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ENVIRONMENTAL MANAGEMENT

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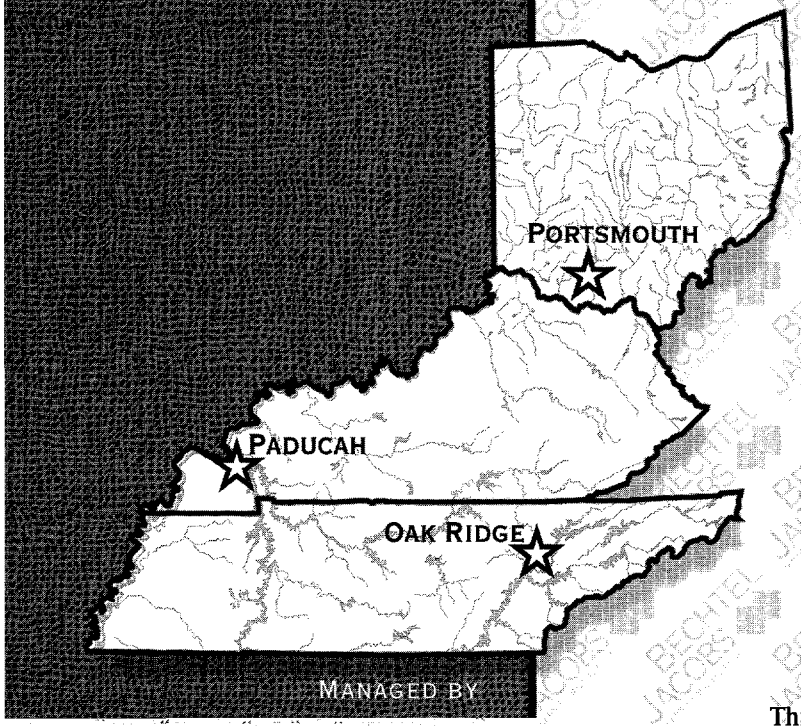
Annual Evaluation of Routine Radiological Survey/Monitoring Frequencies for the High Ranking Facilities Deactivation Project at Oak Ridge, Tennessee

Year 1999



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Year 1999

Date Issued—December 1998

Prepared for the
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BECHTEL JACOBS COMPANY LLC
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Paducah Gaseous Diffusion Plant Portsmouth Gaseous Diffusion Plant
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APPROVALS

Annual Evaluation of Routine Radiological Survey/Monitoring Frequencies for the High Ranking Facilities Deactivation Project At Oak Ridge, Tennessee

December, 1998

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TABLES

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ACRONYMS AND INITIALISMS

BSR	Bulk Shielding Reactor
CAMS	continuous air monitors
D&D	decontamination and decommissioning
EM	Environmental Management
HRFDP	High Ranking Facilities Deactivation Project
LMER	Lockheed Martin Energy Research
ORNL	Oak Ridge National Laboratory
PCA	Pool Critical Assembly
RADCON	Radiological Control
RCT	radiological control technician
S&M	surveillance and maintenance
TSF	Tower Shielding Facility
USQD	Unreviewed Safety Question Determination

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EXECUTIVE SUMMARY

The Bethel Valley Watershed at the Oak Ridge National Laboratory (ORNL) has several Environmental Management (EM) facilities that are designated for deactivation and subsequent decontamination and decommissioning (D&D). The Surplus Facilities Program at ORNL provides surveillance and maintenance support for these facilities as deactivation objectives are completed to reduce the risks associated with radioactive material inventories, etc. The Bechtel Jacobs Company LLC Radiological Control (RADCON) Program has established requirements for radiological monitoring and surveying radiological conditions in these facilities. These requirements include an annual evaluation of routine radiation survey and monitoring frequencies. Radiological survey/monitoring frequencies were evaluated for two High Ranking Facilities Deactivation Project facilities, the Bulk Shielding Facility and Tower Shielding Facility. Considerable progress has been made toward accomplishing deactivation objectives, thus the routine radiological survey/monitoring frequencies are being reduced for 1999. This report identifies the survey/monitoring frequency adjustments and provides justification that the applicable RADCON Program requirements are also satisfied.

1. INTRODUCTION

The Bethel Valley Watershed at the Oak Ridge National Laboratory (ORNL) has several Environmental Management (EM) facilities that are designated for deactivation and subsequent decontamination and decommissioning (D&D). These facilities exist in various stages of deactivation and different facility hazard classifications based on their hazardous material inventories (including radioactive material). Surveillance and maintenance (S&M) activities are also required to reduce the risks associated with these inventories as deactivation objectives are completed and facility D&D begins.

Radiation protection activities are included with facility S&M in two ways. Task-specific radiation and contamination surveys are normally part of radiological control planning and job coverage when S&M activities involve access to locations, systems, or components where there are significant radiological risks. Second, the Bechtel Jacobs Company LLC Radiological Control (RADCON) Program maintains a routine radiological survey/monitoring schedule to ensure compliance with 10 CFR 835, *Occupational Radiation Protection.* The Bechtel Jacobs Company Radiation Protection Program procedure SH-B-4009, "Workplace Monitoring," establishes requirements for monitoring and surveying radiological conditions in the workplace. The procedure also states that "an annual evaluation of routine radiation survey and monitoring frequencies" should be performed and appropriate modifications to the schedule should be based on applicable criteria. This report provides the results for the annual evaluation of the routine radiological surveys performed for the ORNL facilities that are part of the High Ranking Facilities Deactivation Project (HRFDP) for 1999.

2. ROUTINE RADIOLOGICAL SURVEY EVALUATION

In accordance with 10 CFR 835 and the Bechtel Jacobs Company RADCON Program requirements, radiation and contamination surveys shall be performed on a frequency necessary to accomplish the following objectives:

- Document the radiological conditions in the workplace;
- Detect changes in radiological conditions; and
- Verify the effectiveness of physical design features in reducing exposures.

2.1 SCOPE OF EVALUATION

Routine radiological survey frequencies were evaluated for the HRFDP as part of an annual evaluation to ensure compliance with 10 CFR 835 and to accommodate adjustments in conditions and operations in facilities resulting from deactivation progress. This evaluation was also part of the effort to transition facilities from the Lockheed Martin Energy Research (LMER) Radiological Control Program to the recently implemented Bechtel Jacobs RADCON Program. The technical basis for how previous radiological survey frequencies were assigned was not documented in all cases and needed to be verified through meetings with Facility Managers and LMER Surveillance Section Complex Leaders. The following general approach was used:

1. Information on the number, types, and frequencies of routine radiological surveys performed at these facilities was gathered from multiple available sources.
2. The level of effort necessary to perform each survey was estimated.
3. Appropriate facility authorization basis documents and operations manuals were reviewed for consistency with the current survey strategy and for mandatory radiological surveillance drivers.
4. Past radiological survey reports were reviewed for evidence of changing radiological conditions.
5. Facility managers and operations personnel were consulted on potential site problems, deactivation plans, strategies, etc.
6. Walkdowns were performed for selected facilities to compare conditions with documented radiological survey activities.
7. Facility Managers were consulted on any proposed adjustments to survey frequencies.

2.2 MODIFYING SURVEY FREQUENCIES

Survey frequencies depend on established rules governing how often the survey should be performed within an established time interval. Bechtel Jacobs Company Project Health Physicists and RADCON

Field Operations Managers are responsible for annually reviewing survey frequencies for their areas of responsibility. Frequencies can be adjusted during a year for any of the following reasons:

- Changes in the radiological conditions were identified by previous surveys.
- Radioactive material is added or removed from the building inventory.
- Operational or structural changes occur at the facility or adjacent area that have the potential to affect radiological conditions.
- Occupancy of the area changes (increases or decreases).
- Facility authorization basis documents are modified in a way that affects the required level of radiological surveillance/monitoring necessary at the facility.

The following frequency definitions apply to routine radiological surveys performed for the HRFDP:

Daily: Performed each scheduled workday, Monday through Friday (excluding scheduled holidays and days when work is canceled due to inclement weather).

Weekly: Once per week during a normal work week at intervals less than ten calendar days.

Monthly: At least once per calendar month at intervals not to exceed six calendar weeks.

Quarterly: At least once every three calendar months (i.e., four times per year) at intervals not to exceed eighteen calendar weeks.

Semiannual: At least once every six months (i.e., two times each year) at intervals not to exceed eight months.

Annual: Performed once per year at intervals not to exceed 15 months.

3. SURVEY FREQUENCY EVALUATION

The High Ranking Facilities Deactivation Project (HRFDP), is responsible for placing high-risk surplus facilities and associated ancillary facilities at ORNL in a safe, stable, and environmentally sound condition as rapidly and economically as possible. The goal is to permanently deactivate these facilities and transfer stewardship to the ORNL D&D Program. As of 1999, two facilities remain part of the HRFDP; they are the Tower Shielding Facility and Bulk Shielding Reactor.

3.1 TOWER SHIELDING FACILITY

The Tower Shielding Facility (TSF) was designed and built to provide a reactor-generated neutron source for a variety of experiments and programs. At one time, an operating reactor could be lifted to a height of 200 ft. above ground level to conduct experiments without the influence of neutron scattering from the ground or enclosed structure. Although the reactor core is still present along with an operating primary coolant system, much of the radioactive material inventory and hazards have been recently removed. The TSF is classified as a Category 2 facility. However, based on the recent HRFDP deactivation accomplishments at TSF, the level of routine radiological survey and monitoring can be reduced.

Table 1 summarizes the 1999 routine radiological survey frequencies for TSF and identifies where there are differences between previous and proposed frequencies. In cases where routine surveys have been discontinued, the Facility Manager or operators are usually performing periodic S&M walkdowns and will notify RADCON if any unusual circumstances are identified (e.g., leaking pumps, process piping leaks, structural degradation, etc.). In those cases where routine survey frequencies are reduced or discontinued, Appendix A provides a technical justification to demonstrate that compliance with 10 CFR 835.401 is maintained.

3.2 BULK SHIELDING FACILITY

The Bulk Shielding Facility was built in 1951 to house radiation shielding and material effects experiments. The facility consists of a large pool that contained the Bulk Shielding Reactor (BSR) and the Pool Critical Assembly (PCA). The BSR was a source of reactor-generated neutrons that was used for radiation shielding experiments from 1956 to 1987. In 1963 the facility was upgraded to permit continuous operation of the BSR at a higher thermal power level. The PCA was a reactor, very similar to the BSR, with a lower thermal power output. The purpose of the PCA was to support training and for performing special low power tests.

Until recently, the Bulk Shielding Facility pool contained 73 reactor fuel elements and a 10 Ci radium/boron sealed source. Although the fuel has been removed, the Nuclear Hazard Category of the facility is Category 2. Several activated reactor components, drums of slightly activated D_2O moderator, and the 10 Ci radium/boron source remain in the facility.

An Unreviewed Safety Question Determination (USQD), September 1998, has been submitted requesting changes to the Basis for Interim Operations for continued activities in the facility. Since the fuel elements have been removed, the USQD addresses the need for continuous radiation monitoring in the facility. The USQD permits the number of monitrons in the facility to be reduced from six to two (one monitron at pool level and one on the high bay wall). The two continuous air monitors (CAMS) will also

be removed from service when the USQD is approved. Since the facility no longer handles reactor fuel and any pool operations involving radioactive material removal will remove continuous radiological control technician (RCT) coverage, the frequency of routine radiological surveys may be reduced in 1999.

Table 2 summarizes the 1999 routine radiological survey frequency for the Bulk Shielding Facility and ancillary buildings and identifies where there are differences between previous and proposed frequencies. In cases where routine surveys have been discontinued, the Facility Manager or operators are usually performing periodic S&M walkdowns and will notify RADCON if any unusual circumstances are identified (e.g., leaking pumps, process piping leaks, structural degradation, etc.). In those cases where routine survey frequencies are reduced or discontinued, Appendix B provides a technical justification to demonstrate that compliance with 10 CFR 835.401 is maintained.

Table 1. Tower Shielding Facility routine radiological survey frequencies for 1999

Bldg. No.	Area or Location	Type of Survey	1998 Frequency	1999 Frequency	Documented Survey Frequency Changes
7702	Control Room	Contamination survey (LAW)	Weekly	Weekly	
7702	Lunch Room	Radiation and contamination	Weekly	Weekly	
7704	Shop Area	Contamination survey (LAW)	Weekly	Weekly	
7700A	Reactor Turret	Monitron functional test	Weekly	Weekly	
7708	Butler Building	Radiation and contamination	Monthly	Monthly	
7700A	Reactor Turret	Monitron performance test	Monthly	Monthly	
7700A	Reactor Turret	Radiation survey	Quarterly	Quarterly	Changed to only require radiation survey
7720	Civil Defense Bunker Area	Characterization survey	Semiannual	Annual	Survey frequency is reduced to annual from semiannual, but now includes characterization of rubble area
7700	Boneyard (RBA/SCA)	Radiation and contamination	Monthly	None	Monthly survey discontinued
7700	Boneyard (SCA)	Radiation and contamination	Quarterly	None	Quarterly survey discontinued
7700	Grounds	Radiation and contamination	Annual	None	Annual survey discontinued
7700	Reactor Pad	Radiation and contamination	Semiannual	None	Semiannual survey discontinued
7700	Upper Yard	Radiation and contamination	Quarterly	None	Quarterly survey discontinued
7703	Hoist House	Radiation and contamination (smear and LAW)	Annual	None	Annual survey discontinued
7706	Cooling Tower	Contamination	Annual	None	Annual survey discontinued
7707	Battery House (charger area)	Contamination	Annual	None	Annual survey discontinued
7705	Pump House	Radiation and contamination	Weekly	None	Weekly survey discontinued
7716	Filter House	Radiation and contamination	Annual	None	Annual survey discontinued
7700B	Outside Storage Area	Radiation and contamination	Quarterly	None	Quarterly survey discontinued

Table 2. Bulk Shielding Facility routine radiological survey frequencies for 1999

Bldg. No.	Area or Location	Type of Survey	1998 Frequency	1999 Frequency	Documented Survey Frequency Changes
3010	Bay Radiological Buffer Area	Contamination LAW survey	Daily	Daily	
3010	General Area 1st level	Monitron functional test	Weekly	Monthly	USQD-3010-1998-1/R0 permits reducing the number of Monitrons in the facility to two. The number of Monitrons will be reduced when the USQD is approved. The frequency of functional checks will change to monthly.
3010	Bay area	Monitron performance test	Monthly	Quarterly	The number of Monitrons will be reduced when the USQD is approved. The frequency of performance checks will change to quarterly.
3010	1st level	Radiation and contamination	Monthly	Monthly	
3119	BSR pump house/heat exchanger	Radiation and contamination	Monthly	Monthly	Monthly survey may be discontinued when radioactive waste and materials are removed and area surveyed
3010	2nd level	Radiation and contamination	Annual	Annual	
3010	Grounds area	Radiation and contamination	Annual	Annual	
3010	Basement	Radiation and contamination	Monthly	None	Monthly survey discontinued
3010	Bay Area	CAM performance test	Monthly	None	USQD-3010-1998-1/R0 permits removing the CAMs from operation. The CAMs will be removed when the USDQ is approved by DOE.
3010	General Area 2nd level	CAM functional test	Weekly	None	CAMS will be removed when the USQD-3010-1998-1/R0 is approved by DOE.
3117	Cooling tower	Radiation and contamination	Annual	None	Annual survey discontinued

4. REFERENCES

U.S. Department of Energy 1996. *Basis for Interim Operation for the Bulk Shielding Facility*, ORNL/RRD/INT-108/R-1, Lockheed Martin Energy Research Corp., Oak Ridge, Tenn.

U.S. Department of Energy 1996. *Basis for Interim Operation for the Tower Shielding Facility*, ORNL/RRD/INT-109, Lockheed Martin Energy Research Corp., Oak Ridge, Tenn.

U.S. Department of Energy 1996. *Work Plan for the High Ranking Facilities Deactivation Project at the Oak Ridge National Laboratory, Oak Ridge, Tennessee*, ORNL/ER-322, Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

U.S. Department of Energy 1997. *Shutdown Operating Manual for the Bulk Shielding Facility*, ORNL/RRD/INT-103, Lockheed Martin Energy Research Corp., Oak Ridge, Tenn.

U.S. Department of Energy 1998. *Unreviewed Safety Question Determination (USQD) Bulk Shielding Facility Operational Controls*, USQD-3010-1998-1/R0, Bechtel Jacobs Company, LLC, Oak Ridge, Tenn.

U.S. Department of Energy 1998. *Workplace Monitoring*, SH-B-4009, Bechtel Jacobs Company, LLC, Oak Ridge, Tenn.

APPENDIX A

TECHNICAL JUSTIFICATION FOR REDUCING ROUTINE RADIOLOGICAL SURVEY FREQUENCIES AT THE TOWER SHIELDING FACILITY

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BUILDING/LOCATION: Tower Shielding, Bldg. 7720 Civil Defense Bunker Area	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Semiannual	REVISED SURVEY FREQUENCY: Annual

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  Although the area is posted, it is accessible to hunters. The annual survey should provide a good characterization of the rubble pile behind the bunker. As debris are removed, the characterization can be simplified or eventually discontinued.

- **Detecting changes in radiological conditions.**

  Previous surveys have indicated fixed contamination in only a few discrete locations. The annual characterization should provide more information for comparison with future surveys. The improved survey approach should improve the ability to detect changes in radiological conditions.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

BUILDING/LOCATION: Tower Shielding, Bldg. 7700 Boneyard (RBA/SCA)	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Quarterly	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  There has been considerable progress in removing activated materials and debris from the boneyard. At the conclusion of the material removal project, the area will be thoroughly surveyed and soil sampled to ensure that there is no residual contamination that would require follow up routine surveys at that location.

- **Detecting changes in radiological conditions.**

  Once the boneyard is cleaned, there should be no potential for changes in the radiological conditions at that location.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

BUILDING/LOCATION: Tower Shielding, Bldg. 7700 Boneyard (SCA)	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Monthly	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  There has been considerable progress in removing activated materials and debris from the boneyard. At the conclusion of the material removal project, the area will be thoroughly surveyed and soil sampled to ensure that there is no residual contamination that would require follow up routine surveys at that location.

- **Detecting changes in radiological conditions.**

  Once the boneyard is cleaned, there should be no potential for changes in the radiological conditions at that location.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

BUILDING/LOCATION: Tower Shielding, Bldg. 7700 Grounds	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Annual	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  There has been considerable progress in removing activated materials and debris from the boneyard and surrounding Tower Shielding Facility grounds. Although a detailed site characterization survey has not been performed for the grounds, past workplace monitoring surveys provide reasonably good information on the radiological conditions of the grounds. There are two areas where process water storage tanks have been removed that have potential for soil contamination that still need to be investigated.

- **Detecting changes in radiological conditions.**

  Based on the activities planned for the site, there should be no change in the radiological conditions.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

BUILDING/LOCATION: Tower Shielding, Bldg. 7700 Reactor Pad	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Semiannual	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  The reactor pad is relatively free of activated debris, etc. Any maintenance or movement of radioactive materials in the vicinity will include continuous RCT job coverage and follow-up radiation and contamination surveys.

- **Detecting changes in radiological conditions.**

  There should be no potential for changes in the radiological conditions at the reactor pad except for during maintenance, etc.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  The shielding for the reactor will be periodically verified by a separate routine quarterly radiation surveys.

BUILDING/LOCATION: Tower Shielding, Bldg. 7700 Upper Yard	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Quarterly	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  There has been considerable progress in removing activated materials and debris from the boneyard and surrounding Tower Shielding Facility grounds. Although a detailed site characterization survey has not been performed for the grounds, past workplace monitoring surveys provide reasonably good information on the radiological conditions of the upper yard.

- **Detecting changes in radiological conditions.**

  Based on the activities planned for the site, there should be no change in the radiological conditions.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

BUILDING/LOCATION: Tower Shielding, Bldg. 7703 Hoist House	TYPE OF SURVEY: Radiation and Contamination (smear and LAW survey)
PREVIOUS SURVEY FREQUENCY: Annual	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  The Hoist House is currently free of any accumulated radioactive material. The only way for contamination to be introduced into that location is by operating the hoist system. Current plans do not include hoist operation. RADCON will be notified if the hoist system needs to be operated.

- **Detecting changes in radiological conditions.**

  Based on the activities placed for the site, there should be no change in the radiological conditions.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

BUILDING/LOCATION: Tower Shielding, Bldg. 7705 Pump House	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Weekly	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  The contamination in the pump house is limited to internal contamination of one pump. There have been no recent leaks.

- **Detecting changes in radiological conditions.**

  The Facility Manager performs a daily inspection of the pump house and will notify RADCON if any leaks in the system are identified. Activity in the primary coolant is also sampled on a weekly basis. Any changes in the primary coolant may also affect radiation levels in the pump house and RADCON will be notified. However, based on the activities planned for the site, there should be no change in the radiological conditions.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

BUILDING/LOCATION: Tower Shielding, Bldg. 7706 Cooling Tower	TYPE OF SURVEY: Contamination
PREVIOUS SURVEY FREQUENCY: Annual	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  There have been no leaks documented in the cooling tower in over 2 years. Past surveys have not identified any contamination problems

- **Detecting changes in radiological conditions.**

  The Facility Manager will notify RADCON if any leaks in the system are identified. Based on the activities placed for the site, there should be no change in the radiological conditions.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

BUILDING/LOCATION: Tower Shielding, Bldg. 7707 Battery House (and charger room)	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Annual	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  The system is shutdown and in standby. There is no operation that could contaminate this area. Past surveys have not indicated any contamination problems.

- **Detecting changes in radiological conditions.**

  Based on the activities placed for the site, there should be no change in the radiological conditions.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

BUILDING/LOCATION: Tower Shielding, Bldg. 7716 Pump House	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Annual	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  Past surveys have not indicated contamination problems. Access to the filter house is very limited (e.g., visual inspections or radiological surveys).

- **Detecting changes in radiological conditions.**

  The Facility Manager will notify RADCON if any problem develops with the reactor system that may begin loading the filter banks or if any maintenance is scheduled. However, based on the activities planned for the site, there should be no change in the radiological conditions.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  The current plans include maintaining an operational ventilation system. The Facility Manager periodically verifies the ventilation system effectiveness.

BUILDING/LOCATION: Tower Shielding, Bldg. 7700B Outside Storage Area	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Quarterly	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  Surveys in this area were usually associated with movement of source(s) stored in the source storage wells. Further surveys will be included with the source control program (e.g., leak testing, etc.).

- **Detecting changes in radiological conditions.**

  Surveys will be performed during source leak testing or movement of source(s).

- **Verifying the effectiveness of physical design features in reducing exposure.**

  The source(s) is/are stored in locked underground pipes. The area will be periodically inspected by the Facility Manager to ensure that the sources remain locked and secure. The posting in the area will also be verified as part of the source control program.

APPENDIX B

TECHNICAL JUSTIFICATION FOR REDUCING ROUTINE RADIOLOGICAL SURVEY FREQUENCIES AT THE BULK SHIELDING FACILITY

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BUILDING/LOCATION: Bulk Shielding, Bldg. 3010 Basement	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Monthly	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  Past surveys in this area have not indicated any problems. Reactor fuel has been removed from the adjacent pool.

- **Detecting changes in radiological conditions.**

  RADCON will be notified if there is any movement of sources in the adjacent pool or if leaks, cracks, etc. are identified in the basement during periodic inspections, walkdowns, etc.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls in the basement to reduce exposure.

BUILDING/LOCATION: Bulk Shielding, Bldg. 3010 Bay Area	TYPE OF SURVEY: Monitron functional and performance checks
PREVIOUS SURVEY FREQUENCY: Weekly/Monthly	REVISED SURVEY FREQUENCY: Monthly/Quarterly Number of monitrons is also being reduced

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  Since reactor fuel elements have been removed from the facility, a USQD (USQD-3010-1998-1/R0) permits reducing the number of monitrons in the facility to one at the pool level and one on the high bay wall. Once the USQD is approved, functional and performance checks will only be performed on 2 monitrons.

- **Detecting changes in radiological conditions.**

  The USQD specifies that any pool operations, such as removal of radiological material, must be carried out under the appropriate level of RADCON job coverage.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  The key physical design feature in bulk shielding is the pool water level and ventilation system. There are several operational and administrative controls to verify the effectiveness of these engineered controls. RADCON will be notified if problems with these systems are identified.

BUILDING/LOCATION: Bulk Shielding, Bldg. 3010 Bay Area	TYPE OF SURVEY: Continuous air monitor (CAM) functional and performance checks
PREVIOUS SURVEY FREQUENCY: Weekly/Monthly	REVISED SURVEY FREQUENCY: CAMs are being removed

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  Since reactor fuel elements have been removed from the facility, a USQD (USQD-3010-1998-1/R0) permits reducing the radiation monitoring instrumentation in the facility. Once the USQD is approved, the 2 CAMS will be removed and the weekly/monthly functional and performance checks will no longer be necessary.

- **Detecting changes in radiological conditions.**

  The USQD specifies that any pool operations, such as removal of radiological material, must be carried out under the appropriate level of RADCON job coverage.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  The key physical design feature in bulk shielding is the pool water level and ventilation system. There are several operational and administrative controls to verify the effectiveness of these engineered controls. RADCON will be notified if problems with these systems are identified.

BUILDING/LOCATION: Bulk Shielding, Bldg. 3117 Cooling Tower	TYPE OF SURVEY: Radiation and Contamination
PREVIOUS SURVEY FREQUENCY: Annual	REVISED SURVEY FREQUENCY: Discontinued

COMPLIANCE ASSESSMENT *The survey frequency change should not diminish the effectiveness in satisfying the following RADCON Program objectives for the facility:*

- **Documenting conditions in the workplace.**

  Past surveys have not indicated contamination problems. Access to the cooling tower is very limited (e.g., visual inspections or radiological surveys).

- **Detecting changes in radiological conditions.**

  Based on the activities planned for the site, there should be no change in the radiological conditions.

- **Verifying the effectiveness of physical design features in reducing exposure.**

  There are no engineered controls involved in reducing exposure.

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