1 of 2

340 Facility Compliance Assessment

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EXECUTIVE SUMMARY

This study provides an environmental compliance evaluation of the RLWS and the RPS systems of the 340 Facility. The emphasis of the evaluation centers on compliance with WAC requirements for hazardous and mixed waste facilities, federal regulations, and Westinghouse Hanford Company (WHC) requirements pertinent to the operation of the 340 Facility. The 340 Facility is not covered under either an interim status Part A permit or a RCRA Part B permit.

The detailed discussion of compliance deficiencies are summarized in Section 2.0. This includes items of significance that require action to ensure facility compliance with WAC, federal regulations, and WHC requirements. Outstanding issues exist for radioactive airborne effluent sampling and monitoring, radioactive liquid effluent sampling and monitoring, non-radioactive liquid effluent sampling and monitoring, less than 90 day waste storage tanks, and requirements for a permitted facility.

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1.0 INTRODUCTION

Westinghouse Hanford Company (WHC) requested that Pacific Northwest Laboratory (PNL)^(a) perform a compliance assessment of the 340 Facility in the 300 Area of the Hanford Site with respect to Federal and State environmental criteria. In turn, PNL requested assistance from Engineering Science, Inc. (ES) in this effort. This document contains the results of the compliance assessment.

1.1 BACKGROUND

The 340 Facility is located in the 300 Area of the Hanford Site near the Columbia River in south-central Washington State. The 300 Area was constructed in the 1940s to fabricate uranium fuel elements and support research and development (R&D) programs related to Hanford missions. The 300 Area currently is used for a myriad of Department of Energy (DOE) R&D programs, including those associated with the cleanup of the Hanford Site. The 340 Facility manages liquid radioactive and non-radioactive wastes typically generated by PNL R&D programs and others. The 324, 325, 326, 327, and 329 Buildings were built in the mid-1950s and discharge radioactive and non-radioactive liquid wastes to the 340 Facility. In addition, only non-radioactive waste from Building 308 is discharged to the 340 Facility. These buildings are hard piped to discharge liquid wastes directly to the 340 Facility. No radioactive wastes are generated at Building 308. Except Building 308, which is operated by WHC, all facilities that generate waste destined for the 340 Facility are operated by PNL. The radioactive liquid waste from Buildings 324 and 325 accumulate in tanks and are then "jet" pumped, via steam or water jets to the 340 Facility through underground piping, whereas the wastes generated at the remaining facilities are routed through underground piping that drains by gravity. The non-radioactive wastes are also transferred through underground piping by gravity.

Examples of the wastes discharged to the 340 Facility include Hanford Site groundwater samples, radioactive samples from single- and double-shell tank samples,

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residues from waste treatment studies, decontamination solutions from hot cells and destructive examination of nuclear fuels, and liquid waste from other R&D process wastes.

The two liquid effluent disposal systems used to transfer wastes to 340 Facility are

- Retention Process Sewer (RPS)
- Radioactive Liquid Waste Sewer (RLWS)

The RPS system was designed to handle non-radioactive liquid wastes and wastes that have potential for radioactive contamination. The RPS does not receive radioactive waste or hazardous chemicals under normal operating conditions. Except for Building 308, facilities connected to the RPS system have a potential to discharge radioactive contaminated waste. Beta-gamma radiation detectors are located in the RPS system within and adjacent to the facilities that have this potential. In case of an accidental release of radioactive contaminated waste, an alarm will sound and the entire building RPS flow is diverted to RLWS system until the contamination in the waste stream decreases to the set point below which use of RPS is permitted.

The RLWS receives confirmed radioactive waste and diverted waste from the RPS system. The radioactive liquid waste collected in the 340 Facility is transferred to double-shell storage tanks in the 200 East Area via rail cars. The RPS and RLWS underground pipeline systems are illustrated in Figures 1-1 and 1-2, respectively.

The 340 Facility was constructed and is an intermediate facility to collect, store for less than 90-days, and transport radioactive liquid wastes generated in the 324, 325, 326, 327, and 329 Buildings. The radioactive liquid waste from these buildings is directly transferred through the RLWS system to the 340 Facility. Wastes from the facilities other than the mentioned facilities can also be transferred to this facility. Waste liquids are typically brought in 55 gallon drums, carboys, or other containers. However, containerized wastes comprise a very small fraction of the total waste volume handled by the 340 Facility. Once the liquid waste is received at the 340 Facility, it is collected in one of the two 15,000 gallon

FIGURE 1-1. 340 Facility Retention Process Sewer Schematic

FIGURE 1-2. 340 Facility Radioactive Liquid Waste Transfer System

stainless steel tanks (Figure 1-3) located below ground in a concrete vault. Both tanks have centerline agitators for mixing. The contents of the tanks are periodically mixed and the liquid samples are taken for analysis. Six above-ground tanks, each with 8,000 gallons of storage capacity, are also provided as back-up to handle overflow capacity. The mixed waste from the below ground storage tanks is transferred into a railroad tank car for shipment to the 200 Area every 90 days for long-term storage.

The 340 Facility also handles the RPS wastes from the 308, 324, 325, 326, 327 and 329 Buildings. These wastes are not normally radioactive, but have a potential to be radioactive under unusual circumstances. The wastes from these buildings are transferred through the RPS system to the 340 Facility where they are stored in the open 307 Retention Basins. The contents of the 307 Basins are routinely pumped into process sewer, unless contaminants are detected, by the 307 diverter above the permissible levels. Then, the pumps that transfer liquids to the process sewers are automatically deactivated. Should an alarm point be reached, the effluent discharge from the 307 basins to the 300 Area process trench is discontinued, and if warranted based on sampling, the 307 Basin contents are pumped to underground storage tanks for disposal as a part of the RLWS System.

1.2 PURPOSE

The purpose of this study is to assess the compliance of the 340 Facility with the environmental requirements related to receiving, storing, handling, and transferring of radioactive and non-radioactive wastes. The compliance assessment was conducted based on the applicable requirements of the Washington Administrative Code (WAC) for hazardous and dangerous wastes, federal regulations for airborne emissions and aboveground and underground storage tanks, and WHC guidelines. Potential deficiencies and possible corrective actions are also identified.

This document also discusses the additional requirements that need to be complied with if the 340 Facility is to become a Resource Conservation and Recovery Act (RCRA) Part B permitted facility.

FIGURE 1-3. 340 Facility Layout

1.3 SCOPE

This study provides an environmental compliance evaluation of the RLWS and RPS systems of the 340 Facility. The RLWS system consists of above and below ground storage tanks, associated piping and instrumentation. The RPS system components are 307 Basins, a diverter station and its monitoring system, associated pumps and piping, and instrumentation. The emphasis of the evaluation centers on compliance with WAC requirements for hazardous and mixed waste facilities, federal regulations and WHC requirements pertinent to the operation of the 340 Facility. The 340 Facility is not covered under either an interim status Part A permit or a RCRA Part B permit. Specific scope elements of the study include the following:

- Identify environmental requirements based on the Environmental Review Compliance Assessment Inspection Checklist and guidelines described in the Environmental Compliance Manual of WHC (WHC-CM-7-5),
- Develop a matrix cross referencing federal, state and WHC requirements,
- Review relevant documents and drawings of the 340 Facility,
- Interview plant staff, and
- Identify impacts of pursuing a Part B.

1.4 REPORT ORGANIZATION

This report contains four sections and three appendices.

Section 1, Introduction, provides the background information, purpose, and scope of the project.

Section 2, Conclusions, provides a brief explanation of noted compliance deficiencies and recommended corrective measures. This section also serves as a summary for Section 3 for quick reference.

Section 3, Discussion of Compliance Deficiencies, is a detailed discussion of each compliance deficiency for the 340 Facility. The noted deficiencies are based on the requirements described in the WHC Checklist.

Section 4, References, provides a list of key references used to prepare this report.

Appendix A consists of the matrix developed to assist compliance assessment process. This matrix was generated based on the WHC Checklist.

Appendix B provides the copies of the relevant pages of the reports and correspondence. These are provided to help the reader to understand the planned upgrades of certain areas of the 340 Facility. These planned upgrades are expected to correct the deficiencies, especially in the area of airborne sampling.

Appendix C consists of the WHC Checklist that was used in performing the compliance assessment.

2.0 CONCLUSIONS

For quick and easy reference, the detailed discussion of compliance deficiencies of Section 3 of this report are summarized in this section.

The 340 Facility environmental compliance assessment was conducted by ES for WHC. The assessment was performed based on the Environmental Review Compliance Assessment Inspection Check-list. To alleviate the compliance assessment process, a matrix (Appendix A) identifying the federal, state, and WHC requirements was prepared based on the checklist. The matrix provides a summary of all areas examined and identifies those areas that are in compliance and those that need corrective action. The following are items of significance and require action in order to assure facility compliance with WAC, federal regulations and WHC requirements.

2.1 RADIOACTIVE AIRBORNE EFFLUENT SAMPLING AND MONITORING

2.1.1. Item 2, Section A.2 (in Appendix A.)

Based on the requirements given under Section 2.5.3.1 of WHC-CM-7-5, continuous monitoring and alarm systems should be provided for systems that have the potential to exceed 0.01 mrem/year of effective dose equivalent (EDE) to the maximally exposed individual.

Of the three airborne effluent monitoring systems that are in current use, one system (vault stack) is equipped with the continuous monitoring and alarm system as per the requirement. Based on the discussions with the 340 Facility personnel, the remaining two systems are scheduled for compliance evaluation by WHC. Also, air dispersion modeling, as per the requirements of 40 CFR 61, has to be conducted to evaluate both off-site and on-site radiological effects.

2.1.2. Item 8, Section A.2, (Appendix A.)

Based on the requirements defined in Section 2.5.4.5 of WHC-CM-7-5, the record sampling systems should provide representative samples (near isokinetic) of effluent streams that are discharged to the environment.

One of the three sampling systems (vault stack) is in partial compliance with this requirement. The sample collection probe does collect isokinetic flow samples. However, the sampler/recorder is too far down and the transfer piping is exceptionally long with several bends to obtain a representative sample. System upgrades are underway and these upgrades are expected to bring the system in total compliance. Copies of several attachments that refer to system upgrades are included in Appendix B.

The remaining two systems will be evaluated by WHC to find out if these systems need to comply with this requirement.

2.1.3. Item 11, Section A.2, (Appendix A.)

Based on the guidelines of 40 CFR 61, Subpart H; WAC 173-400; and WHC-CM-7-5, Section 2.5.4.10, specific radionuclide analysis should be performed on quarterly composites of record samples as required. These guidelines are for compliance with National Emission Standards for Hazardous Air Pollutants (NESHAP).

The vault stack sampling system is not in compliance with this requirement. However, system upgrades are underway to correct this problem. Several attachments in Appendix B help to understand the progress of the plant upgrades. The remaining two airborne effluent sampling systems are scheduled for evaluation by WHC whether or not they need to comply with this requirement.

Regulated non-radioactive airborne effluents are not emitted into the environment at this facility. An engineering study, or a letter report, has to be prepared addressing the release of non-radioactive airborne emissions. The purpose of this report is to demonstrate that non-radioactive emissions are not emitted from the 340 Facility and, as such, no additional controls are required.

2.2 RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING

No deficiencies were detected in this area.

2.3 NON-RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING

Three non-compliances have been noted in this area. However, the three non-compliances are related to the facilities that typically operate under National Pollutant Discharge Elimination System (NPDES) permit. As there are no point discharge sources to the environment from the 340 Facility, an NPDES permit is not a requirement. However, it is recommended that WHC prepare a letter stating that a NPDES permit is not needed for this facility.

2.3.1 Item 2, Section A.4, (Appendix A.)

Based on the requirements defined in WAC 173-230 and WHC-CM-7-5, Section 8.3.1.1.11, the facility should have a working system for collecting effluent samples and delivering them for analysis.

This is a typical requirement for the facilities that have point discharge sources to the environment and operate under a NPDES permit. As there are no point discharge sources at the 340 Facility, this requirement is not applicable.

2.3.2 Item 9, Section A.4, (Appendix A.)

Based on the requirements given under Section 8.3.8.5 of WHC-CM-7-5, the record sampling system should have a back-up power to ensure that unmonitored releases do not occur due to power failure.

The 340 Facility is not operating under NPDES permit requirements. A NPDES permit is not required as there are no point discharge sources of effluents to the environment. Sampling is carried out manually when needed. As such, the 340 Facility does not have to comply with this requirement. Recommendations of the previous item apply for this item also.

2.3.3 Item 14, Section A.4, (Appendix A.)

Based on the requirements given in Section 8.3.9.2 of WHC-CM-7-5, the sampling should be performed in a manner that provides representative measurement of the volume and concentration of pollutants released to the environment.

Since the 340 Facility is not operating under an NPDES permit, this requirement is not generally applicable. However, records of the volumes and characteristics of the effluent streams that are pumped out of this facility must be maintained on file.

2.4 LEAD MANAGEMENT

No deficiencies were detected in this area.

2.5 SATELLITE ACCUMULATION AREA

No deficiencies were detected in this area.

2.6 LESS THAN 90-DAY WASTE STORAGE AREA

No deficiencies were detected in this area.

2.7 LESS THAN 90-DAY WASTE STORAGE TANKS

2.7.1 Item 4, Section A.8, (Appendix A.)

Based on the requirements described under WAC 173-303-640(e) and WHC-CM-7-5, Section 7.12.2.1.2e, tank systems should have an initial written integrity assessment on file. These integrity assessments must have been reviewed and certified by an independent and qualified professional engineer. For underground tanks that cannot be entered for leak detection, a leak test should be included. These initial integrity assessments should have been completed by January 12, 1990.

Initial integrity assessments have not been performed for the two underground storage tanks (340 tanks) located in the vault. Physical inspection of the tanks is rather difficult as the tanks are highly radioactive, the vault is confined and classified as a high radiation zone, the vault space has high airborne radioactive contamination, and limited mobility in the vault because of space restrictions.. The secondary containment for these

tanks consist of a sump and a float activated sump pump in the vault. Remote control of operating procedures may have to be developed to perform integrity assessments for the two underground tanks. These procedures must be approved by the regulatory agencies prior to commencing the work.

2.7.2 Item 5, Section A.8, (Appendix A.)

As per the requirements listed under WAC 173-303-640(2)(e) and WAC 173-303-640(4)(i) invoked for 90-day accumulation tanks by WAC 173-303-200(2)(b) and WHC-CM-7-5, Section 7.12.2.1.2.f, periodic written integrity assessments should be performed.

The schedule for performing periodic integrity assessments is based on the results of the initial integrity assessments, construction materials of tanks, type of waste material, and other relevant factors. In order to comply with the requirement, it is imperative that a schedule and a method to carry out initial integrity assessment be developed and approved for the two below ground storage tanks. Based on the results of the initial integrity tests, a schedule for periodic tests could be developed. Periodic integrity assessments of the above-ground storage tanks have been done (Appendix B).

2.7.3 Item 6, Section A.8, (Appendix A.)

Requirements given under WAC 173-303-640(4)(i) and WAC 173-303-640(2)(e) invoked for 90-day accumulation tanks by WAC 173-303-640(2)(b) and WHC-CM-7-5, Section 7.12.2.1.2f, state that annual leak tests or other tank integrity assessment methods, as approved by the Washington State Department of Ecology, should be performed on underground storage tanks that cannot be entered for inspection and that lack secondary containment and leak detections. This requirement is not being complied with for the two underground storage tanks. However, these tanks are equipped with the secondary containment system. No visual leak detection or leak detection tests have been done. It is recommended that a leak detection procedure be developed for the two underground storage tanks to comply with the requirements. This procedure could be a part of the integrity assessment process.

2.7.4 Item 10, Section A.8, (Appendix A.)

Based on the requirements given under 40 CFR 265.194(b), WAC 173-303-640(5)(d), WAC 173-303-400(3)(a)(iii), WAC 173-303-200(i)(d), and WHC-CM-7-5, Sections 7.12.2.1.1.f.3 and 7.12.2.1.2d, all tanks must be marked to identify waste and major risks associated with the waste. The marks should be legible from a distance of 50 feet. This requirement is not being complied with at the 340 Facility. The aboveground storage tanks must comply with this requirement. As the access to the above and underground storage tanks is locked, the access ways could be marked.

2.7.5 Item 13, Section A.8, (Appendix A.)

Based on the requirements described under 40 CFR 265.195 and WHC-CM-7-5, Section 7.12.2.1.1g, daily visual inspections should be conducted of overfill/spill equipment, aboveground portions of the tank system, monitoring and leak detection data, and construction materials and the area surrounding the system.

This requirement is not being complied with for the two underground storage tanks. Daily visual inspections are not being done in view of As Low As Reasonably Achievable (ALARA) considerations. Remote viewing devices could be installed to satisfy the needs of this requirement.

2.7.6 Item 14, Section A.8, (Appendix A.)

As per the requirements describe under 40 CFR 265.195(b) and WHC-CM-7-5, section 7.12.2.1.1g, the system should utilize cathodic protection system and the system should be inspected according to the schedule identified in 40 CFR 265.195(b).

The 340 Facility is not in compliance with this requirement as no cathodic protection is provided for the tank systems. It is not clear if the cathodic protection system is required. The need for a cathodic protection system can be evaluated based on the result of the initial integrity assessments of the tanks.

2.8 REQUIREMENTS FOR PERMITTED FACILITY

If the 340 Facility continues to operate as a less than 90-day storage facility, no additional requirements must be complied with, nor any additional documents be generated. However, if the facilities that transfer waste to 340 Facility procure a RCRA permit, the 340 Facility cannot operate in the present mode. By law, wastes from a permitted facility cannot be transferred to non-permitted facilities.

A permitted facility must comply with the provisions of the Atomic Energy Act of 1954, Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), and additional requirements of WAC 173-303.

The following additional documents may have to be prepared as a part of the permitting process:

- Spill Prevention Containment and Counter Measures (SPEC),
- Dangerous Waste Training Plan,
- Waste Characterization Plan,
- Waste Minimization Plan,
- Waste Certification Plan,
- Quality Assurance Program Plan,
- Environmental Management Plan,
- Procedure/Operator Certification Plan, and
- Closure/Post-closure Plan.

The cost for converting the 340 Facility to a permitted facility is expected to cost several million dollars. The replacement cost for each underground storage tank is estimated at \$4 million. This cost is based on the cost of double-shell storage tanks in 200 Areas. The cost for replacing eight aboveground and two underground storage tanks could be in the vicinity of \$20 million. Several other plant modifications (such as sampling and monitoring system, secondary containment, etc.) must be implemented and it is very difficult to estimate the costs without a clear knowledge of facility upgrades. It is also anticipated that the facility would have to be shutdown to make changes.

The capital cost and loss of operations caused by pursuing a Part B permit would be significant. This would likely cause alternatives to be considered more favorable than the use of the 340 Facility. A preferable option to pursuing a Part B permit is to request for a waiver so that the 340 Facility can operate in the present mode, although the upstream and downstream facilities are permitted.

2.9 STORMWATER PERMIT

A stormwater permit is required under the NPDES regulations. The 340 Facility is in compliance with this requirement since it is covered under the 300 Area permit. Appendix B provides a reference memorandum provided by WHC to verify that this permit covers the 340 Facility.

3.0 DISCUSSION OF COMPLIANCE DEFICIENCIES

The assessment of the 340 Facility was made using the Environmental Review Compliance Inspection Checklist. The Checklist (Appendix C) was prepared by WHC based on the compliance requirements listed in the latest version of the Environmental Compliance Manual (WHC-CM-7-5) released in June 1992. Based on the Checklist, a matrix cross referencing Washington Administrative Code (WAC), federal, and WHC requirements and guidelines was prepared. The matrix is attached as Appendix A of this report. Based on the mutual agreement among WHC, PNL, and ES in a meeting on 15 July 1993, reference to DOE orders was excluded from the matrix as the requirements listed in the Environmental Compliance Manual (WHC-CM-7-5) are equal to or more stringent than the DOE orders and to restrict the compliance evaluation to regulatory requirements. Points of compliance and non-compliance are indicated in the matrix.

3.1 GENERAL REQUIREMENTS

Self assessment of a facility for environmental compliance was a real problem at WHC operated facilities as there was no systematic way of performing an environmental compliance assessment. To streamline the assessment process, the Environmental Compliance Support group of WHC came up with a list of general requirements consisting of generic questions to identify the applicable areas for any WHC operated facility. These generic questions are not requirements as of yet, however, facility environmental compliance officers are urged by WHC to follow the lists. The general requirements are attached as Section A-1 in Appendix A.

Based on the questions listed in the general requirements, the following applicable areas for the 340 Facility were identified.

- Radioactive Airborne Effluent Sampling and Monitoring (Section A.2, Appendix A)
- Radioactive Liquid Effluent Sampling and Monitoring (Section A.3, Appendix A)

- Non-radioactive Liquid Effluent Sampling and Monitoring (Section A.4, Appendix A)
- Lead Management (Section A.5, Appendix A)
- Satellite Accumulation Areas (Section A.6, Appendix A)
- Less than 90-day Waste Storage Areas (Section A.7, Appendix A)
- Less than 90-day Waste Storage Tanks (Section A.8, Appendix A).

Detailed compliance assessment of each of the above listed areas was conducted. The deficiencies noted in these areas are discussed in the following sections.

3.2 RADIOACTIVE AIRBORNE EFFLUENT SAMPLING AND MONITORING

The requirements in this area are based on federal, WAC, and WHC guidelines.

Finding: No continuous monitoring and alarm systems are provided for systems that have the potential to exceed 0.01 mrem/yr of effective dose equivalent (EDE) to the maximally exposed individual.

Reference: Item 2 in Section A.2 of Appendix A.

Basis: WHC-CM-7-5, Section 2.5.3.1.

Discussion: Three airborne effluent sampling and monitoring systems are currently in operation at the 340 Facility. The vault stack

sampling system is in compliance with this requirement. It is not clear if the remaining two systems have to be in compliance. These two systems are scheduled for evaluation by WHC.

Potential offsite radiological effects should be assessed to determine whether continuous monitoring and alarm systems are required or if the radionuclide record sampling and collection is adequate to quantify the radionuclide emissions.

Recommendation: Radionuclide record sampling and monitoring system must conform to ANSI N13.1-1969, "Guide to Sampling Airborne Radioactive Material in Nuclear Facilities." Perform air dispersion modeling per the requirements of 40 CFR 61 to assess potential offsite radiological impacts. Evaluate the two existing sampling systems to determine if they can adequately quantify the radionuclide emissions. Evaluation and replacement of sampling system of the vault stack (if needed) are being looked into as a part of the 340 Facility upgrading process.

WHC is planning on completing the evaluation of the remaining two sampling systems by the end of FY1993.

Finding: The record sampling system does not provide representative (i.e. near isokinetic) samples of the effluent stream being discharged to the environment.

Reference: Item 8 in Section A.2 of Appendix A.

Basis: WHC-CM-7-5, Section 2.5.4.5

Discussion: One of the three operating sampling systems (vault stack) is in partial compliance with this requirement. Although the sample is being collected isokinetically by the vault stack sampling system, the sampler/recorder is too far down to obtain a representative sample. The sampling system does not conform to ANSI N13.1-1969 requirements. Sampling lines are exceptionally long and contain several hard-piped bends.

It is not clear whether the remaining two sampling systems should be in compliance with this requirement. These two sampling systems are scheduled for evaluation by WHC. Proper course of action will be decided following the completion of the evaluation process.

Recommendation: The existing fault stack sampling system must be replaced with systems in conformance with ANSI N13.1-1969 requirements. On-going planned upgrades of the 340 Facility are expected to correct this deficiency. Copies of the relevant pages of the reports related to planned upgrades are included in Appendix B.

Finding: Specific radionuclide [National Emission Standards for Hazardous Air Pollutants (NESHAP)] analysis are not being performed on quarterly composites of record samples.

Reference: Item 11 in Section A.2 of Appendix A.

Basis: 40 CFR 61, Subpart H; WAC 173-400; and WHC-CM-7-5, Section 2.5.4.10.

Discussion: Based on Subpart H of NESHAP (40 CFR 61), radionuclide emission rates must be measured at all release points that have the potential to discharge radionuclides into the air in quantities that could cause EDE in excess of 1% of the standard.

Recommendation: The existing vault stack sampling system, which is not in compliance, is being upgraded to comply with the requirements. Relevant pages of the documents that are related to planned upgrades are included in Appendix B.

Although determination was made that the 340 Facility does not produce regulated non-radioactive airborne emissions, an engineering study or letter report must be prepared addressing the release of non-radioactive airborne emissions. The purpose of this exercise is to demonstrate that toxic emissions from 340 Facility are negligible and no additional controls are required. This can be accomplished with mass transfer calculations of toxic compounds based on their respective concentrations in the liquid waste. ES recommends a letter of no action be obtained from the WHC Regulatory Analysis Air Group.

3.3 RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING

The requirements in this area are based on the WHC guidelines only. No directly applicable federal and WAC requirements exist as radioactive effluent waste streams are not discharged to the environment from this complex. No compliance deficiencies were noted in this area.

3.4 NON-RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING

The requirements for this area are based on federal, WAC, and WHC guidelines. There are no on-line monitoring and sampling systems at the 340 Facility. Samples are manually collected periodically and are sent for analysis. Sampling equipment is checked, cleaned, and inspected for proper operation.

The three non-compliances noted in this area are for the facilities that operate under NPDES permit requirements. Since there are no point discharge sources to the environment from this facility, NPDES permit is not required and compliance to these three following requirements is not necessary. However, it is recommended that a letter be prepared by WHC stating that the 340 Facility is exempt from NPDES permit requirements.

Finding: The Facility does not have a working system for collecting effluent samples and delivering them for analysis.

Reference: Item 2 in Section A.4 of Appendix A.

Basis: WAC-173-230 for Waste Water Treatment Plants and WHC-CM-7-5, Section 8.3.1.1.11.

Discussion: Effluent samples are collected manually on an "as needed" basis. No automatic sampling system exists for non-radioactive liquid effluents at this facility.

Recommendation: This requirement is usually a part of the National Pollutant Discharge Elimination System (NPDES) permit program and must be complied with if a point discharge source of pollutants into the state surface waters exists. Also, if a waste stream is discharged to land that could infiltrate to groundwater, this requirement must be complied with.

Since no point discharge sources exist at the facility, this requirement is not applicable. However, ES recommends that a letter from the WHC Regulatory Compliance Group, stating that an NPDES permit is not required for the 340 Facility, be obtained.

Finding: The record monitoring system does not have back-up power to ensure unmonitored releases do not occur because of power failure.

Reference: Item 9 in Section A.4 of Appendix A.

Basis: WHC-CM-7-5, Section 8.3.8.5.

Discussion: No in-line or automatic sampling system exists for non-radioactive liquid waste effluent system.

Recommendation: Since this is not a NPDES permitted facility, in-line and automatic sampling systems may not be required. The recommendations described for Item 1 also apply for this item.

Finding: Sampling is not being performed in a manner that provides representative measurements of the volume and concentration of pollutants released to the environment.

Reference: Item 14 in Section A.4 of Appendix A.

Basis: WHC-CM-7-5, Section 8.3.9.2.

Discussion: Samples of non-radioactive liquid waste effluents are manually collected on an "as needed" basis.

Recommendation: Recommendations made under previous "Finding" apply for this item.

3.5 LEAD MANAGEMENT

All requirements are based on WAC and WHC guidelines. No compliance deficiencies were detected for this area. Lead materials are not routinely used at the 340 Facility.

3.6 SATELLITE ACCUMULATION AREAS

All requirements are based on WAC and WHC guidelines. There are no deficiencies noted in this area.

3.7 LESS THAN 90-DAY WASTE STORAGE AREAS

All requirements are based on WAC and WHC guidelines. No compliance deficiencies were detected.

3.8 LESS THAN 90-DAY WASTE STORAGE TANKS

All requirements are based on federal, WAC, and WHC guidelines. One radioactive liquid stream exits the 340 Facility. This waste stream is transferred from the 340 tanks, which are located below the ground level in a vault, to a railroad tank car approximately five times per year. The 340 tanks are used to keep the waste for 90 days or less. After loading, the tank car leaves the 340 Facility and is moved to 200 East Area where the liquid waste is transferred into double-shell storage tanks. Non-radioactive process wastes are pumped from the 307 Basins into process sewers.

Finding: An initial integrity assessment document that has been reviewed and certified by a qualified professional engineer for underground tank systems is not on file.

Reference: Item 4 in Section A.8 of Appendix A

Basis: WAC 173-303-640(2) and WHC-CM-7-5, Section 7.12.2.1.2(e).

Discussion: Integrity assessment of two below-ground storage tanks (340 tanks) must have been completed and the certified records kept on file for review. Per WHC-CM-7-5, Section 7.12.2.1.2(e), initial integrity assessments must have been completed by January 12, 1990. These integrity assessments must be certified by an independent qualified professional engineer. The schedule for performing integrity assessments must be developed in coordination with federal and state regulatory authorities. Fines for not conducting the tank integrity assessments are not well defined.

It may be difficult to perform an integrity assessment of these two underground tanks under WAC guidelines. Physical inspection of tanks for corrosion, welds, fittings, etc., is difficult as these tanks are highly radioactive, inadequate space in the vault, and high airborne radioactive contamination.

Recommendation: Develop a remotely controlled procedure to conduct integrity assessments for these two underground storage tanks. Federal and state approval of this procedure must be obtained prior to commencing the work. These assessments must be reviewed and certified by an independent qualified professional engineer.

Finding: Periodic written integrity assessments have not been performed.

Reference: Item 5 of Section A.8 of Appendix A.

Basis: Requirements specified in WAC 173-303-640(2)(e) and WAC 173-303-640(4)(i) invoked for 90-day accumulation tanks by WAC 173-303-200(2)(b) and WHC-CM-7-5, Section 7.12.2.1.2f.

Discussion: In addition to initial integrity assessment, periodic written integrity assessments must be performed. The schedule for performing this assessment must be developed by the 340 Facility Operator based on the results of past integrity assessments, materials of tank construction, characteristics of the wastes, and any other relevant factors.

The most recent integrity assessments for the above ground tanks of the 340 Facility were completed in September 1989. Attachment B.6 of Appendix B contains the copies of the relevant pages of the integrity assessment document.

However, no integrity assessment has been done for the two underground storage tanks in the vault. The schedule for periodic integrity assessment cannot be developed before completing the initial integrity assessment for the two underground tanks.

Recommendation: First, initial integrity assessments of the two underground storage tanks must be completed. Based on the results of this initial study, a schedule for periodic assessments can be developed. As the underground tanks are highly radioactive and due to space restrictions in the vault and high airborne radioactive contamination, a remotely operated procedure may have to be followed.

Finding: Annual leak tests, or other tank integrity assessment methods, as approved by Ecology, have not been performed on

underground storage tanks that cannot be entered for inspection and that lack secondary containment and inspections have not been performed.

Reference: Item 6 of Section A.8 of Appendix A.

Basis: Requirements specified in WAC 173-303-640(4)(i) and WAC 173-303-640(2)(e) invoked for 90-day accumulation tanks by WAC 173-303-200(2)(b), and WHC-CM-7-5, Section 7.12.2.1.2.f.

Discussion: The two underground storage tanks are located in a concrete vault with a secondary containment system. A system must be developed for conducting annual leak tests approved by Ecology. As the vault is highly radioactive, physical checks for leak detection are rather difficult. However, a remote viewing system can possibly be used for leak detection.

Recommendation: Develop a remote viewing procedure to conduct annual leak detection tests. This procedure must be in accordance with WAC criteria. Leak detection processes can be made as a part of the integrity assessment process.

Finding: The tanks are not marked to identify waste and major risks associated with the waste.

Reference: Item 10 of Section A.8 of Appendix A

Basis: Requirements of 40 CFR 265.194(b), WAC 173-303-640(5)(d), WAC 173-303-400(3)(a)(iii), WAC 173-303-200(i)(d), and WHC-CM-7-5, Sections 7.12.2.1.1.f.3 and 7.12.2.1.2.d

Discussion: The requirements indicate that the tanks must be marked to identify the waste contained in the tank and the major risks associated with that waste. Marks shall be legible from a distance of at least 50 feet.

The tanks at the 340 Facility are not marked to identify the waste contents. Except for the two tanks in the vault, none of the remaining tanks come in contact with the radioactive waste during routine operation.

The access ways to the tanks in the vault and the above ground tanks are locked and the personnel entering the vault are strictly monitored.

Recommendation: The tanks that do not come in contact with radioactive waste may not have to be marked. The above ground tanks (stand-by storage tanks) have to be marked in order to be in compliance with this requirement. As the tanks that store radioactive waste during normal operation are underground, it is recommended to mark the access ways instead of the tanks.

Finding: Daily visual inspections of the overfill/spill equipment, aboveground portion of the tank system, monitoring and leak detection data, construction material and the area surrounding the system are not being conducted. These inspections are required to ensure operability and to detect deterioration.

Reference: Item 13 of Section A.8 of Appendix A.

Basis: 40 CFR 265.195 and WHC-CM-5, Section 7.12.2.1.1g

Discussion: As per the requirements described in WHC-CM-7-5, Section 7.12.2.1g, visual inspections must be performed each operating day on those items identified in 40 CFR 265.195(a). The inspection shall include (1) overfill/spill equipment, (2) aboveground portion of the tank system, (3) data from monitoring and leak detection equipment, and (4) construction materials and the surrounding area.

This requirement is only applicable for the two underground tanks which are routinely used to store the radioactive liquid waste. Daily visual inspections are not done because the tanks are highly radioactive and to maintain exposure levels as low as possible (ALARA requirements).

Recommendation: Daily visual inspections are difficult to perform under ALARA requirements. Installation of remote viewing devices in the vault and in the areas where high radioactivity levels are expected could meet the needs.

Finding: The system does not have a cathodic protection systems.

Reference: Item 14 of Section A.8 of Appendix A.

Basis: 40 CFR 265.195(b) and WHC-CM-7-5, Section 7.12.2.1.1g

Discussion: 40 CFR 265-195(b) describes an inspection schedule for cathodic protection systems. Cathodic protection is usually installed to slow the corrosion process of the main equipment. As the equipment at the 340 Facility is relatively old, cathodic

protection may not be helpful. However, if any equipment is going to be replaced, cathodic protection system must be considered.

Recommendation: Cathodic protection may not be needed for any equipment at the 340 Facility. However, the integrity assessments of the tanks may indicate different. Installation of cathodic protection system at the 340 Facility is dependent on the results of the integrity assessment of the system.

3.9 REQUIREMENTS FOR PERMITTED FACILITY

Since the 340 Facility is operating as a less than 90-day storage facility, an interim status Part A permit or a Resource Conservation and Recovery Act (RCRA) Part B permit are not required. The 340 Facility can continue to operate under the present status as long as the wastes are not coming from permitted facilities. The regulations require that the wastes from the permitted facilities cannot be discharged to non-permitted operations. Therefore, if the facilities that are transferring their wastes to the 340 Facility become permitted facilities, the 340 Facility should be upgraded to a permitted facility.

Of particular concern are the RLWS waste storage tanks. To meet permitting requirements, these tanks should be replaced with double-shell tanks with a complete secondary containment and leak detection systems. The cost of double-shell tanks at Hanford's 200 Areas provides an indication of the economic impact of such a permit. Each double-shell tank at the 200 Area costs approximately \$50M based on the latest cost estimates for new tanks planned at Hanford. Using a 0.6 scaling factor, the cost of replacing one of the 15,000 gallon tanks would be over \$4M per tank (15K gallon tank divided by 1M gallon tank to the 0.6 power times \$50M). This cost estimating technique is commonly used for plant and equipment estimates. The cost of replacing the six above ground and two underground storage tanks could be approximately \$20 million. This cost does not include the costs for updating and/or installing new sampling and monitoring systems, providing secondary containment, decontamination and disposal of the old hardware, etc. It is difficult

to estimate the total costs without a clear definition of plant upgrades due to permit requirements. Permit related plant modifications must be coordinated with regulatory agencies as their approval is mandatory. The 340 Facility may have to be shutdown for at least one year to perform required modifications.

The capital cost and loss of operations caused by pursuing a Part B permit would be significant. This would likely cause alternatives to be considered more favorable than the use of the 340 Facility. A preferable option to pursuing a Part B permit is to request for a waiver so that the 340 Facility can be operated under present status.

Under Part B permit, the 340 Facility will be subject to the provisions of the Atomic Energy Act (AEA) of 1954, RCRA, Toxic Substances Control Act (TSCA), and the State of Washington Hazardous Waste Management Act (HWMA) (Title 70, Revised Code of Washington paragraph 105 [RCW 70.105]).

The provisions of AEA are implemented by 10 CFR 61, RCRA and TSCA are implemented by the federal and state regulatory agencies, and HWMA is implemented by Ecology through promulgation of WAC 173-303, Dangerous Waste Regulations.

Under federal and state regulations, the following documents must be prepared for permitted facilities:

- Spill Prevention Containment and Counter Measures (SPEC),
- Dangerous Waste Training Plan,
- Waste Characterization Plan,
- Waste Minimization Plan,
- Waste Certification Plan,
- Quality Assurance Program Plan,

- Environmental Management Plan,
- Procedure/Operator Certification Plan, and
- Closure/Post-closure Plan.

3.10 STORMWATER PERMIT

A stormwater permit is required under the NPDES regulations. The 340 Facility is in compliance with this requirement since it is covered under the 300 Area permit. Appendix B provides a reference memorandum provided by WHC to verify that this permit covers the 340 Facility.

4.0 REFERENCES

Environmental Compliance Manual, WHC-CM-7-5, January 1991, Westinghouse Hanford Company, Richland, Washington.

300 Area Radioactive Liquid Waste Management Engineering Study, April 1993, Bovay Northwest, Inc., Richland, Washington.

Code of Federal Regulations, 40 CFR 61, National Emission Standards for Hazardous Air Pollutants, July 1990.

Code of Federal Regulations, 40 CFR 265, Interim Statute Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, July 1990.

Washington Administrative Code, Volume 3, Dangerous Waste Regulations, 173-303, December 1992.

Washington Administrative Code, Volume 3, General Regulations for Air Pollution Sources, 173-400, December 1992.

Washington Administrative Code, Volume 3, Certification of Operators of Wastewater Treatment Plants, 173-230, December 1992.

Interviews & Meetings with 340 Facility Personnel, and Visits to 340 Facility by ES Personnel, July 1993.

APPENDIX A

MATRIX FOR ENVIRONMENTAL COMPLIANCE EVALUATION

APPENDIX A

MATRIX FOR ENVIRONMENTAL COMPLIANCE EVALUATION

Appendix A consists of the matrix developed for the 340 Facility based on the Environmental Review Compliance Assessment Inspection Checklist (checklist) prepared by WHC. The checklist is included as Appendix C in this report. The item numbers referred to in the matrix are identified to the corresponding numbers of the checklist. The matrix identifies the federal, state and WHC requirements that should be complied with for the operation of the 340 Facility. All the compliance requirements are evaluated based on the following:

- The 340 Facility does not provide treatment, permanent storage, or disposal for radioactive and non-radioactive waste streams.
- Radioactive waste liquid effluent streams are maintained for less than 90 days prior to transporting them to 200 East Area for storage in double shell tanks.
- No liquid waste effluents are discharged to the environment from the 340 Facility during normal operation.
- Non-radioactive waste effluent streams are pumped into process sewer.

The General Requirements listed in Section A.1 of this Appendix help to identify the applicable areas that need to be evaluated in detail for this facility. Detailed evaluation of each area is provided in Sections A.2 through A.8.

A.1. GENERAL REQUIREMENTS (WHC-CM-7-5)

	YES	NO
1. Do you manage a facility that produces nonradioactive airborne emissions? If yes see, "Nonradioactive Airborne Effluent Sampling and Monitoring".		X
2. Do you manage a facility that produces radioactive airborne emissions? If yes, see "Radioactive Airborne Effluent Sampling and Monitoring".	X	
3. Do you manage a facility that produces radioactive liquid effluent? If yes, see "Radioactive Liquids Effluent Sampling and Monitoring".	X	
4. Do you manage a facility that produces nonradioactive liquid effluent? If yes, see "Nonradioactive Liquid Effluent Sampling and Monitoring".	X	
5. Do you manage a demolition pit or inert landfill? If yes, see "Demolition Pit and Inert Landfills".		X
6. Do you manage the Central Landfill? If yes, See "Central Landfill".		X
7. Do you manage a lead inventory? If Yes, see "Lead Management".	X	
8. Do you use or store pesticides or herbicides? If yes, see "Pesticide Use and Control".		X
9. Do you manage a satellite accumulation area? If yes, see "Satellite Accumulation Area".	X	
10. Do you manage a less than 90-day waste storage area? If yes, see "Less Than 90-Day Waste Storage Area".	X	
11. Do you manage an interim status treatment, storage, or disposal facility? If yes, see "Interim Status TSD Facilities".		X
12. Do you manage an interim status dangerous or mixed waste tank? If yes, see "Dangerous/Mixed Waste Tanks and Ancillary Equipment".		X
13. Do you manage an interim status waste pile? If yes, see "Interim Status Waste Piles".		X
14. Do you manage an interim status landfill? If yes, see "Interim Status Landfill".		X
15. Do you store PCBs for disposal? If yes see "PCB Storage for Disposal".		X
16. Do you temporarily store PCBs? If yes, see "Temporary Storage of PCB Materials".		X
17. Do you manage PCB transformers and large capacitors? If yes, see "PCB Transformers and Large Capacitors".		X
18. Do you manage a less than 90-day waste tank? If yes, see "Less Than 90-Day Waste Tank".	X	
19. Do you manage aboveground petroleum and material storage tanks? If yes, see "Aboveground Petroleum and Material Storage Tanks".		X

A.2 RADIOACTIVE AIRBORNE EFFLUENT SAMPLING AND MONITORING

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
	WHC-CM-7-5 (5.4.3.1.b)	1. The Facility Effluent Monitoring Plan (FEMP) should be reviewed and updated yearly for consistency with the present operation of the facility.	X		Latest FEMP (WHC-EP-0469-1) was released in November 1992.
	WHC-CM-7-5 (2.5.3.1, Table 2.2)	2. Continuous monitoring and alarm systems should be provided for all systems that have the potential to exceed 0.01 mrems/yr EDE to the maximally exposed individual.		X	
	WHC-CM-7-5 (2.5.3.5)	3. Audible and visible indications should be easily discernable to responsible personnel in continuously or frequently occupied areas.	X		
	WHC-CM-7-5 (2.5.3.7.a)	4. On continuous monitoring systems, alarms should be set to release concentrations as low as possible without resulting in spurious alarms.	X		
	WHC-CM-7-5 (2.5.3.7.b)	5. Alarms should annunciate at the time-integrated equivalent concentration equal to a four-hour release at 5,000 times the DCG values.	X		
	WHC-CM-7-5 (2.5.3.10)	6. The air monitoring systems should be powered from a source that has the same or equivalent emergency power capability as the air mover for the effluent stream being monitored.	X		
ANSI N13.1-1969	WHC-CM-7-5 (2.5.4.3)	7. There should be record sampling of all radioactive airborne effluent streams with potential to exceed 10% of any DCG value on an annual average.	X		
	WHC-CM-7-5 (2.5.4.5)	8. The record sampling systems should provide representative (i.e., near-isokinetic) samples of the effluent stream being discharged to the environment.		X	
40 CFR 61, Subpart H WAC 173-400	WHC-CM-7-5 (2.5.4.6)	9. Each airborne effluent release point will have a unique identification number, and each sample point will have a unique electronic data processing code.	X		
	WHC-CM-7-5 (2.5.4.8)	10. Stack record air samples should be collected and submitted for analysis at least once a week.	X		
40 CFR 61 Subpart H WAC 173-400	WHC-CM-7-5 (2.5.4.10)	11. Specific radionuclide analyses should be performed on quarterly composites of record samples as required.		X	

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
	WHC-CM-7-5 (2.5.2.1.2)	12. The average concentration of radionuclides released in the environment should be less than the DCG values specified in Appendix C of the ECM (WHC-CM-7-5).	X		
Records Requirements: (WHC-CM-7-5, Section 2, Rev. 0)					
40 CFR 61, Sec. 61.14(f)	WHC-CM-7-5 (2.5.4.9.b)	13. Monthly source checks of monitoring equipment will be performed using NIST traceable sources.	X		
40 CFR 61, Sec. 61.14(f)	WHC-CM-7-5 (2.5.4.9)	14. All radioactive airborne effluent sampling systems should be calibrated annually or whenever maintenance or modification may affect equipment calibration in accordance with the manufacturers specifications or applicable ANSI 42.18 standards.	X		
	WHC-CM-7-5 (2.5.4.8)	15. Flow meters and flow totalizers should be cleaned and calibrated within $\pm 10\%$ of the normal operating flow rate at least annually.	X		
40 CFR 61, Sec. 61.14(f)	WHC-CM-7-5 (2.5.4.9)	16. The exact conditions of calibration (calibration points, range, traceability to the NIST) will be specified and documented in the Facility Environmental Monitoring Plan. Monitoring systems will also be recalibrated at least annually.	X		
	WHC-CM-3-5 (2.5.3.9)	17. Records of maintenance, calibrations, system anomalies, etc. should be kept for each instrument for a period of at least two years.	X		
40CFR 61, Subpart H, Sec. 61.93	WHC-CM-7-5 (2.5.6.1)	18. Stack flow rates determined at least annually, after any equipment or process modification, and upon completion of in-place leak tests.	X		
	WHC-CM-7-5 (2.5.4.13)	19. Record sampling schedules should be followed by the facility.	X		
	WHC-CM-7-5 (2.5.3.11) (2.5.4.3)	20. Daily operational checks should be performed and documented on record samplers and continuous monitors.	X		
	WHC-CM-7-5 (2.5.5.2.2.a)	21. Leak tests should be performed on HEPA filters at least annually using DOE approved methods.	X		

A.3 RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
	WHC-CM-7-5 (5.4.3.1.b)	1. The Facility Effluent Monitoring Plan (FEMP) should be reviewed and updated within the last 12 months for consistency with the present operation of the facility	X		Latest FEMP (WHC-EP-0469-1) was released in November 1992.
	WHC-CM-7-5 (8.4.2.8.4)	2. Continuous radionuclide monitoring should be provided on the release points that could (1) exceed one DCG equivalent at the point of release averaged over 1 year or (2) result in unanticipated releases to the environment that could exceed one DCG averaged over one year.	X		
	WHC-CM-7-5 (8.4.2.8.5)	a. Continuous effluent streams should be monitored for each type of radiation, radionuclide or indicator material that has the potential for exceeding the discharge limits.	X		
	WHC-CM-7-5 (8.4.2.8.11)	b. On continuous monitoring systems, alarms should be set at release concentrations as low as possible without resulting in spurious alarms.	X		
	WHC-CM-7-5 (8.4.2.8.10)	c. Monitoring alarm/waste diversion setpoints should be set to allow sufficient margin between the discharge alarm limits and the nominal trip set-points.	X		
	WHC-CM-7-5 (8.4.2.8.12)	d. Audible and/or visible high-level radiation alarm indicators should be located in areas continuously occupied by operating personnel.	X		

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
	WHC-CM-7-5 (8.4.2.8.15)	3. There should be record sampling of all radioactive effluent streams with potential to exceed 4% of the DCG values (annual average) listed in Appendix C of the ECM (WHC-CM-7-5).	N/A		No radioactive liquid effluent streams are discharged to the environment at this facility.
	WHC-CM-7-5 (8.4.2.8.13)	a. Effluent record sampling systems provide representative proportional samples of the effluent stream being discharged to the environment.	N/A		
	WHC-CM-7-5 (8.4.2.8.4)	b. The frequency of record sampling should be such that sampling is representative during both normal and upset conditions.	N/A		
	WHC-CM-7-5 (8.4.2.8.13)	c. The flow rates of all continuous effluent streams should be measured and/or monitored.	N/A		
	WHC-CM-7-5 (8.4.2.8.13)	4. For effluent streams that require sampling; volume, flow rate, and radionuclide concentrations should be measured at a point which most closely represents the effluent that is being released to the environment.	N/A		No radioactive liquid effluent streams are discharged from this facility.
	WHC-CM-7-5 (8.4.2.8.14)	5. For batch releases, representative samples of the effluent collected should be analyzed and documented prior to release.	X		
	WHC-CM-7-5 (8.4.2.8.8)	6. The location of the sampling system should consider environmental conditions (temperatures, humidity, radiation levels, vapors, etc.) which would influence the operation of the equipment or pose an unacceptable risk to human health and safety.	X		
	WHC-CM-7-5 (8.4.2.8.4) (8.4.2.10.3)	7. The sampling and monitoring systems should have appropriate redundancy to ensure that no unsampled releases occur.	X		
	WHC-CM-7-5 (8.4.2.9.1) (8.4.2.9.3)	8. All record effluent monitoring and sampling devices should be calibrated at least annually in accordance with manufacturer's specifications and DOE-EH-0173T.	X		
	WHC-CM-7-5 (8.4.2.9.2)	9. Sampling and monitoring systems should be maintained in accordance with manufacturer recommendation and inspected weekly for proper operation or deviations documented in the FEMP.	X		

A.4 NON-RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-220	WHC-CM-7-5 (5.4.3.1.b) (8.3.1.1)	1. A Facility Effluent Monitoring Plan (FEMP) determination should be prepared for the facility.	X		Latest FEMP (WHC-EP-0409-1) was released in November 1992.
WAC 173-220	WHC-CM-7-5 (8.3.1.1.11)	2. The facility should have a working system for collecting effluent samples and delivering them for analysis.		X	
WAC 173-220	WHC-CM-7-5 (8.3.1.1.10)	3. The facility will have a chain-of-custody system for liquid effluent samples.	X		
WAC 173-220	WHC-CM-7-5 (8.3.1.1.12)	4. The sampling and monitoring equipment will be inspected regularly for proper operation.	X		
WAC 173-303-300 WAC 173-216	WHC-CM-7-5 (8.3.8.2)	5. There should be monitoring and sampling of all effluent streams with potential to increase the concentration of the stream mixture into the dangerous waste category.	N/A		No such wastes are handled at this facility.
WAC 173-303-300	WHC-CM-7-5 (8.3.8.3)	6. For batch release systems not having monitoring and alarms, the batches should be retained until laboratory analyses indicate that they are releasable.	N/A		Non-radioactive wastes are not batched.
WAC 173-303	WHC-CM-7-5 (8.3.8.4)	7. For potentially corrosive streams; equipment and methods for measuring, recording, and reporting pH should be provided.	N/A		No corrosive waste streams are handled at 340 Facility.
WAC 173-303	WHC-CM-7-5 (8.3.8.4)	8. For continuous and potentially corrosive streams, continuous pH monitoring with alarm capabilities shall be provided.	N/A		No corrosive waste streams are handled at 340 Facility.
	WHC-CM-7-5 (8.3.8.5)	9. The record monitoring systems should have back-up power to ensure that no unmonitored releases occur due to power failure.		X	
	WHC-CM-7-5 (8.3.8.6)	10. All monitoring points should be downstream of any treatment systems, but prior to release to the environment.	N/A		Waste treatment is not a part of 340 Facility operation.
	WHC-CM-7-5 (8.3.8.7)	11. All devices for measuring liquid effluents should be calibrated periodically in accordance with manufacturer's requirements and recommendations.	X		
SARA requirements defined in 40 CFR 372.10	WHC-CM-7-5 (8.3.8.8)	12. The facility should maintain an auditable record of maintenance, calibrations, etc. for each record monitoring system for a period of at least three years.	X		

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-303-300	WHC-CM-7-5 (8.3.9.1)	13. Sampling of all effluent streams where there is a potential for equivalent concentrations of contaminants to exceed 0.001 weight percent should be provided.	N/A		Non radioactive and hazardous liquid waste is not handled at this facility.
	WHC-CM-7-5 (8.3.9.2)	14. Sampling should be performed in a manner that provides representative measurements of the volume and concentration of pollutants released to the environment.		X	
	WHC-CM-7-5 (8.3.9.3)	15. The measurement of volume, flow rate, and concentrations should be made downstream of any treatment systems but prior to exiting the pipeline or mixing with streams from other facilities.	N/A		Treatment of waste streams is not provided at 340 facility.
	WHC-CM-7-5 (8.3.9.5)	16. Surface ponds should be sampled and analyzed at least quarterly for pH, nitrate, and any suspected deleterious chemicals identified in effluent monitoring plans.	N/A		Surface ponds do not exist at the 340 facility.

A.5 LEAD MANAGEMENT

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-303-016	WHC-CM-7-5 (7.7.4.1a)	1. Lead materials must be categorized as necessary inventory or excess effective January 1 of each calendar year.	X		Lead materials are not used on a regular basis at this facility.
	WHC-CM-7-5 (7.7.4.2a)	2. Lead classified as necessary inventory should be consolidated in a single storage area and protected from the elements (on covered pallets or inside a structure).	X		
	WHC-CM-7-5 (7.7.4.1.b)	3. If lead is classified as necessary inventory, it must be demonstrated that the facility has control over the lead.	X		
	WHC-CM-7-5 (7.7.4.1.b)	4. The facility must use and maintain an inventory system to track (by quantity and location) hard lead inventory, estimated lead inventory, and lead necessary for permanently installed, and inactive facilities.	X		
	WHC-CM-7-5 (7.7.4.1.c)	5. If lead material is categorized as excess, another use or user must be identified or the lead must be shipped for reclamation and recycling within 180 days after being declared excess. Inventory sheets or shipping records can be used to document this.	X		
	WHC-CM-7-5 (7.7.4.3)	6. Before procuring new lead supplies, the facility must attempt to locate excess lead onsite.	X		This facility does not procure lead on regular basis.
WAC 173-303-016	WHC-CM-7-5 (7.7.4.4)	7. The inventory records must show that the generator is not speculatively accumulating excess lead. (Materials are not considered accumulated speculatively if at least 75% of the inventory on January 1 has been used by the end of that calendar year).	X		

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-303-016	WHC-CM-7-5 (7.7.4.5)	8. Waste lead (non-radioactive or radioactive) must be properly handled as dangerous waste or mixed waste. (see the appropriate checklists for radioactive solid waste and/or satellite accumulation or less-than 90-day storage requirements).	N/A		Waste lead is not generated on regular basis at this facility.
	WHC-CM-7-5 (7.7.4.7)	9. If it is economically feasible and justifiable, the radioactively contaminated lead waste must be decontaminated to levels below that requiring control as radioactive material.	N/A		Waste lead is not generated on regular basis at this facility.

A.6 SATELLITE ACCUMULATION AREAS

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-303-200 (2)(c)	WHC-CM-7-5 (7.8.2.2.1.a)	1. Satellite accumulation areas should be located at or near the point of generation where wastes initially accumulate. If the accumulation point is not in the same room as the process generating the waste, the generator should understand the rationale and reasons for the container location.	X		
WAC 173-303-200 (2)(c)	WHC-CM-7-5 (7.8.2.2.1.b)	2. Containers should be under the control of the operator of the process generating the waste. The generator should ensure that unauthorized additions to a container is prevented.	X		
WAC 173-303-630 (5)(a)	WHC-CM-7-5 (7.8.2.2.1.c)	3. All containers should be closed when not being filled or emptied. (The container will be considered closed if the closure mechanism will prevent a spill of the waste when a container is tipped over).	X		
WAC 173-303-630 (4)	WHC-CM-7-5 (7.8.2.2.1.d)	4. Containers or liner should be compatible with the waste accumulated. The compatibilities of the generator should be consciously evaluated.	X		
WAC 173-303-630 (2)	WHC-CM-7-5 (7.8.2.4.5a)	5. The containers should be in good condition. Look for leaks, bulges, or corrosion.	X		
WAC 173-303-200 (1)(d)	WHC-CM-7-5 (7.8.2.2.2.c)	6. All containers should be properly labeled. a. Major risks (corrosive, flammable, oxidizer, toxic, etc.). b. "Hazardous Waste".	X		
WAC 173-303-630 (3)	WHC-CM-7-5 (7.8.2.2.1.f)	7. Labels should be readable and unobscured.	X		
WAC 173-303-200 (2)(c)	WHC-CM-7-5 (7.8.2.2.1.g)	8. There should be less than 55 gallons of dangerous waste or 1 quart of acutely hazardous waste accumulated for each waste stream.	X		
WAC 173-303-300 (1)	WHC-CM-7-5 (7.8.2.2.1.i)	9. The generator should take appropriate steps to obtain a designation of the waste generated.	X		
WAC 173-303-200 (2)(c)	WHC-CM-7-5 (7.8.2.2.2.i)	10. Containers that have reached or exceeded the threshold quantity limits should be promptly dated and moved to a 90-day area (within 72 hours).	X		
Records Requirements: (WHC-CM-7-5, Section 7.8)					

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-303-210 (3)		<p>11. A container inventory sheet should be required when process knowledge can not complete the waste designation (e.g., calculation of waste matrix weight percents).</p> <p>If a container inventory sheet is required, the container inventory log should be current and complete (type of waste added, volume, date, and person adding waste).</p>	X		
WAC 173-303-320 (2)	WHC-CM-7-5 (7.8.2.1.5)	12. The facility should have a waste/safety equipment inspection plan and schedule for containers, safety equipment, and emergency equipment. (Containers must be inspected weekly. Other items may be inspected less frequently [i.e., fire extinguishers - monthly]).	X		
WAC 173-303-300 (2)	WHC-CM-7-5 (7.8.2.1.5)	13. Inspections should be current and complete. a. Date and time of inspection. b. Printed name and handwritten signature of the inspector. c. Notation of leaks or spills and required corrective action.	X		
WAC 173-303-320 (2)(d)	WHC-CM-7-5	14. Inspection records should be kept for at least five years.	X		
WAC 173-303-200, -400, and -600 relating to WAC 173-303-330	WHC-CM-7-5 (11.4.2.1.3.c)	15. The operator's personnel should be trained to handle hazardous waste. a. Generator Hazard Safety Training. b. Facility Specific training (previously referred to as 20006H or OJT training).	X		

A.7 LESS THAN 90-DAY WASTE STORAGE AREAS

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
Container Storage Area Inspection List (WHC-CM-7-5, Section 7.8)					
WAC 173-303-340	WHC-CM-7-5 (7.8.2.4.6a)	1. The storage area should be designed, constructed, maintained, and operated to minimize the potential for fire, explosion, or release of dangerous waste.	X		
WAC 173-303-340 (1)(a-d)	WHC-CM-7-5 (7.8.2.4.6b)	2. Safety and emergency equipment present should be based on the type of dangerous waste being managed to minimize the potential for fire, explosion, or release of dangerous waste.	X		
		a. Internal communications or alarms systems capable of providing emergency instruction to facility personnel.	X		
		b. Telephones or other devices capable of summoning external emergency assistance.	X		
		c. Portable fire control equipment.	X		
		d. Spill control and decontamination equipment.	X		
		e. Water at adequate volume and pressure to supply fire suppression systems.	X		

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-303-630 (7)	WHC-CM-7-5 (7.8.2.4.5.g)	3. Secondary containment should be required for the container storage area based on the types of waste accumulated according to WAC 173-303-630(7). If secondary containment is required,	X		
		a. The container storage area should have an impervious base (free of cracks or gaps) that is designed to collect and hold spills and leaks.	X		
		b. If the containers are not elevated, the secondary containment should be sloped or operated to drain and remove liquids.	N/A		Containers are stored on pallets.
		c. If the storage area is uncovered, the secondary containment should be capable of collecting and holding additional volume from a maximum 25 year, 24 hr. storm (1.6 inches of water).	N/A		The storage area is covered.
		d. The secondary containment should have sufficient capacity to contain 10 percent of the volume of all containers or the volume of the largest container, whichever is greater. Only containers holding free liquids (bulk drums) and F020-F027 waste need be considered.	N/A		No secondary containment is provided as the storage area is covered.
		e. Run-on into the secondary containment systems should be prevented.	X		Even though Extremely Hazardous Waste is not expected to accumulate at 340 facility, protection is provided.
		f. If Extremely Hazardous Waste is accumulated, the containers must be protected from the elements by means of a building or other protected cover that still allows inspection (i.e., no yellow plastic).	X		
Container Requirements (WHC-C-7-5, Section 7.8)					
WAC 173-303-630 (2)	WHC-CM-7-5 (7.8.2.4.5.a)	4. The containers should be in good condition. Check for leaks, bulges, or corrosion.	X		New containers are in use.
WAC 173-303-630 (4)	WHC-CM-7-5 (7.8.2.4.5.b)	5. The containers or liners should be compatible with the waste accumulated.	X		

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-303-630 (5)(a)	WHC-CM-7-5 (7.8.2.4.5.c)	6. All containers should be closed when not in use. (The container will be considered closed if the closure mechanism will prevent a spill of the waste when the container is tipped over).	X		
WAC 173-303-630 (3)	WHC-CM-7-5 (7.8.2.4.5.d)	7. Containers should be properly labeled. a. Major risks (corrosive, flammable, oxidizer, toxic, etc.). b. "Hazardous Waste"	X		
WAC 173-303-630 (3)		8. The labels should be readable and unobscured.	X		
WAC 173-303-210 (3)	WHC-CM-7-5 (7.8.2.4.5.e)	9. The 90 day accumulation area inventory should be accurate and up to date.	X		
WAC 173-303-630 (3)	WHC-CM-7-5 (7.8.2.4.5.h)	10. The date upon which the 90-day accumulation period begins should be marked on each container.	X		
WAC 173-303-630 (3)		11. Labels should be removed from containers which previously held dangerous waste unless the container will continue to hold dangerous waste.	X		
WAC 173-303-340 (3)	WHC-CM-7-5 (7.8.2.4.5.i)	12. There should be adequate aisle space between containers, (30 inches minimum). Drums in rows cannot be more than two drums wide.	X		
WAC 173-303-200 (1)	WHC-CM-7-5 (7.8.2.4.1)	13. All containers should be stored for less than 90 days.	X		
WAC 173-303-630 (9)(c)	WHC-CM-7-5 (7.8.2.4.5.j)	14. Incompatible wastes should be separated by means of a dike, berm, wall, or other device.	X		
WAC 173-303-630 (9)(c)	WHC-CM-7-5 (7.8.2.4.5.j)	15. Incompatible wastes should be provided with a separate secondary containment system.	X		
WAC 173-303-630 (8)	WHC-CM-7-5 (7.8.2.4.5.f)	16. If ignitable or reactive waste is being accumulated on the container storage area, annual fire inspections should be performed.	X		
WAC 173-303-630 (8)	WHC-CM-7-5 (7.8.2.4.5.f)	17. Ignitable or reactive wastes should be determined to be stored in compliance with the applicable fire protection requirements.	X		

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
Records Requirements (WHC-CM-7-5, Section 7.8)					
WAC 173-303-320 (1),(2)	WHC-CM-7-5 (7.8.2.1.5)	18. The facility should have an inspection plan/procedure and schedule for containers, safety equipment, emergency equipment, and container storage area conditions. (Containers must be inspected weekly. Other items may be inspected less frequently [i.e., fire extinguishers - monthly]).	X		
WAC 173-303-320 (2)(d)	WHC-CM-7-5 (7.8.2.1.5)	19. Inspection records should be kept current and complete. a. Date and time of inspection. b. Printed name and hand written signature of the inspector. c. Notation of leaks or spills and required corrective actions.	X X X X		
WAC 173-303-320 (2)(d)	WHC-CM-7-5 (7.8.2.1.5)	20. Inspection records should be kept at the facility for at least five years.	X		
WAC 173-303-330 (1) WAC 173-303-330 (2) WAC 173-303-330 (3) WAC 173-303-330 (1)(b) WAC 173-303-330 (1)(c)	WHC-CM-7-5 (7.8.2.1.4)	21. The facility should have a training plan associated with the container storage area. a. The training plan should identify, for each position related to dangerous waste management, the job title, job description, and the name of the employee filling each job and a description of the training required. b. Training records for former employees should be kept for five years from last date of employment. c. Facility personnel should participate in an annual review of the training provided in the program. d. New employees should receive training within 6 months of employment and should be supervised by qualified personnel until completion of training.	X X X X X X X		

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-303-350(2)	WHC-CM-7-5 (7.8.2.4.7)	22. The facility should have contingency plan associated with the container storage areas.	X		
WAC 173-303-350 (2)		a. The plan should be up-to-date.	X		
WAC 173-303-350 (3)(a)		b. The plan should contain a description of actions to take in emergency situations.	X		
WAC 173-303-350 (3)(d)		c. The plan should contain a current list of names, addresses, and phone numbers of all persons qualified to act as the emergency coordinator.	X		
WAC 173-303-330 (3)(e)		d. Plan should contain a list of all emergency equipment at the facility including the location, physical description and a brief outline of its capabilities.	X		
WAC 173-303-350 (4)		e. A copy of the plan should be kept in the offices of the facility of personnel with emergency responsibilities assigned.	X		
WAC 173-303-330 (1)		f. Dangerous waste personnel should be trained to the contingency plan.	X		
WAC 173-303-210 (3)	WHC-CM-7-5 (7.8.2.1.8.a)	23. Copies of test results, waste analyses, inventory sheets or other documentation generated for designating a solid waste should be kept for at least 5 years from the date of transport from the generating facility.	X		
WAC 173-303-210 (3)	WHC-CM-7-5 (7.8.2.1.8a)	24. Copies of test results, waste analyses, or other documentation generated for designating an unknown or suspect waste should be kept for at least 5 years from the date of transport from the generating facility.	X		
WAC 173-303-210 (3)	WHC-CM-7-5 (7.8.2.1.8.c)	25. Manifest records should be retained.	X		
WAC 173-303-200 (1)(a)	WHC-CM-7-5 (7.8.2.3.3)	26. All unknown or suspect wastes should be managed as dangerous or mixed waste until designation is complete.	X		

A.8 LESS THAN 90-DAY WASTE STORAGE TANKS

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
Tank Requirements: (WHC-CM-7-5, Section 7, Rev. 0)					
WAC 173-303-140	WHC-CM-7-5 (7.12.2.1.2)	1. The tank system should comply with the general requirements for dangerous waste generators. (Use the Less-Than-90-Day Storage Areas checklist).	X		
WAC 173-303-200 (i)(a) WAC 173-303-200 (2)(a)(c)	WHC-CM-7-5 (7.12.2.1.2.b)	2. Accumulated wastes should be transferred to a permitted or interim status treatment, storage, or disposal (TSD) unit within 90 days of generation.	X		
WAC 173-303-200 (1)(b)	WHC-CM-7-5 (7.12.2.1.2.c)	3. Uncovered tanks must have a minimum free board of two feet.	X		
WAC 173-303-640 (2)	WHC-CM-7-5 (7.12.2.1.2.e)	4. Tank systems should have an initial written integrity assessment on file that was reviewed and certified by an independent qualified, registered professional engineer. For underground tanks that cannot be entered for inspection, a leak test should be included. The integrity assessment should have been completed by January 12, 1990.		X	Only tanks in the vault do not have integrity assessment.
WAC 173-303-640 (2)(e) WAC 173-303-640 (4)(i), invoked for 90-day accumulation tanks by WAC 173-303-200 (2)(b)	WHC-CM-7-5 (7.12.2.1.2.f)	5. Periodic written integrity assessments should be performed.		X	
WAC 173-303-640 (4)(i) WAC 173-303-200 (2)(b) WAC 173-303-640 (2)(e)	WHC-CM-7-5 (7.12.2.1.2.f)	6. Annual leak tests or other tank integrity assessment methods, as approved by Ecology, should be performed on underground storage tanks that cannot be entered for inspection and that lack secondary containment and leak detection.		X	
WAC 173-303-400 (3)(c)(vii) WAC 173-303-200 (2)(b) 40 CFR 265.193 (b), (c), (d)	WHC-CM-7-5 (7.12.2.1.1.e)	7. Tank release detection systems must meet the requirements of 40 CFR 265.193 (b), (c), (d); (For new tanks this requirement must be met prior to operation. For all existing tanks, this requirement must be met in accordance with the schedule given).	X		
WAC 173-303-400 (3)(c)(vii) 40 CFR 265 (b) and (c) 40 CFR 265.193(f)	WHC-CM-7-5 (7.12.2.1.1.e)	8. The ancillary equipment should have full secondary containment and leak detection meeting the requirements of 40 CFR 265 (b) and (c). (Not required if operator conducts daily inspections for leaks, and falls into one of the categories identified at 40 CFR 265.193(f)).	X		

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
WAC 173-303-640 (5)(d) WAC 173-303-400 (3)(a)(iii) 40 CFR Part 265.194 (b)	WHC-CM-7-5 (7.12.2.1.1.f.2)	9. Tank spills and overfills should be prevented by using the controls specified in 40 CFR Part 265.194 (b).	X		
WAC 173-303-640 (5)(d) WAC 173-303-400 (3)(a)(iii) WAC 173-303-200 (i)(d) 40 CFR 265.194 (b)	WHC-CM-7-5 (7.12.2.1.1.f.3) (7.12.2.1.2.d)	10. Tanks must be marked to identify waste and major risks associated with the waste. The marks should be legible from a distance of 50 ft. The tank must be marked with the words "dangerous waste" or "hazardous waste".		X	Although tanks are not marked to identify the waste and major risks, the access ways to storage tanks are kept under lock and key, and the personnel access is monitored.
WAC 173-303-640 (5)(e) WAC 173-303-200 (2)(b)	WHC-CM-7-5 (7.12.2.1.2.g)	11. Tank containing extremely hazardous waste that is acutely or chronically toxic by inhalation should be designed to prevent escape of vapors, fumes, or other emissions into the air.	X		
WAC 173-303-640 (6) WAC 173-303-320 (1),(2)(a),(b), (d), and (3)	WHC-CM-7-5 (7.12.2.1.2.i)	12. A written inspection schedule should be in place for periodic inspection of monitoring equipment, safety/emergency equipment, security devices, and operating/structural equipment associated with the tank system. Inspection logs should be maintained for three years from the date of the last inspection.	X		
40 CFR 265.195	WHC-CM-7-5 (7.12.2.1.1.g)	13. Daily visual inspections should be conducted of the overfill/spill equipment, aboveground portion of the tank system, monitoring and leak detection data, and construction materials and area immediately surrounding the externally accessible portion of the system to insure operability and detect deterioration. The required visual inspection records should be maintained in the facility operating record.		X	ALARA precludes daily visual inspection.
40 CFR 265.195 (b)	WHC-CM-7-5 (7.12.2.1.1.g)	14. The system should utilize a cathodic protection system, and should be inspected in accordance with schedule identified at 40 CFR 265.195(b). The records should be maintained in the facility operating record.		X	

Regulatory requirement	WHC requirement	Description	Compliant	Non-compliant	Comments
40 CFR 265.196 (a), (b), (c), and (d)	WHC-CM-7-5 (7.12.2.1.1.h)	15. The following actions should be taken in response to all leaks and spills from the system. a. The system should be removed from service and the flow or addition of waste to the tank prevented. b. The waste should be removed from the tank system or secondary containment within 24 hours or as soon as practicable. c. All material released to secondary containment should be removed within 24 hours or as soon as practicable. d. The release should be reported to Environmental Compliance Support. e. Should a release reach the environment, a report should be prepared addressing the items listed in 40 CFR 265.196 (a)(3)(i) through (a)(3)(v).	N/A		No known leaks or spills have been reported at this facility.
40 CFR 265.198	WHC-CM-7-5 (7.12.2.1.1.k)	16. Ignitable and reactive wastes should be stored in tanks such that no unsafe conditions exist and human health and the environment are protected.	N/A		No such wastes have been stored at the 340 facility.
40 CFR 265.199	WHC-CM-7-5 (7.12.2.1.1.l)	17. Incompatible wastes should be prohibited or placed in a tank system such that unsafe conditions are prevented and human health and the environment are protected.	X		
40 CFR 265.200	WHC-CM-7-5 (7.12.2.1.1.m)	18. Waste analysis and trial tests should be performed prior to addition of waste that is substantially different from waste already stored in the tank system. If no waste tests were performed, documentation should be in place on similar waste under similar conditions that shows the proposed addition will not cause any failure of the tank system.	X		
40 CFR 295.196(e) WAC 173-303-400 (3)(b)(i)	WHC-CM-7-5 (7.12.2.1.1.i)	19. Tanks must be repaired after spills or leaks in accordance with the requirements or closed in accordance with 40 CFR 295.196(e).	N/A		No known spills or leaks have occurred at this facility.
WAC 173-303-640 (i)	WHC-CM-7-5 (7.12.2.1.2.j)	20. Tanks used to store wastes F020, F021, F022, F023, F026, and F027 comply with the special requirements specified in WAC 173-303-640.	N/A		No such wastes are stored at the 340 facility.

APPENDIX B

SUPPORTING DOCUMENTATION

APPENDIX B

SUPPORTING DOCUMENTATION

Copies of the pertinent documentation are included in this appendix. Instead of attaching the copies of entire reports or correspondence, only relevant pages are included. Copies of the complete documents may be obtained based on the reference pages. Copies of the following documents are included in this appendix.

- B-1 340 Facility Stormwater Permit DSI, Hans R. Vogel to Compliance Assessment Team, 10 August 1993 (one page).
- B-2 340 Facility NESHAP Stack Compliance, DSI, Hans R. Vogel to Compliance Assessment Team, 10 August 1993 (3 pages).
- B-3 NESHAP, Subpart H meeting with EPA Region 10, meeting minutes from W.E. Davis to Distribution, 10 June 1993 (2 pages).
- B-4 340 Facility Stack monitoring, prepared by Engineering-Science Inc., February 1993 (2 pages).
- B-5 340 Facility Waste Characterization, Sampling, and Analysis, DSI, Hans R. Vogel to Compliance Assessment Team, 10 August 1993 (one page).
- B-6 340 Facility Aboveground Storage Tanks, DSI, Hans R. Vogel to Compliance Assessment Team, 10 August 1993 (4 pages).

Attachment B-1 clarifies the status of the stormwater permit for the 340 Facility.

Attachments B-2, B-3, and B-4 give an indication of the ongoing work for upgrading the airborne sampling system of vault stack for compliance with NESHAP and other requirements. The existing sampling system is not in total compliance.

Attachment B-5 provides a brief description of the sample collection and characterization process of the liquid radioactive waste. Although the contents of this attachment may not have a direct bearing on the compliance assessment process, it is

expected to give the reader a better understanding regarding the handling of radioactive liquid waste at this facility.

Attachment B-6 provides the results of the integrity assessments of the six above-ground storage tanks. As per the compliance requirements for less than 90-day waste storage tanks, integrity assessment must be conducted for all tanks in service at the 340 Facility.

DON'T SAY IT --- Write It!

DATE: 10 August 1993

TO: Compliance Assessment Team

FROM: Hans R. Vogel

L6-40

Telephone: 6-0992

SUBJECT: 340 Facility Storm Water Permit

As per a phone conversation on this subject with Marvin McCarthy of OSS, the 300 area has a storm water permit. All facilities within the 300 area are covered in this permit. All pertinent information on this can be obtained through OSS.

340 Facility has no special or specific storm water permit or guidelines.

DON'T SAY IT --- Write It!

DATE: 10 August 1993

TO: Compliance Assessment Team

FROM: Hans R. Vogel

L6-40

Telephone: 6-0992

SUBJECT: 340 Facility NESHAP Stack Compliance

The attached describes the status of the 340 Facility stack monitoring upgrades. This data has been officially transmitted to DOE-RL.

2. By June 7, 1993, test the nondestructive assay method on a selected stack and transmit the results to the EPA, Region 10.

The NDA test plan titled, "Measurement of Gamma Activity from HEPA Filters," (WHC-SD-ER-TP-004, Revision 0) was distributed within WHC. Following the release of the test plan, calibration activities for the Microspec-1 (a portable gamma spectrometer, manufactured by Bubble Technology, Industries, Ontario, Canada) were undertaken in a laboratory setting. WHC conducted a field test of the Microspec-1 by taking sample measurements on a set of HEPA filters for the 296-B-13 stack at B Plant. Results from the successful test were transmitted to EPA by June 7, 1993.

Testing dates are being established for additional stacks. The testing will be done in accordance with the sitewide test plan.

STACK UPGRADES

291-Z-1 Stack (Plutonium Finishing Plant [PFP])

1. Complete seismic analysis (Estimated Completion Date [ECD]: 3 months)

The seismic analysis was completed and provided to PFP Process Engineering & Environmental Compliance meeting the June 30, 1993, deadline.

340-NT-EX

1. Finalize design specification.

The design specifications package has been finished and put out for bid.

LINE LOSS STUDY

All work is on schedule. Testing has started at Plutonium-Uranium Extraction (PUREX) Facility and preparations are underway at B Plant for particle size sampling with a cascade-impactor system and a laser spectrometer.

JULY ACTIVITIES

No milestones are listed for July. However, the next Monthly Status Report will highlight progress on the following items:

NESHAP, Subpart H, Quality Assurance Program Plan,

NDA testing activities, and

Draft Federal Facilities Compliance Agreement (FFCA).

Stack No.	Stack Upgrades	Completed (Y/N)	Scheduled or (Actual) Completion Date
291-B-1	(B Plant)		
	1. Complete Feasibility Study.	N	December 1993
	2. Complete Functional Design Criteria.	N	June 1994
	3. Complete Conceptual Design Report.	N	September 1995
	4. Complete Definitive Design.	N	April 1998
	5. Complete Construction.	N	December 1998
	6. Contingency.	N	February 1999
291-T-1	(T Plant)		
	1. Issue system study documenting status of NESHAP, Subpart H, compliance and recommended system upgrades.	N	September 1993
	2. Prepare, review, and issue documentation to relocate monitoring cabinet.	N	September 1993
340-WT-EX	(340 Waste Handling Facility)		
	1. Finalize design specification.	Y	June 1993 (June 10, 1993)
	2. Accept bids and award contract.	N	December 1993
	3. Design and review.	N	March 1994
	4. Begin installation.	N	June 1994
	5. Complete installation.	N	December 1994
296-A-22	(242-A Evaporator)		
	1. Install flow measurement ports.	Y	April 30, 1993 (May 26, 1993)
296-A-40	(241-AP Tank Farm Exhaust)		
	1. Complete engineering study.	N	December 1993
	2. Complete conceptual design.	N	January 1995
	3. Complete definitive design.	N	June 1997
	4. Complete construction.	N	December 1998
	5. Complete turnover to operations.	N	January 1999

MEETING MINUTES**ENCLOSURE 2**
Page 1 of 4**Subject: NESHAP, SUBPART H MEETING WITH EPA REGION 10****TO: Distribution****BUILDING: 1163, Room 371****FROM: W. E. Davis****CHAIRMAN: W. E. Davis**

Dept-Operation-Component	Area	Shift	Meeting Date	Number Attending
Regulatory Support	RCHN		06/10/93	12

Attendees:

Matthew Barnett	WHC
John Bates	WHC
Don Carrell	WHC
William Davis	WHC
Larry Diediker	WHC
Henry Doolittle	WHC
Stephen Jette	PNL
Judson Kenoyer	SAIC
Deanne Klages	PNL
Joe Nickels	WHC
Richard Poeton	EPA Region 10
Steven Stites	RL

A meeting was held with Rick Poeton, U.S. Environmental Protection Agency (EPA), to discuss EPA comments on the National Emission Standards for Hazardous Air Pollutants (NESHAP) Compliance Plan and to provide a demonstration of the nondestructive analysis (NDA) by Matthew Barnett.

I. RICK POETON'S COMMENTS ON THE NESHAP COMPLIANCE PLAN**A. PNL'S COMPLIANCE PLAN**

Rick Poeton made some general comments concerning the Compliance Plans of both Pacific Northwest Laboratory (PNL) and Westinghouse Hanford Company (WHC). PNL's plan was well received. He noted further that PNL plans to complete upgrades and finish them within one year of the issuance of the Compliance Order, January 31, 1994. His only problem was that he had not received a monthly status report that is required from PNL. He would like to see the reports.

B. WHC'S COMPLIANCE PLAN

On WHC's plan, Mr. Poeton indicated it was pretty good and he had only a few comments and suggestions.

Mr. Poeton explained that the EPA rejection of Dr. Carter's method for using an additive decontamination factor (DF) versus the present use of multiplicative DFs for removal by multi-stage high-efficiency particulate air (HEPA) filters. He indicated that no evidence was presented to support Mel Carter's position for additive DF for HEPAs. He reiterated his position that any proposed method for estimating unfiltered emissions for multiple HEPAs should either use the Air Cleaning Handbook or another defensible basis.

He indicated the objectives of the NESHAP Compliance Plan look good but the dates must be developed for the Federal Facilities Compliance Agreement (FFCA) by the February 1, 1994 milestone. Mr. Poeton noted that milestones beyond 1994 need to be included.

In particular:

Page 3: 5. C. - Mr. Poeton said he had spoken with the State of Washington Department of Health (DOH) about the nonregistered stacks. He thought that perhaps the nonregistered stacks could be evaluated as a category, based upon the 10 percent of the derived concentration guide criterion or some other generic treatment of potential emissions. He added that formal concurrence with any categorical assessment would be necessary.

Page 11: 291-A-1 Stack - Since 291-A-1 is a major stack, why is Item 4 mentioned. Mr. Diediker responded that Item 4 relates to two different stacks at the Plutonium-Uranium Extraction Plant.

Page 12: B Plant - B Plant needs to set a milestone for providing additional design verification documentation to argue for equivalency of its sampling system. Bill Davis indicated that B Plant is looking into acquiring the documentation this week.

Page 12: 291-T-1 T Plant - A date is needed for the particle sizing results for this stack. WHC committed that the data will be provided as part of the line-loss study. Also, a commitment date is needed for transmittal of "equivalency" information for this stack.

Page 13: 340-NT-EX - The 340-NT-EX stack sampling system needs documentation provided to EPA. The Facility Effluent Monitoring Plan references vendor data showing American National Standards Institute compliance for the sampling system. WHC agreed that the vendor information would be provided to confirm compliant design as part of the other deliverables.

Page 13: 241-AP Tank Farm Exhaust - "Do the dates for installing sampling on this stack really go into the next millennium?" Physically this is a small emission point and it doesn't look difficult for installing a sampling system. Larry Diediker responded that Tank Farms is upgrading 15 exhaust systems. Mr. Poeton responded that since the 296-A-40 Stack is listed in the compliance agreement as a significant stack requiring continuous measurement, it should get a higher priority. WHC agreed to inform RL that EPA requires such priority.

Page 14 Line Loss Study - The line loss study should be conducted for each of the seven major stacks. A generalized line loss study might be supported for some stacks. Judson Kenoyer, SAIC, responded that due to significant differences between designs, independent study of line loss at each of the stacks will probably be required. Judson also indicated that T Plant will rinse the line that is being removed to estimate line loss. Also, Judson indicated when the upgrade is completed, the new system will be studied for line loss.

340 FACILITY STACK MONITORING

February 1993

Prepared for:

WESTINGHOUSE HANFORD COMPANY
RICHLAND, WASHINGTON

Prepared by:

ENGINEERING-SCIENCE, INC.
RICHLAND, WASHINGTON

under contract to:

BATTELLE ENVIRONMENTAL MANAGEMENT OPERATIONS
under a related services agreement with
UNITED STATES DEPARTMENT OF ENERGY

1.0 INTRODUCTION

The 340 Facility handles a variety of liquid wastes generated within the 300 Area. The 340 Complex main stack, 340-NT-EX, discharges ventilation air from Building 340 and the 340 tanks. Ventilation air is filtered using high efficiency particulate air (HEPA) filters prior to discharge to the atmosphere. The 18-foot high, 18-inch diameter stack is supplied with an isokinetic sampling system and a portable flow meter. The sampling system does not meet the requirements of National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR 61 subpart H) for radionuclide monitoring and testing for air emissions containing radionuclides. The NESHAP regulations require conformance with ANSI N13.1-1969, "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities."

The existing system is deficient because the sample line from the sampling probe to the sampling instrumentation is exceptionally long (90 feet) and contains several hard-piped bends. ANSI N13.1-1969 requires that the sample line be as short as possible and be without bends, when possible.

2.0 SCOPE

This project provides the Building 340 main ventilation system with a new isokinetic sampling system that complies with ANSI N13.1-1969. The new isokinetic sampling system for stack 340-NT-EX, shall incorporate a heated and cooled weatherproof enclosure for the sampling system.

The VENDOR shall submit calculations on various aspects of the complete system. As a minimum the following shall be analyzed:

- (a) sample quantity
- (b) sample flow rate
- (c) sample temperature

2.1 Project Requirements

2.1.1 Provide a new isokinetic sampling system for the 340-NT-EX stack sampling system;

2.1.2 House the new samplers in a small weatherproof sampling enclosure located adjacent to the stack;

2.1.3 Remove the existing sampling system.

DON'T SAY IT --- Write It!

DATE: 10 August 1993

TO: Compliance Assessment Team

FROM: Hans R. Vogel

L6-40

Telephone: 6-0992

SUBJECT: 340 Facility Waste Characterization, Sampling, and Analysis

In regards to the procedure for sample characterization, sampling, and analysis for the 340 Facility, the following is in place.

Samples are pulled from the 340 vault tanks as required. This is done in accordance with procedure SW-080-001. These samples are then transferred to the 325 Building for the required analysis. This is accomplished under work order ED 3065. There is currently a Statement of Work for additional air emission monitoring sample analysis work being done by PNL.

As for the waste characterization, a new analysis of the matrix in the 340 vault tanks is to be conducted before the end of the year. This is an ongoing problem, as the matrix changes as the radiochemistry and chemical analysis within PNL facilities change.

The solid waste moved out of the facility is typically the materials generated in conjunction with maintenance and decontamination operations of the facility.

DON'T SAY IT --- Write It!

DATE: 10 August 1993

TO: Compliance Assessment Team

FROM: Hans R. Vogel

L6-40

Telephone: 6-0992

SUBJECT: 340 Facility Above Ground Storage Tanks

The Above Ground Storage Tanks (AGS) are an integral part of the 340 facility operations and safety capacity. The AGS are needed in the event that the vault tanks are ever filled, or off line, and waste storage is needed. The waste from the vault tanks can be pumped to the AGS, and stored. Maintenance or repairs can be performed on either vault tank while maintaining over 30,000 gallons of wastewater in the AGS.

The AGS have had an integrity study completed, and are structurally sound (WHC-SD-WM-DA-052).

SUPPORTING DOCUMENT		1. Page 1 of <u>44</u>
2. Title 340A STORAGE TANK INTEGRITY STUDY	3. Number WHC-SD- WM-DA-052	4. Rev. No 0
5. Key Words Storage Tank Integrity Study Structural Analysis	6. Author John I. Dearing Name (Type or Print) <i>John I. Dearing</i> Signature Component Stress Analysis WR3410 Organization	
7. Abstract <p>This report documents the results of an integrity study that was performed on the waste storage tanks in the 340A Facility. The facility is operated by the Westinghouse Hanford Company (WHC) for the Department of Energy, Richland Operations Office (DOE-RL). The facility is located in the 300. Area of the Hanford Site in Washington State.</p> <p>The 340A Facility consists of six (6) 8,000 gallon above ground tanks that have sustained damage to their conical roofs. The purpose of the study was to determine if the damage was sufficient to preclude the further use of the tanks. The computations and the visual and ultrasonic inspections that were performed during the course of the study are documented by this report.</p> <p>This study focused on the damage to the roofs and on external inspections of the tanks. The full tank system, including all associated ancillary equipment and the containment system, must be evaluated in a subsequent study to satisfy the requirements of the Washington State Department of Ecology's Dangerous Waste Regulations.</p>		
8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within Westinghouse Hanford Company and is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. DISTRIBUTION EXTERNAL TO WHC REQUIRES THE APPROPRIATE DOCUMENT CLEARANCE. PATENT STATUS - This document copy, since it is transmitted in advance of patent clearance, is made available in confidence solely for use in performance of work under contracts with the U.S. Department of Energy. This document is not to be published nor its contents otherwise disseminated or used for purposes other than specified above before patent approval for such release or use has been secured, upon request, from the U.S. Department of Energy, Patent Attorney, Richland Operations Office, Richland, WA		9. ENGINEERING RELEASE STAMP (Does not authorize public dissemination) <div style="border: 1px solid black; padding: 5px; text-align: center;"> OFFICIAL RELEASE BY WHC DATE 10/4/1989 <i>Lta. 21</i> </div>
10. Impact Level 2		B-6.2

2.0 RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

2.1. RESULTS

The tanks could not be inspected internally and a full pressure test could not be performed because of operating and radiological exposure concerns (see Section 6.3). The exteriors of the tanks were inspected visually and ultrasonically. The external visual inspection found the following (see Section 6.1):

- o Some of the tank walls were stained from liquid overflow. Others were covered with light, superficial rust. Neither of these conditions were significant. (Especially in light of the ultrasonic test results.)
- o The conical roofs have collapsed and are essentially flat. The roofs apparently collapsed when the liquid was drained from the tanks and a vacuum was formed. The tanks were, at that time, improperly vented. Most of the damage was in the form of gentle ripples.
- o There was no apparent mechanical damage to the cylindrical tank walls.

The ultrasonic inspection of the lower two (2) shell courses showed that they were significantly thicker than the drawings specified and that no pitting corrosion was evident (see Section 6.2).

The design of the tanks was checked using API-650 where it applied. The shell courses and the bottom of the tank were adequately designed. The roofs were not designed for structural support and served only as covers for the tanks (see Section 4.0).

2.2. CONCLUSIONS AND RECOMMENDATIONS

The tanks can safely be used to contain the Radioactive Liquid Waste (RLW) that is specified in *340 Facility Waste Management* (WHC, 1988).

The tanks are several decades old. While the currently specified waste stream is compatible with the wetted material of the tanks (see Section 5.0), the previous operating environment is uncertain. Stress corrosion cracking or other damage to the inside of the tank can not be completely ruled out since an internal inspection could not be performed.

The measured wall thickness of the tanks is significantly greater (approximately seven (7) times) than that required to resist the static liquid pressure head. In addition, the carbon steel reinforcing bands were conservatively ignored in the calculation. Any failure that the tanks would experience because of undetected cracks would be expected to be in the form

WHC-SD-WM-DA-052

Rev. 0

of leaks rather than catastrophic failure. Secondary containment should be provided to capture such leaks should they occur. Such secondary containment will eventually be required to satisfy the requirements of the WAC.

The vent system was not investigated as part of this study. It should be investigated as part of the future tank system integrity analysis. These tanks should be properly vented to preclude tank collapse due to external pressure. Operations should insure that their inspection and operating procedures will preclude the vent from becoming blocked and further damaging the tanks by subjecting them to an internal vacuum.

A periodic inspection program should be developed to meet the requirements of the WAC. This program should be developed in conjunction with the inspection program for the balance of the tank system when the full system assessment is performed.

APPENDIX C

ENVIRONMENTAL REVIEW COMPLIANCE ASSESSMENT INSPECTION CHECKLIST

APPENDIX C

ENVIRONMENTAL REVIEW COMPLIANCE ASSESSMENT INSPECTION CHECKLIST

This checklist forms a focal point for conducting the compliance assessment for the 340 Facility. This checklist has been prepared by WHC to conduct environmental compliance. The matrix (Appendix A) for compliance evaluation was developed based on this checklist. The item numbers of matrix closely track the corresponding numbers of this checklist.

ENVIRONMENTAL REVIEW COMPLIANCE ASSESSMENT INSPECTION CHECKLIST

A "yes" response indicates that a follow-up self-assessment inspection is needed for the stated area of environmental concern. All "yes" responses should be discussed in the "Comments" section.

<u>General Requirements</u> (WHC-CM-7-5)	<u>YES</u>	<u>NO</u>
1. Do you manage a facility that produces nonradioactive airborne emissions? If yes see, "Nonradioactive Airborne Effluent Sampling and Monitoring".	—	—
2. Do you manage a facility that produces radioactive airborne emissions? If yes, see "Radioactive Airborne Effluent Sampling and Monitoring".	—	—
3. Do you manage a facility that produces nonradioactive liquid effluents? If yes, see "Nonradioactive Liquid Effluent Sampling and Monitoring".	—	—
4. Do you manage a facility that produces radioactive liquid effluents? If yes, see "Radioactive Liquids Effluent Sampling and Monitoring".	—	—
5. Do you manage a demolition pit or inert landfill? If yes, see "Demolition Pit and Inert Landfills".	—	—
6. Do you manage the Central Landfill? If yes, See "Central Landfill".	—	—
7. Do you manage a lead inventory? If yes, see "Lead Management".	—	—
8. Do you use or store pesticides or herbicides? If yes, see "Pesticide Use and Control".	—	—
9. Do you manage a satellite accumulation area? If yes, see "Satellite Accumulation Area".	—	—
10. Do you manage a less than 90-day waste storage area? If yes, see "Less Than 90-Day Waste Storage Area".	—	—
11. Do you manage an interim status treatment, storage, or disposal facility? If yes, see "Interim Status TSD Facilities".	—	—
12. Do you manage an interim status dangerous or mixed waste tank? If yes, see "Dangerous/Mixed Waste Tanks and Ancillary Equipment".	—	—

13. Do you manage an interim status waste pile? If yes, see "Interim Status Waste Piles". ___ ___
14. Do you manage an interim status landfill? If yes, see "Interim Status Landfill"? ___ ___
15. Do you store PCBs for disposal? If yes see "PCB Storage for Disposal". ___ ___
16. Do you temporarily store PCBs? If yes, see "Temporary Storage of PCB Materials". ___ ___
17. Do you manage PCB transformers and large capacitors? If yes, see "PCB Transformers and Large Capacitors". ___ ___
18. Do you manage a less than 90-day waste tank? If yes, see "Less Than 90-Day Waste Tank". ___ ___
19. Do you manage aboveground petroleum and material storage tanks? If yes, see "Aboveground Petroleum and Material Storage Tanks".

Comments (Explain all "No" answers): _____

**COMPLIANCE ASSESSMENT CHECKLIST
RADIOACTIVE AIRBORNE EFFLUENT SAMPLING AND MONITORING**

Facility Inspected: _____

Inspector: _____ Signature: _____ Date: _____

General Requirements: (WHC-CM-7-5, Section 2, Rev 0) YES NO

1.	Has the Facility Effluent Monitoring Plan been reviewed and updated in the last twelve months for consistency with the present operation of the facility? (5.4.3.1.b)	___	___
2.	Are continuous monitoring and alarm systems provided for all systems that have the potential to exceed 0.01 mrem/yr EDE to the maximally exposed individual? (2.5.3.1, Table 2.2)	___	___
3.	Are audible and visible indications easily discernible to responsible personnel in continuously or frequently occupied areas? (2.5.3.5)	___	___
4.	On continuous monitoring systems, are alarms set at release concentrations as low as possible without resulting in spurious alarms? (2.5.3.7.a)	___	___
5.	Can alarms annunciate at the time-integrated equivalent concentration equal to a four-hour release at 5,000 times the DCG values? (Note: monitors for gases such as krypton, argon, radon, etc., are excluded from this requirement) (2.5.3.7.b)	___	___
6.	Are the air monitoring systems powered from a source that has the same or equivalent emergency power capability as the air mover for the effluent stream being monitored? (2.5.3.10)	___	___
7.	Is there record sampling of all radioactive airborne effluent streams with potential to exceed 10% of any DCG value on an annual average? (2.5.4.3)	___	___
8.	Do record sampling systems provide representative (i.e., near-isokinetic) samples of the effluent stream being discharged to the environment? (2.5.4.5)	___	___
9.	Does each airborne effluent release point have a unique identification number, and does each sample point have a unique electronic data processing code? (2.5.4.6)	___	___
10.	Are stack record air samples (or other documented alternative air sampler) collected and submitted for analysis at least once per week? (2.5.4.8)	___	___
11.	Are specific radionuclide analyses performed on quarterly composites of record samples as required? (2.5.4.10)	___	___

**COMPLIANCE ASSESSMENT CHECKLIST
RADIOACTIVE AIRBORNE EFFLUENT SAMPLING AND MONITORING**

12. Is the annual average concentration of radionuclides released to the environment less than the DCG values specified in Appendix C of the ECM? [See 2.5.2.3.1 for specific exceptions.] (2.5.2.1.2)	—	—
Records Requirements: (WHC-CM-7-5, Section 2, Rev 0)	<u>YES</u>	<u>NO</u>
13. Are monthly source checks of monitoring equipment performed using NIST traceable sources? (2.5.4.9.b)	—	—
14. Are all radioactive airborne effluent sampling systems calibrated at least annually or whenever maintenance or modification may affect equipment calibration in accordance with the manufacturer's specifications or applicable ANSI 42.18 standards? (2.5.4.9)	—	—
15. Are flow meters and flow totalizers cleaned and calibrated within $\pm 10\%$ of the normal operating flow rate at least annually? (2.5.4.8)	—	—
16. Are the exact conditions of calibration (calibration points, range, traceability to the NIST) specified and documented in the Facility Environmental Monitoring Plan? Are monitoring systems recalibrated at least annually? (2.5.4.9)	—	—
17. Are records of maintenance, calibrations, system anomalies, etc. kept for each instrument for a period of at least two years in accordance with DOE Order 5700.6c and WHC-CM-3-5 (2.5.3.9)	—	—
18. Are stack flow rates determined at least annually, after any equipment or process modification, and upon completion of in-place leak tests? (2.5.6.1)	—	—
19. Are record sampling schedules being followed by the facility? (2.5.4.13.)	—	—
20. Are daily operational checks being performed and documented on record samplers and continuous monitors? (2.5.4.3) (2.5.3.11)	—	—
21. Are leak tests performed on HEPA filters at least annually using DOE approved methods? (2.5.5.2.2.a)	—	—

Comments (Explain all "No" answers):

**COMPLIANCE ASSESSMENT CHECKLIST
RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING**

Facility Inspected: _____

Inspector: _____ Signature: _____ Date: _____

General Requirements: (WHC-CM-7-5, SECTION 8, REV 0) YES NO

1. Has the Facility Effluent Monitoring Plan (FEMP) been reviewed and updated in the last 12 months for consistency with the present operation of the facility? (5.4.3.1.b) _____

2. Is continuous radionuclide monitoring provided on those release points that could (1) exceed one DCG equivalent at the point of release averaged over 1 year or (2) result in unanticipated releases to the environment that could exceed one DCG averaged over one year? (8.4.2.8.4.a) (8.4.2.8.4.b) _____

a. Are continuous effluent streams monitored for each type of radiation, radionuclide, or indicator material that has the potential for exceeding the discharge limits? (note: In cases where unusual increases in one type of radioactivity are accompanied by increases in another type and in a consistent ratio, then gamma monitoring alone may be used.) (8.4.2.8.5) _____

b. On continuous monitoring systems, are alarms set at release concentrations as low as possible without resulting in spurious alarms? (8.4.2.8.11) _____

c. Are monitoring alarm/waste diversion set-points set to allow sufficient margin between the discharge alarm limits and the nominal trip set-points? (8.4.2.8.10) _____

d. Are audible and/or visible high-level radiation alarm indicators located in areas continuously occupied by operating personnel? (8.4.2.8.12) _____

3. Is there record sampling of all radioactive effluent streams with potential to exceed 4% of the DCG values (annual average) listed in Appendix C? (8.4.2.8.15) _____

a. Do effluent record sampling systems provide representative proportional samples of the effluent stream being discharged to the environment? (8.4.2.8.13) (8.4.2.8.9) _____

b. Is the frequency of record sampling such that sampling is representative during both normal and upset conditions? (8.4.2.8.4) (8.4.2.8.3) _____

**COMPLIANCE ASSESSMENT CHECKLIST
RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING**

<u>General Requirements Continued:</u>		<u>Yes</u>	<u>No</u>
3c.	Are flow rates of all continuous effluent streams (except N Springs) measured and/or monitored? (8.4.2.8.13)	—	—
4.	For effluent streams requiring sampling, are volume, flow rate, and radionuclide concentrations being measured at a point which most closely represents the effluent that is being released to the environment? (8.4.2.8.13)	—	—
5.	For batch releases, are representative samples of the effluent collected, analyzed, and documented prior to release. (8.4.2.8.14)	—	—
6.	Does the location of the sampling system consider environmental conditions (temperature, humidity, radiation levels, vapors, etc.) which would influence the operation of the equipment or pose an unacceptable risk to human health and safety? (8.4.2.8.8)	—	—
7.	Do sampling and monitoring systems have appropriate redundancy (e.g., back-up power, back-up sampling capabilities, an alternate method for estimating releases, etc.) to ensure that no unsampled releases occur? (8.4.2.8.4) (8.4.2.10.3)	—	—
8.	Are all record effluent monitoring and sampling devices calibrated at least annually in accordance with manufacturer's specifications and DOE/EH-0173T? (8.4.2.9.1) (8.4.2.9.3)	—	—
9.	Are sampling and monitoring systems maintained in accordance with manufacturer recommendations and inspected weekly for proper operation (or deviations documented in the FEMP)? (8.4.2.9.2)	—	—

Comments (Explain all "No" answers):

**COMPLIANCE ASSESSMENT CHECKLIST
NON-RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING**

Facility Inspected: _____

Inspector: _____ Signature: _____ Date: _____

<u>General Requirements:</u> (WHC-CM-7-5, Section 8.0, REV 0)	<u>YES</u>	<u>NO</u>
1. Has a Facility Effluent Monitoring Plan (FEMP) determination been prepared for the facility? (8.3.1.1)	___	___
2. Does the facility have a working system for collecting effluent samples and delivering them for analysis? (8.3.1.1.11)	___	___
3. Does the facility have a chain-of-custody system for liquid effluent samples? (8.3.1.1.10)	___	___
4. Is the sampling and monitoring equipment inspected regularly for proper operation? (8.3.1.1.12)	___	___
5. Is there monitoring or sampling of all effluent streams with potential to increase the concentration of the stream mixture into the dangerous waste category? (8.3.8.2)	___	___
6. For batch release systems not having monitoring and alarms, are batches retained until laboratory analyses indicate that they are releasable (8.3.8.3)	___	___
7. For potentially corrosive waste streams, are equipment and methods for measuring, recording, and reporting the pH provided? (8.3.8.4)	___	___
8. For continuous, potentially corrosive streams, is continuous pH monitoring with alarm capabilities provided? (8.3.8.4)	___	___
9. Do record monitoring systems have back-up power to ensure that no unmonitored releases occur due to power failure? (8.3.8.5)	___	___
10. Are all monitoring points downstream of any treatment systems but prior to release to the environment? (8.3.8.6)	___	___
11. Are all devices for measuring liquid effluents calibrated periodically in accordance with manufacturer's requirements and recommendations? (8.3.8.7)	___	___
12. Does the facility maintain an auditable record of maintenance, calibrations, etc. for each record monitoring system for a period of at least three years? (8.3.3.8)	___	___

**COMPLIANCE ASSESSMENT CHECKLIST
NON-RADIOACTIVE LIQUID EFFLUENT SAMPLING AND MONITORING**

<u>General Requirements (continued)</u>	<u>YES</u>	<u>NO</u>
13. Is there sampling of all effluent streams where there is a potential for equivalent concentrations of contaminants to exceed 0.001 weight percent? (8.3.9.1)	—	—
14. Is sampling performed in a manner that provides representative measurements of the volume and concentration of pollutants released to the environment? (8.3.9.2)	—	—
15. Is measurement of volume, flow rate, and concentrations being made downstream of any treatment systems but prior to exiting the pipeline or mixing with streams from other facilities? (8.3.9.3)	—	—
16. Are surface ponds sampled and analyzed at least quarterly for pH, nitrate, and any suspected deleterious chemicals identified in effluent monitoring plans? (8.3.9.5)	—	—

Comments (Explain all "No" answers): _____

**COMPLIANCE ASSESSMENT INSPECTION CHECKLIST
LEAD MANAGEMENT**

Facility Inspected: _____

<u>General Requirements</u> (WHC-CM-7-5, Section 7.0, REV 0)	<u>YES</u>	<u>NO</u>
1. Are lead materials categorized as necessary inventory or excess effective January 1 of each calendar year?(7.7.4.1a)	___	___
2. Is lead classified as necessary inventory consolidated in a single storage area and protected from the elements (on covered pallets or inside a structure)? (7.7.4.2a)	___	___
3. For lead classified as necessary inventory, can it be demonstrated that the facility has control over the lead? (7.7.4.1b)	___	___
4. Does the facility use and maintain an inventory system to track (by quantity and location) hard lead inventory, estimated lead inventory, and lead necessary for permanently installed, and inactive facilities? (7.7.4.1b)	___	___
5. For lead material categorized as excess, is another use or user identified or is the lead shipped for reclamation and recycling within 180 days after being declared excess? Inventory sheets or shipping records can be used to document this. (7.7.4.1c)	___	___
6. Before procuring new lead supplies, does the facility attempt to locate excess lead onsite?(7.7.4.3)	___	___
7. Do the inventory records show that the generator is not speculatively accumulating excess lead? (Materials are not considered accumulated speculatively if at least 75% of the inventory on January 1 has been used by the end of that calendar year.) (7.7.4.4)	___	___
8. Is waste lead (non-radioactive or radioactive) properly handled as dangerous waste or mixed waste? (See the appropriate checklists for radioactive solid waste and/or satellite accumulation or less-than 90-day storage requirements.) (7.7.4.5)	___	___
9. If it is economically feasible and justifiable, is radioactively contaminated lead waste decontaminated to levels below that requiring control as radioactive material? (7.7.4.7)	___	___

Comments (Explain all "No" answers): _____

AI No. _____

**ASSESSMENT INSPECTION CHECKLIST
SATELLITE ACCUMULATION AREAS**

Facility Inspected: _____

Inspector: _____ Signature: _____ Date: _____

<u>Container Requirements:</u> (WHC-CM-7-5, Section 7.8)		<u>YES</u>	<u>NO</u>
1.	Are satellite accumulation areas located at or near the point of generation where wastes initially accumulate? If the accumulation point is not in the same room as the process generating the waste, does the generator understand the rationale and reasons for the container location? (7.8.2.2.1 a)[WAC-173-303-200(2)(c)]	___	___
2.	Are the containers under the control of the operator of the process generating the waste? Can the generator ensure that unauthorized additions to a container is prevented? (7.8.2.2.1 b)[WAC-173-303-200(2)(c)]	___	___
3.	Are all containers closed when not being filled or emptied? [The container will be considered closed if the closure mechanism will prevent a spill of the waste when a container is tipped over]. (7.8.2.2.1 c) [WAC-173-303-630(5)(a)]	___	___
4.	Are the containers or liner compatible with the waste accumulated? Has the generator consciously evaluated compatibilities? (7.8.2.2.1 d)[WAC-173-303-630(4)]	___	___
5.	Are the containers in good condition? Look for leaks, bulges, or corrosion. (7.8.2.2.1 e) [WAC-173-303-630(2)]	___	___
6.	Are all containers properly labeled? (7.8.2.2.2 c) [WAC-173-303-200(1)(d)]		
	a. Major risks [corrosive, flammable, oxidizer, toxic, etc.]	___	___
	b. "Hazardous Waste"	___	___
7.	Are labels readable and unobscured? (WAC-173-303-630(3))	___	___
8.	Is there less than 55 gallons [DW] or 1 quart [Acutely Hazardous Waste] of waste accumulated for each waste stream? (7.8.2.2.1 g)[WAC-173-303-200(2)(c)]	___	___

9. Has the generator taken appropriate steps to obtain a designation of the waste generated? (7.8.2.2.1 i) [WAC-173-303-300(1)] — —

11. Are containers that have reached or exceeded the threshold quantity limits promptly dated and moved to a 90-day area [within 72 hours]? (7.8.2.2.2 i) [WAC-173-303-200(2)(c)] — —

Records Requirements: (WHC-CM-7-5, Section 7.8) YES NO

12. Is a container inventory sheet required? Required when process knowledge can not complete the waste designation (e.g., calculation of waste matrix weight percents)? [WAC-173-303-210(3)] — —

If yes,

Is the container inventory log current and complete [type of waste added, volume, date, and person adding waste]? — —

13. Does the facility have a waste/safety equipment inspection plan and schedule for containers, safety equipment, and emergency equipment? (containers must be inspected weekly. Other items may be inspected less frequently [i.e fire extinguishers - monthly]) (7.8.2.1.5) [WAC-173-303320(2)] — —

14. Are the inspections current and complete? (7.8.2.1.5) [WAC-173-303-300(2)]

a) Date and time of inspection — —

b) Printed name and hand written signature of the inspector — —

c) Notation of leaks or spills and required corrective actions — —

15. Are inspection records being kept for at least five years? [WAC-173-303-320(2)(d)] — —

16. Are the operator's personnel trained to handle hazardous waste? (11.4.2.1.3 c)) [WAC-173-303-330(1)]

a) Generator Hazard Safety Training — —

b) Facility specific training (previously referred to as 20006H or OJT training) — —

AI No. _____

Comments (Explain all "No" answers): _____

AI No. _____

**ASSESSMENT INSPECTION CHECKLIST
LESS-THAN 90-DAY WASTE STORAGE AREAS**

Facility Inspected: _____

Inspector: _____ Signature: _____ Date: _____

<u>Container Storage Area Inspection List</u> (WHC-CM-7-5, Sec. 7.8)	<u>YES</u>	<u>NO</u>
1. Is the storage area designed, constructed, maintained, and operated to minimize the potential for fire, explosion, or release of dangerous waste? (7.8.2.4.6 a) [WAC-173-303-340]	___	___
2. Are safety and emergency equipment present based on the type of dangerous waste being managed to minimize the potential for fire, explosion, or release of dangerous waste? (7.8.2.4.6 b) [WAC-173-303-340(1)(a-d)]		
(1) Internal communications or alarm systems capable of providing emergency instruction to facility personnel.	___	___
(2) Telephones or other devices capable of summoning external emergency assistance.	___	___
(3) Portable fire control equipment.	___	___
(4) Spill control and decontamination equipment.	___	___
(5) Water at adequate volume and pressure to supply fire suppression systems.	___	___
3. Is secondary containment required for the container storage area based on the types of waste accumulated according to WAC-173-303-630(7)? (7.8.2.4.5 g)	___	___
If yes,		
a. Does the container storage area have an impervious base (free of cracks or gaps) that is designed to collect and hold spills and leaks?	___	___
b. If the containers are not elevated, is the secondary containment sloped or operated to drain and remove liquids?	___	___
c. If the storage area is uncovered, is the secondary containment capable of collecting and holding additional volume from a maximum 25 year 24 hr storm (1.6 inches of water)?	___	___

d. Does the secondary containment have sufficient capacity to contain 10 percent of the volume of all containers or the volume of the largest container, whichever is greater? Only containers holding free liquids (bulk drums) and F020-F027 waste need be considered.	—	—
e. Is run-on into the secondary containment system prevented?	—	—
f. If Extremely Hazardous Waste is accumulated, are the containers protected from the elements by means of a building or other protected cover that still allows inspection? (i.e., no yellow plastic)	—	—

<u>Container Requirements</u> (WHC-CM-7-5, Section 7.8)	<u>YES</u>	<u>NO</u>
4. Are the containers in good condition? Look for leaks, bulges, or corrosion. (7.8.2.4.5 a) [WAC-173-303-630(2)]	—	—
5. Are the containers or liner compatible with the waste accumulated? (7.8.2.4.5 b)[WAC-173-303-630(4)]	—	—
6. Are all containers closed when not in use? [The container will be considered closed if the closure mechanism will prevent a spill of the waste when the container is tipped over]. (7.8.2.4.5 c)[WAC-173-303-630(5)(a)]	—	—
7. Are containers properly labeled? (7.8.2.4.5 d)[WAC-173-303-630(3)]		
a. Major risks [corrosive, flammable, oxidizer, toxic, etc.]	—	—
b. "Hazardous Waste"	—	—
8. Are the labels readable and unobscured? (WAC-173-303-630(3))	—	—
9. Is the 90 day accumulation area inventory accurate and up to date? (7.8.2.4.5 e)[WAC-173-303-210(3)]	—	—
10. Is the date upon which the 90-day accumulation period begins marked on each container? (7.8.2.4.5 h)[WAC-173-303-630(3)]	—	—
11. Are labels removed from containers which previously held dangerous waste unless the container will continue to hold dangerous waste? (WAC-173-303-630(3))	—	—

12. Is there adequate aisle space between containers?
(30 inches minimum) (Drums in rows cannot be more than
two drums wide) (7.8.2.4.5 i) [WAC-173-303-340(3)]	—	—
13. Have all containers been stored for less than 90 days?
(7.8.2.4.1)[WAC-173-303-200(1)]	—	—
14. Are incompatible wastes separated by means of a dike,
berm, wall, or other device? (7.8.2.4.5 j)[WAC-173-303-
630(9)(c)]	—	—
15. Are incompatible wastes provided with a separate
secondary containment system? (7.8.2.4.5 j)[WAC-173-303-
630(9)(c)]	—	—
16. If ignitable or reactive waste is being accumulated on
the container storage area, are annual Fire inspections
being performed? (7.8.2.4.5 f)[WAC-173-303-630(8)]	—	—
17. Have ignitable or reactive wastes been determined to be
stored in compliance with the applicable fire protection
requirements? (7.8.2.4.5 f)[WAC-173-303-630(8)]	—	—

Records Requirements (WHC-CM-7-5, Section 7.8)

18. Does the facility have an inspection plan/procedure and
schedule for containers, safety equipment, emergency
equipment, and container storage area conditions?
(Containers must be inspected weekly. Other items may
be inspected less frequently [i.e fire extinguishers -
monthly]) (7.8.2.1.5)[WAC-173-303-320(1),(2)]	—	—
19. Are the inspection records current and complete?
(7.8.2.1.5)[WAC-173-303-320(2)(d)]		
a. Date and time of inspection	—	—
b. Printed name and hand written signature of the
inspector	—	—
c. Notation of leaks or spills and required corrective
actions	—	—
20. Are inspection records being kept at the facility for at
least five years?[WAC-173-303-320(2)(d)]	—	—

21. Does the facility have a training plan associated with the container storage area? (7.8.2.1.4)[WAC-173-303-330(1)] — —
- a. Does the training plan identify, for each position related to dangerous waste management, the job title, job description, and the name of the employee filling each job, and a description of the training required?[WAC-173-303-330(2)(a)] — —
- b. Are training records for former employees kept for five years from last date of employment?[WAC-173-303-330(3)] — —
- c. Do facility personnel participate in an annual review of the training provided in the program? [WAC-173-303-330(1)(b)] — —
- d. Do new employees receive training within 6 months of employment and are supervised by qualified personnel until completion of training?[WAC-173-303-330(1)(c)] — —
22. Does the facility have a contingency plan associated with the container storage area? (7.8.2.4.7)[WAC-173-303-350(2)] — —
- a. Is the plan up-to-date?[WAC-173-303-350(2)] — —
- b. Does the plan contain a description of actions to take in emergency situations?[WAC-173-303-350(3)(a)] — —
- c. Does the plan contain a current list of names, addresses, and phone numbers of all persons qualified to act as the emergency coordinator? [WAC-173-303-350(3)(d)] — —
- d. Does the plan contain a list of all emergency equipment at the facility including the location, physical description and a brief outline of its capabilities?[WAC-173-303-330(3)(e)] — —
- e. Is a copy of the plan kept in offices at the facility of personnel with emergency responsibilities assigned?[WAC-173-303-350(4)] — —
- f. Have dangerous waste personnel been trained to the contingency plan?[WAC-173-303-330(1)] — —

AI No. _____

23. Are copies of any test results, waste analyses, inventory sheets, or other documentation generated for designating a solid waste kept for at least 5 years from the date of transport from the generating facility? (7.8.2.1.8 a)[WAC-173-303-210(3)] ☐ ☐
24. Are copies of any test results, waste analyses, or other documentation generated for designating an unknown or suspect waste kept for at least 5 years from the date of transport from the generating facility? (7.8.2.4.7 a) [WAC-173-303-210(3)] ☐ ☐
25. Are manifest records being retained? (7.8.2.1.8 c) [WAC-173-303-210(1)] ☐ ☐
26. Are all unknown or suspect wastes being managed as dangerous or mixed waste until designation is complete? (7.8.2.3.3)[WAC-173-303-300] ☐ ☐

Comments (Explain all "No" answers): _____

2 of 2

**SURVEILLANCE/COMPLIANCE INSPECTION CHECKLIST
LESS-THAN 90-DAY WASTE TANKS**

<u>Tank Requirements (continued):</u>	<u>YES</u>	<u>NO</u>
9. Are tank spills and overfills prevented by using the controls specified at 40 CFR Part 265.194 (b)? (7.12.2.1.1f2)	—	—
10. Are tanks marked to identify waste and major risks associated with the waste? Are the marks legible at a distance of 50ft.? Is the tank marked with the words "dangerous waste" or "hazardous waste"? (7.12.2.1.1f3, 7.12.2.1.2d)	—	—
11. Is tank containing extremely hazardous waste that is acutely or chronically toxic by inhalation designed to prevent escape of vapors, fumes, or other emissions into the air? (7.12.2.1.2g)	—	—
12. Is a written inspection schedule in place for periodic inspection of monitoring equipment, safety/emergency equipment, security devices, and operating/structural equipment associated with the tank system? Are inspection logs maintained for three years from the date of the last inspection? (7.12.2.1.2i)	—	—
13. Are daily visual inspections conducted of the overfill/spill equipment, aboveground portion of the tank system, monitoring and leak detection data, and construction materials and area immediately surrounding the externally accessible portion of the system to insure operability and detect deterioration? Are the required visual inspection records maintained in the facility operating record? (7.12.2.1.1g)	—	—
14. If the system utilizes the a cathodic protection system, is the system inspected in accordance with the schedule identified at 400 CFR 265.195 (b)? Are the records maintained in the facility operating record? (7.12.2.1.1g)	—	—

15. Are the following actions taken in the response to a all _____
leaks and spills from the system ? _____

- a. Has the system been removed from service and the flow or addition of waste to the tank prevented?
- b. Is the waste removed from the tank system or secondary containment within 24 hours or as soon as practicable?
- c. Is all material released to secondary containment removed within 24 hours or as soon as practicable?
- d. Has the release been reported to Environmental Compliance Support?
- e. If a release has reached the environment, has a report been prepared addressing the items listed in 40 CFR 265.196 (a)(3)(i) through (a)(3)(v)
(7.12.2.1.1h)

16. Have ignitable and reactive wastes been stored in tanks such that no unsafe conditions exist and human health and the environment are protected? (7.12.2.1.1k) _____

17. Are incompatible wastes prohibited or placed in a tank system such that unsafe conditions are prevented and human health and the environment are protected? (7.12.2.1.1l) _____

18. Were waste analysis and trial tests performed prior to addition of waste that is substantially different from waste already stored in the tank system? If no waste tests were performed, is documentation in place on similar waste under similar conditions that shows the proposed addition will not cause any failure of the tank system? (7.12.2.1.1m) _____

19. Have tanks been repaired after spills or leaks in accordance with the requirements or closed in accordance with 40 CFR 295.196(e)? (7.12.2.1.1i) _____

20. Do tanks used to store wastes F020, F021, F022, F023, F026, and F027 comply with the special requirements specified in WAC 173-303-640? (7.12.2.1.2j) _____

Comments (Explain all "No" answers): _____

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