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12. Description of Change
 Annual revision of technical assessment of workplace air sampling at T Plant.

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13b. Justification Details
 Workplace air sampling at T Plant under went annual evaluation. Since the original document was compiled, changes to the air sampling criteria have been made. These changes can be found in the following documents: 10CFR835 article 403 (a) (1) - (b); DOE N 5480.6, articles 555.1 - .6; DOE 5480.4, DOE 5480.11, articles 9.g.(3) - m.(4); ANSI N13.1-1969, N13.6-1966, N42.18-1980, N317-1980, N323-1978.

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RELEASE AUTHORIZATION

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

APPROVED FOR PUBLIC RELEASE

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7. Abstract

T Plant compliance with workplace air sampling requirements has been assessed. Requirements, basis for determining compliance and recommendations are included.

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SUPPORTING DOCUMENT
TECHNICAL ASSESSMENT OF COMPLIANCE WITH
WORK PLACE AIR SAMPLING REQUIREMENTS
AT T PLANT

Solid Waste Disposal Health Physics
Safety Function:
Nuclear Safety Standards and Requirements
Westinghouse Hanford Company

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MASTER

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1.0 PURPOSE

The purpose of this Technical Assessment 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 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 T Plant's 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 T Plant.

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".

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 its 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).

- o 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.
- o Ambient air monitoring systems shall be placed in locations strategic to the workplace to permit representative measurement of airborne contamination.
- o Monitors for rapid alarm shall be positioned for maximum sensitivity in detecting an off-standard condition in a minimum response time.
- o 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.
- o 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/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.

4.1.2 Personnel Present

If the building or room is routinely occupied or traversed by personnel as part of their normal/routine 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 any or sufficient airborne contamination to exceed 2% of any ALI, 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 10% of DAC in a room is 880 dpm/100 cm² alpha (based on Pu-239) and 8.8×10^5 dpm/100 cm² 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. 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. [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.]

4.2.3 No Single Failure or Event

A WPAS system is not required in any room or building where two or more engineered barriers exist between the potential source and the individual. The two barriers 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 referenced publication.

5.2 T PLANT

T Plant is located at the north side of the 200 West area. T Plant is a multifacility complex that receives, repackages, decontaminates, and treats solid waste that is generated at the Hanford Site.

6.0 T PLANT WORKPLACE AIR SAMPLING PROGRAM

6.1 GENERAL

The T Plant complex provides decontamination and reclamation of equipment contaminated with fission products or other radioactive material. The T Plant complex is part of the WHC Solid Waste Disposal Division and also functions as a central decontamination center for all Hanford site contractors and DOE. The T Plant complex consists of two primary decontamination facilities (221-T & 2706-T) and various support facilities. The layout of the T Plant complex is shown in figure 1.

6.1.1 BUILDING 221-T

Building 221-T consist of the canyon area, supporting galleries, and Head-End. The canyon area provides services in radioactive decontamination, reclamation, and decommissioning of process equipment contaminated with fission products. The canyon contains inactive processing areas and an active spent fuel storage pool. A canyon crane supports maintenance and operations activities. The cab of the crane operates in the crane gallery which is within canyon air space. The crane cab uses HEPA filtered supply ventilation to provide "clean" air to the crane. The extreme north end of 221-T includes the "Head End" portion of the building which has been separated from the canyon by a wall and is independently ventilated. The Head End was used as a sodium test facility by Pacific Northwest Laboratories (PNL) and is now planned to be decommissioned. Its exhaust system does not operate. The galleries provide support to facility processes and include; Operating, Pipe, and Electrical galleries. Air is exhausted from these galleries to the environment through a series of un-filtered wall exhausters.

6.1.2 BUILDING 221-TA

The two ventilation supply fans for the 221-T canyon are located in this building. Supply air conditioning equipment is also located in this building.

6.1.3 BUILDING 271-T

This building is the office building for T Plant. The building provides offices on three floors, a machine shop, chemical make-up area, an instrument shop, and mechanical equipment rooms. This building is supplied with a single conditioned air system and is maintained as positive which directs air flow into the adjacent galleries.

6.1.4 BUILDING 2706-T

This building is a low-level radioactive decontamination facility used to decontaminate railroad equipment, vehicles, and plant process equipment. HEPA filtered exhaust is provided by a single dedicated stack. Inside air is conditioned using four re-circulating systems.

6.1.5 OTHER T PLANT COMPLEX BUILDINGS

There are several other building in the T Plant complex that are used for a variety of nonradiological activities or which are no longer used and/or not routinely entered.

<u>Building</u>	<u>Use or Status</u>
296-T-13 Filter Building	- HEPA Filter Housing - No routine entry

- 2715-T
 - Equipment Parts Inventory
 - No radioactive material present
- 277-T
 - Storage building
 - No radioactive material present
- 291-T
 - Exhaust ventilation system control room
 - No routine entry
- 292-T
 - Closed. No routine entry

6.2 BUILDINGS/ROOMS THAT DO NOT MEET WORKPLACE AIR SAMPLING CRITERIA

The following buildings/rooms do not meet one or more of the three bases for requiring a WPAS system (as discussed in sections 4.2.1, 4.2.2, and 4.2.3 of this document).

<u>Buildings/Rooms</u>	<u>Reason(s)</u>
214-T	- Insufficient radioactive material is present to expose a worker to 2% ALI (4.2.1)
277-T	- Not routinely occupied \geq 90 min/day (4.2.2)
2715-T	- No radioactive material present (4.2.1)
291-T	- Not routinely occupied \geq 90 min/day (4.2.2)
292-T	- Not routinely occupied \geq 90 min/day (4.2.2)
221-TA	- Not routinely occupied \geq 90 min/day (4.2.2)
271-T	- The HVAC rooms on the second floor are the only locations with potential for 2% of ALI, but is not routinely occupied \geq 90 min/day (4.2.2)
221-T, Headend (all floors)	- Insufficient radioactive material is present to expose a worker to 2% ALI (4.2.1) - Not routinely occupied \geq 90 min/day (4.2.2)
221-T, Railroad Tunnel	- Not routinely occupied \geq 90 min/day (4.2.2) Note: This area is on mask due to potential to exceed 10% of a DAC
221-T, Galleries & Stairwells Clean SWP storage dress/undress areas	- Insufficient radioactive material is present to expose a worker to 2% ALI (4.2.1)
221-T, Craneway	- Not routinely occupied \geq 90 min/day (4.2.2) Note: This area is on mask due to potential to exceed 10% of a DAC
221-T, Pipe Gallery Sec. 20 Freshly laundered SWP storage room	- Not routinely occupied \geq 90 min/day (4.2.2) - Insufficient radioactive material is present to expose a worker to 2% ALI (4.2.1)

<u>Buildings/Rooms</u>	<u>Reason(s)</u>
2706-T, Yard & Hazardous Materials Connex Boxes	- Insufficient radioactive material is present to expose a worker to 2% ALI (4.2.1)
296-T-13 Filter bank building	- Not routinely occupied \geq 90 min/day (4.2.2)
221-T R-Areas	- Not routinely occupied \geq 90 min/day (4.2.2)

6.3 BUILDINGS/ROOMS THAT REQUIRE WPAS

The following buildings/rooms meet all three requirements for WPAS (as discussed in sections 4.2.1, 4.2.2, and 4.2.3 of this document): 221-T Canyon, 221-T Crane Cab, 221-T Operating Gallery section 20, & 2706-T Bay.

221-T Canyon

From survey and air sample results, the potential for an unprotected worker to receive 2% ALI does exist. Personnel (usually craft with operations and Health Physics support) routinely enter the Canyon for more than 90 minutes per day. There is no barrier (except respiratory protection) between the loose contamination in the Canyon and the breathing zone of the worker(s) on the Canyon deck. Thus abnormal events or single containment accidents are possible. With the three criteria (4.1.1, 4.1.2, & 4.1.3) satisfied, a Workplace Air Sampling program is required for the 221-T Canyon.

The WPAS program for the 221-T Canyon consists of Continuous Air Monitoring. From section 4.1, second paragraph, the requirements for Continuous Air Monitoring are met. These are: potential for a worker to be exposed to one DAC over a prolonged period of time, and a worker could be exposed to 40 DAC-hours in a typical work shift due to significant increases in the concentration of airborne radioactive material. Currently two Continuous Air Monitors (one beta and one alpha) are positioned inside the 221-T Canyon.

221-T Crane Cab

From survey and air sample results, the potential for an unprotected worker to receive 2% ALI does exist. Personnel (usually the crane operator) routinely enter the crane cab for more than 90 minutes per day. There is only one barrier between the loose contamination in the canyon and the breathing zone of the worker(s) in the crane cab. Thus a abnormal event or single containment accident is possible. With the three criteria (4.1.1, 4.1.2, & 4.1.3) satisfied, a Workplace Air Sampling program is required for the 221-T crane cab.

The WPAS program for the 221-T crane cab consists of Continuous Air Monitoring. From section 4.1, second paragraph, the requirements for Continuous Air Monitoring are met. Currently a room-air beta CAM is positioned inside the 221-T crane cab.

221-T Operating Gallery section 20

The potential for an unprotected worker to receive 2% ALI does exist. Personnel

routinely enter this area for more than 90 minutes per day. There is two barriers between the loose contamination in the canyon and the breathing zone of the worker(s) in the Operating Gallery. But potentially contaminated personnel (on their inner pair of protective clothing) enter the area from the canyon, thus abnormal events are possible. With the three criteria (4.1.1, 4.1.2, & 4.1.3) satisfied, a Workplace Air Sampling program is required for the 221-T Operating Gallery section 20.

The WPAS program for the 221-T Operating Gallery section 20 consists of Continuous Air Monitoring. From section 4.1, second paragraph, the requirements for Continuous Air Monitoring are met. Currently one room-air beta CAM is positioned at section 20.

2706-T Bay

From survey and air sample results, the potential for an unprotected worker to receive 2% ALI does exist. Personnel routinely enter the Bay for more than 90 minutes per day. There is no barrier (except respiratory protection) between decontamination activities and the breathing zone of the worker(s) in the Bay. Thus abnormal events or single containment accidents are possible. With the three criteria (4.1.1, 4.1.2, & 4.1.3) satisfied, a Workplace Air Sampling program is required for the Bay of 2706-T.

The WPAS program for the Bay of 2706-T consists of Continuous Air Monitoring & air sampling. From section 4.1, second paragraph, the requirements for Continuous Air Monitoring are met. Currently one room-air beta CAM is positioned inside 2706-T Bay. In addition, four fixed head air samplers are positioned near the corners of the Bay at approximately head level.

Thus T Plant is in full compliance for Workplace Air Sampling requirements.
NOTE: Canyon CAMs with transport lines through the canyon wall are not part of the WPAS program for T Plant. All 6 sample transport lines failed Radiological Engineering's criteria for sample transport lines. These CAMs have been placarded with "Not a Workplace Air Sampler" tags.

7.0 REFERENCES

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WHC-SD-SQA-TA-20010, "Technical Assessment of Compliance with Workplace Air Sampling requirements at T Plant," Westinghouse Hanford Company, 1990.

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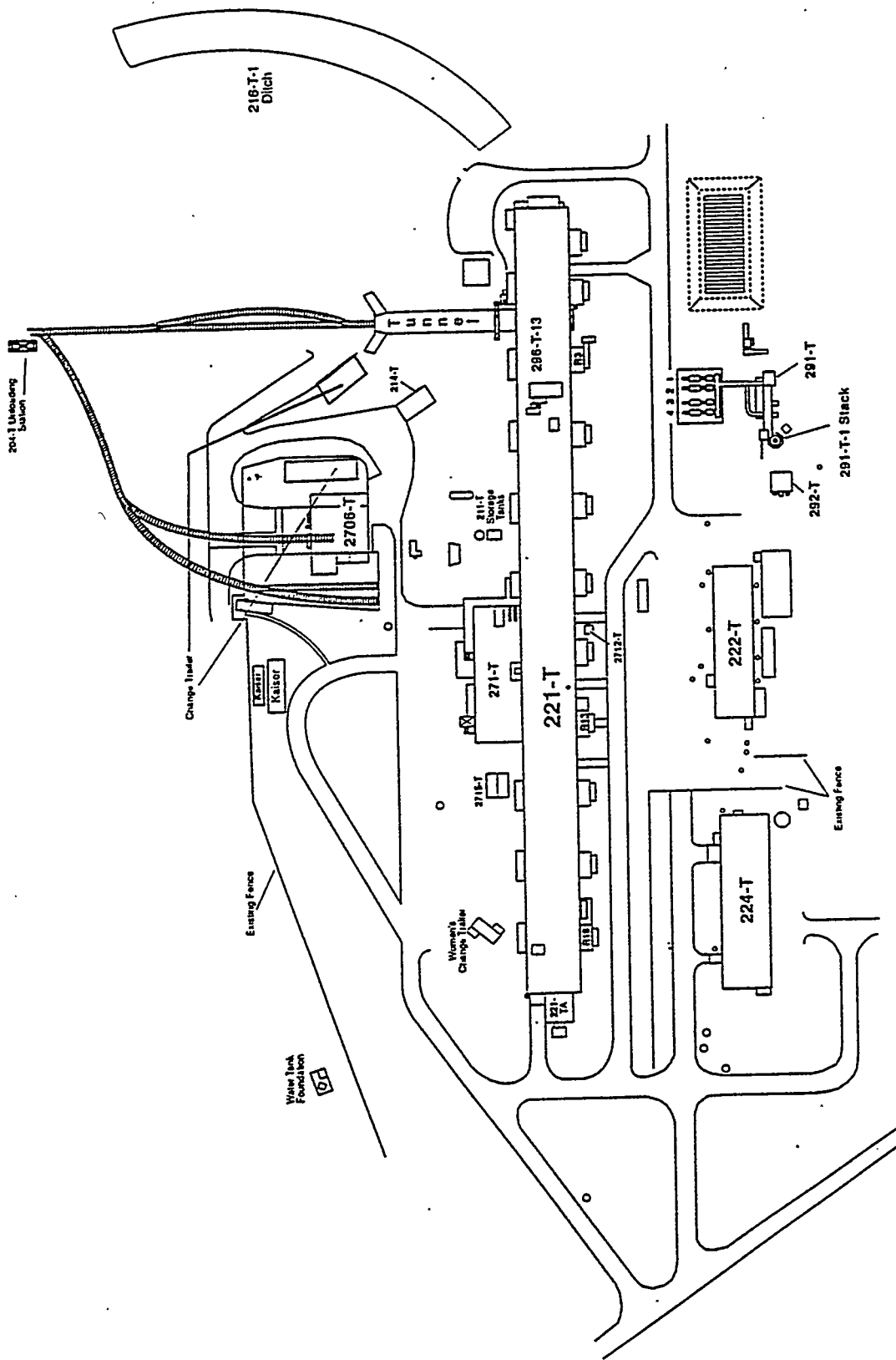


Figure 1. T Plant Facility Layout