

WHC-SD-WM-SAR-023, "242-A Evaporator/Crystallizer Safety Analysis Report," 1992.

WHC-SD-WM-OSR-016, "Double Shell Tank Interim Operational Safety Requirements," 1992.

SD-HS-SAR-009, "242-T Evaporator Facility Shutdown/ Standby to Condition V Safety Analysis Report," February 1982.

SD-WM-SAR-018, "244-AR Safety Analysis Report," 1990.

RHO-CD-56, "242-S Evaporator Safety Analysis Report," 1989.

SD-WM-SAR-006, "Single Shell Tank Isolation Safety Analysis Report," 1986.

Letter, June 12, 1987, T. P. Lynch, PNL, to L. K. Aldrich, II, Westinghouse Hanford Operations, "Final Report on the Evaluation of Air Sampling and Monitoring Equipment Locations in Selected 200 Area Facilities."

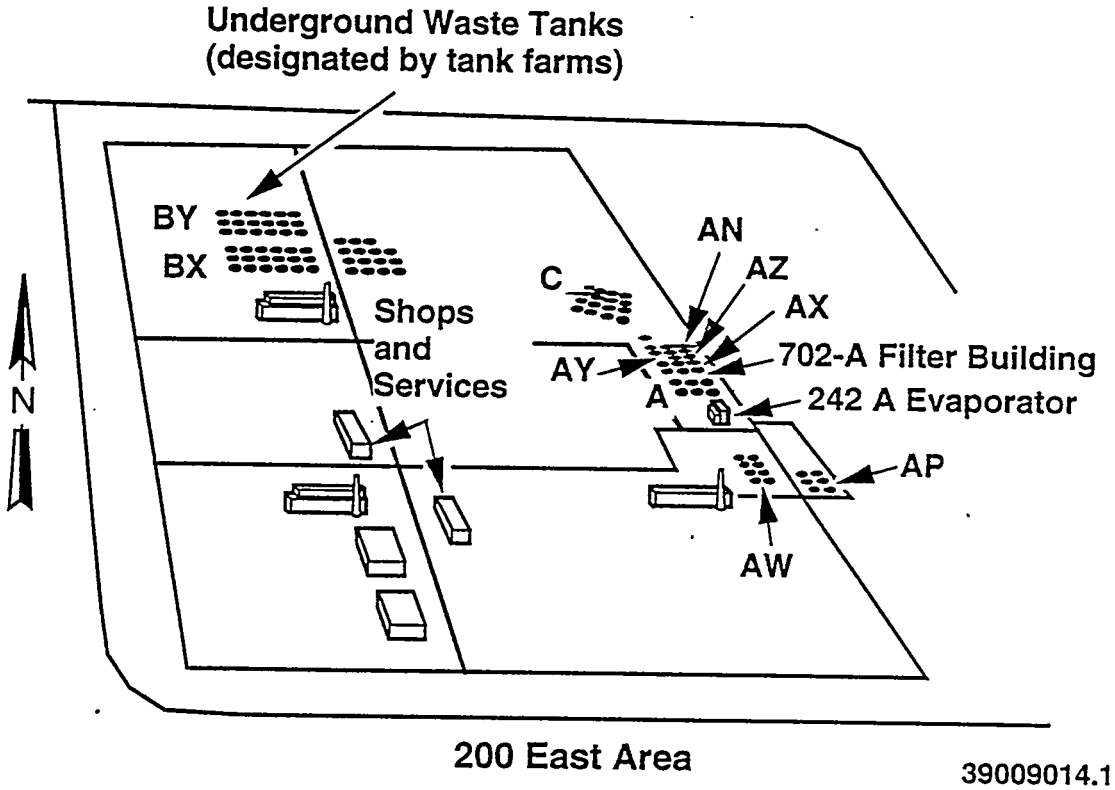

Figure 1. East Tank Farm Facilities Location

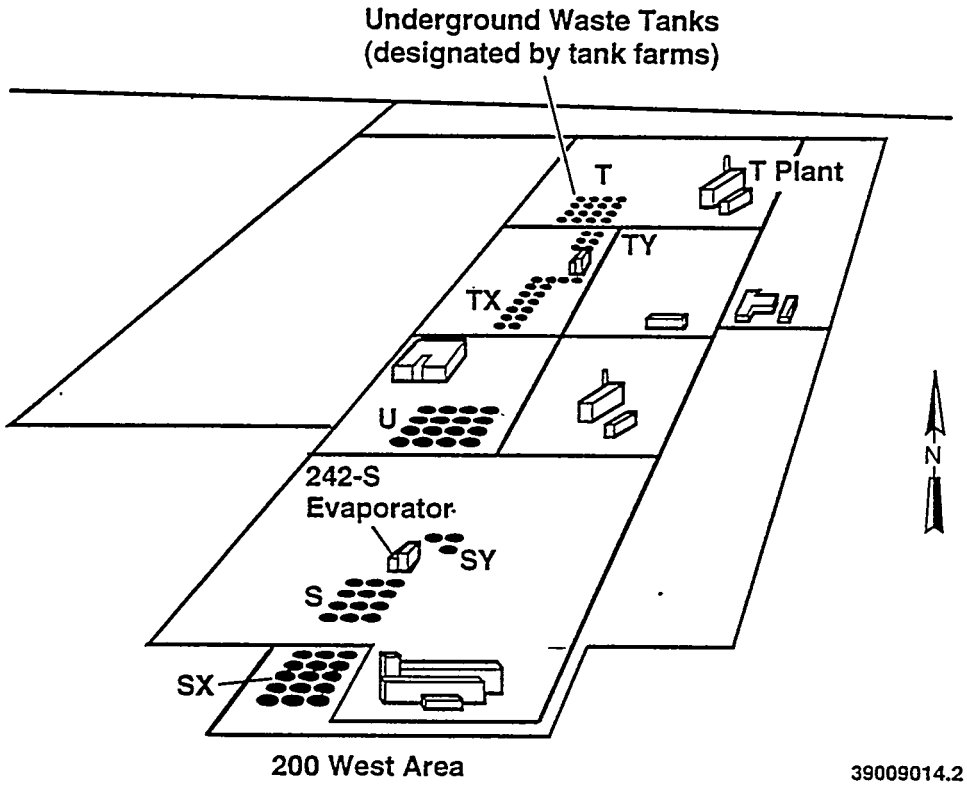

Figure 2. West Tank Farms Facility Layout

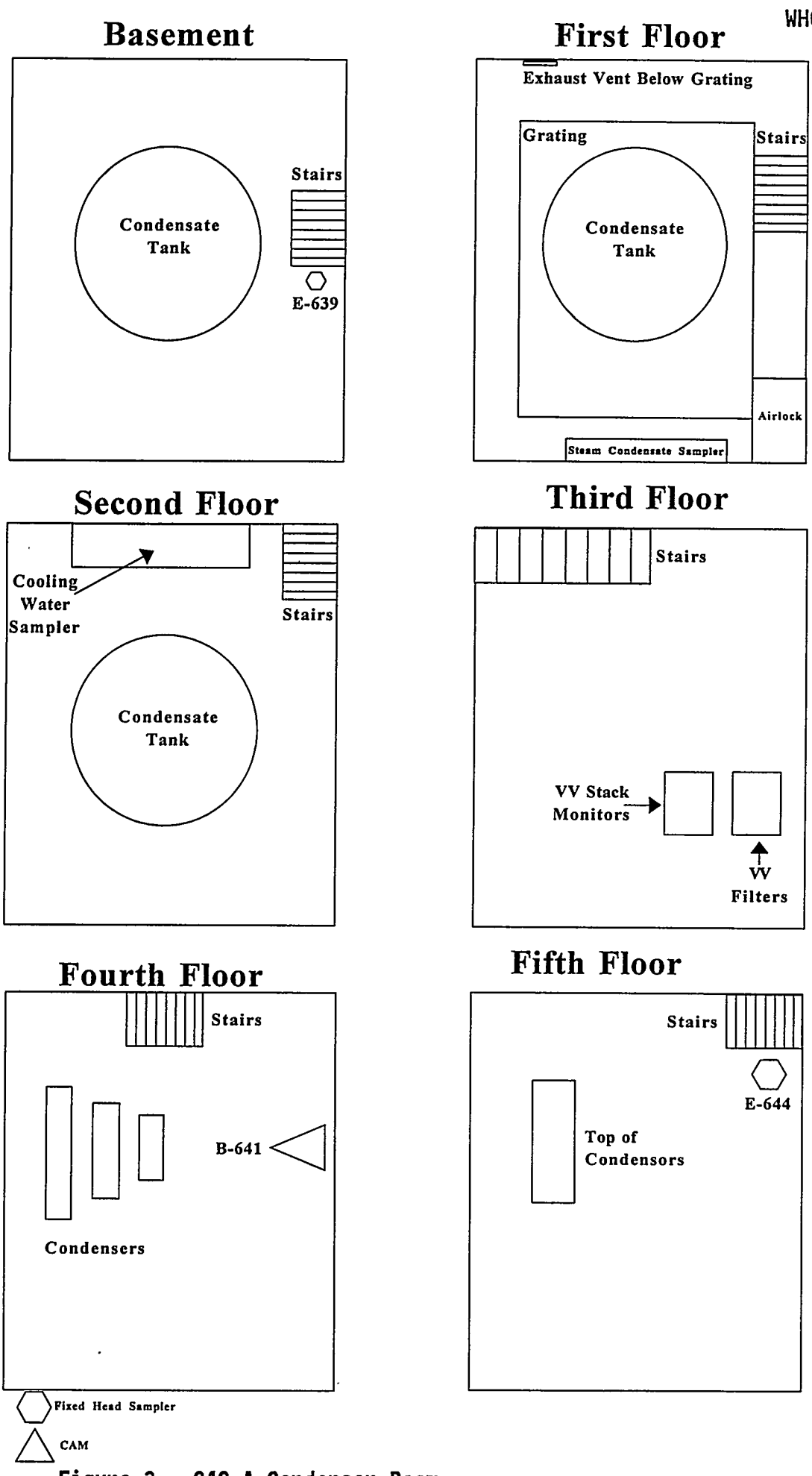

Figure 3. 242-A Condenser Room

242-T Control Room

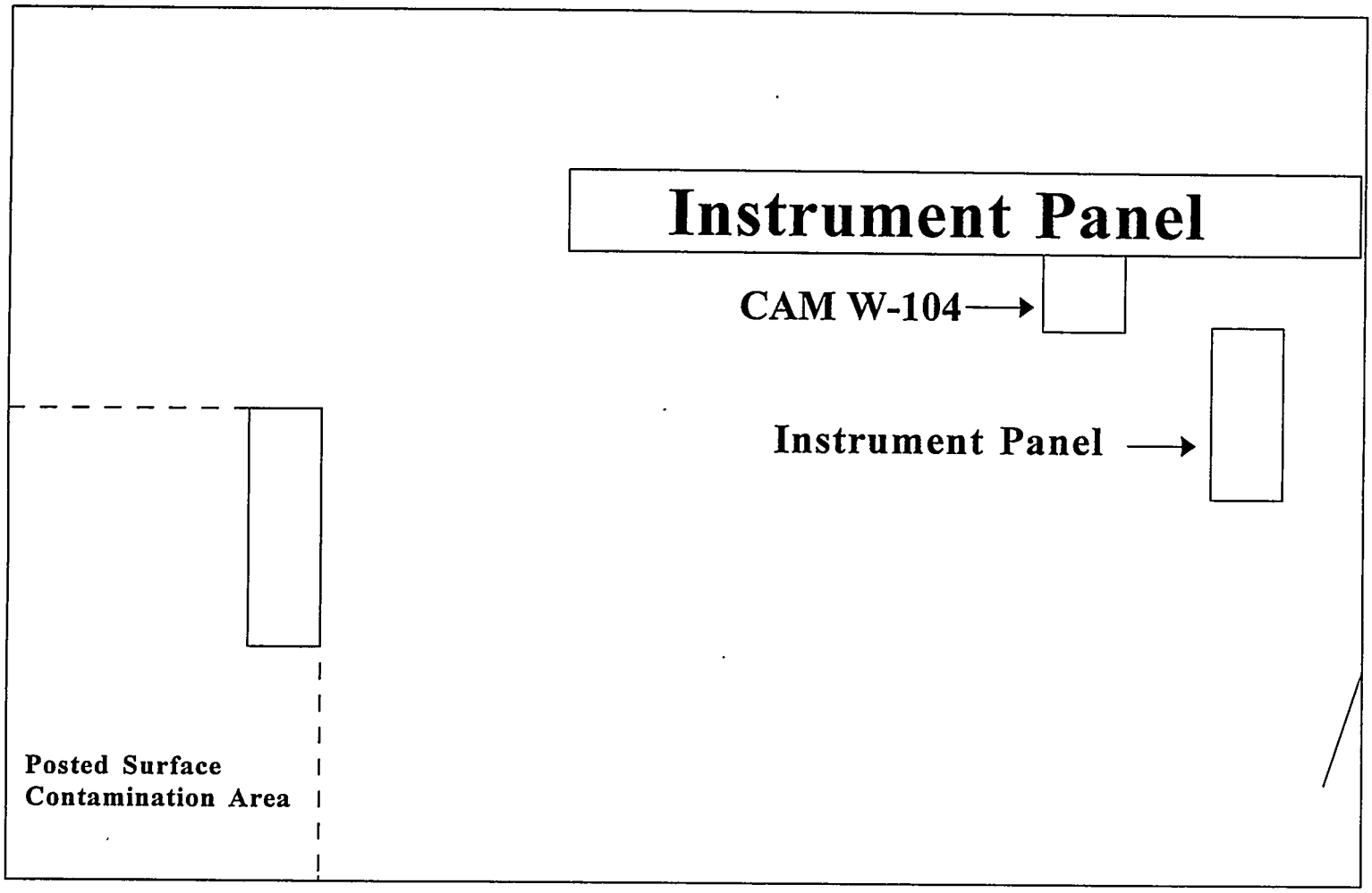

Figure 4. 242-T Control Room