



# ENERGY NORTHWEST

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GO2-07-110

10 CFR 50.54  
10 CFR 50.4

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

**Subject: COLUMBIA GENERATING STATION, DOCKET NO. 50-397  
INDEPENDENT SPENT FUEL STORAGE INSTALLATION,  
DOCKET NO. 72-35  
REQUEST FOR EMERGENCY PLAN CHANGE**

- References: 1) Letter dated June 30, 1992, RA Scarano (NRC) to GC Sorensen (WPPSS), "Review of the Washington Public Power Supply System Nuclear Project Unit 2 (WNP-2) Emergency Preparedness Plan (EPP), Revision 11, and Emergency Plan Implementing Procedure (EPIP) 13.1.1, Revisions 13 and 14"
- 2) Letter dated December 14, 1993, RJ Pate (NRC) to JV Parrish (WPPSS), "NRC Inspection Report 50-397/93-42"

Dear Sir or Madam:

Pursuant to the Code of Federal Regulations, 10 CFR 50.54(q) and 10 CFR 50.4(b)(5), Energy Northwest hereby submits a proposed change to the Columbia Generating Station (Columbia) Emergency Plan (E-Plan). This E-Plan change requests removal of predetermined effluent radiation monitor threshold readings for the Emergency Action Levels (EALs), presented in Section 4, Table 3, "Effluent Monitor Classification Thresholds." Energy Northwest relies on a computerized dose assessment program to identify offsite dose release rates and the applicable EALs. Upon approval, Energy Northwest will remove the information from the Emergency Plan Implementing Procedure (EPIP) 13.1.1, "Classifying the Emergency."

Gaseous effluent monitor classification thresholds were added to the Energy Northwest emergency classification scheme as a result of comments made during an NRC review of E-Plan, Revision 11 and EPIP 13.1.1, Revisions 13 and 14 (Reference 1). The NRC subsequently accepted the addition of effluent radiation monitor classification thresholds to EPIP 13.1.1, Revision 18 as satisfactorily addressing these comments (Reference 2).

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The E-Plan change proposed by this submittal has been reviewed considering the requirements of 10 CFR 50.54(q), 10 CFR 50.47(b), and 10 CFR 50 Appendix E. The review determined that removing Table 3, "Effluent Monitor Classification Thresholds," from the E-Plan classification scheme constitutes a decrease in effectiveness because it removes information that Energy Northwest personnel could use to classify an event.

Table 4-1 of the E-Plan describes the categories of events and conditions indicative of an emergency. Category 5 in Table 4-1 is radioactivity release. In Category 5, the EALs are based either on offsite dose calculations or on measured radioactivity levels compared with limits established in the Offsite Dose Calculation Manual (ODCM). As directed in Table 4-1, Energy Northwest would only use the information in Table 3 if the computerized dose assessment program, Quick Emergency Dose Projection System (QEDPS) were not available. The change will enhance the E-Plan by focusing EAL classification for gaseous releases on a simple, concise, stand-alone computerized dose assessment program, QEDPS. The program is available on multiple computers in the Emergency Response Facilities and uses the most recent effluent monitor, plant, and meteorological data for accurate dose projections. Table 4-1, in both Category 5 and Table 4, contains the emergency action levels for gaseous releases based on the dose projected by the QEDPS.

In addition to EALs based on the gaseous effluent monitors, Table 3 lists threshold values for declaration of an Unusual Event (UE) and an Alert based on liquid effluent monitors. Category 5, shown in Table 4-1, adequately assigns EALs based on liquid effluent releases, as multiples of the limits in ODCM Sections 6.2.1.1 and 6.2.1.2. Energy Northwest established these limits to preclude challenging the limits in 10 CFR 20, Appendix B, Table 2, Column 2, for liquid effluents released to the environment. The NRC established limits in Column 2 using factors such as annual water intake for the "Reference Man," because the liquid releases contribute to dose by consumption rather than inhalation. The liquid releases do not contribute to the dose projections calculated by QEDPS.

Energy Northwest added the EALs for gaseous releases based on the QEDPS projection and for liquid releases based on the ODCM to the E-Plan in Revision 15 in March 1995.

Removing Table 3 will not result in increased dose to the public; will not degrade the ability to estimate dose to the public; and will not cause any relaxation in the capability or timing of the emergency response organization to respond to an emergency. Removing Table 3 will not result in the degradation or loss of the capability to perform a function or to perform a function in a timely manner.

Attachment 1 presents a synopsis of the proposed change to the E-Plan. Attachment 2 provides the justification for the change. Attachment 3 provides marked-up pages of the E-Plan showing the proposed change. The Energy Northwest Corporate Nuclear Safety Review Board (CNSRB) has reviewed and approved the proposed change for submission to the NRC.

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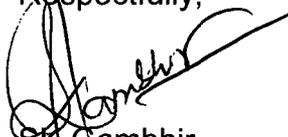
Energy Northwest respectfully requests NRC staff review and approval of this submittal within 120 days. Energy Northwest will be upgrading the Columbia effluent monitoring instrumentation over the next few months. This modification will require that Energy Northwest revise Table 3. There are considerable costs associated with revising the E-Plan, procedures, and hard backed EAL charts. There are additional costs associated with the required operator and emergency response staff training. Retaining Table 3 and making the required changes will not provide any corresponding increased ability to make prompt emergency classifications or to develop Protective Action Recommendations (PARs) to protect public health and safety. The time, and resources spent, by both Energy Northwest and the NRC, to revise Table 3 along with associated EIPs and the necessary procedure revisions, reviews, approvals, and training could be better applied to actions with demonstrated safety significance.

Energy Northwest personnel are available to meet with NRC staff as needed to facilitate the review and approval of this submittal. Energy Northwest will implement this change within 60 days from receipt of NRC approval. This letter contains no commitments.

If you have any questions or require additional information, please contact Mr. GV Cullen at (509) 377-6105.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the date of this letter.

Respectfully,



SK Gambhir

Vice President, Technical Services

Attachments: 1) Proposed Change Synopsis  
2) Justification of Proposed Change  
3) Mark-Up of Proposed E-Plan Change

cc: BS Mallett - NRC RIV \*  
CF Lyon - NRC NRR \*  
Director - Spent Fuel Project Office, NMSS  
NRC Sr. Resident Inspector - 988C \*  
WA Horin - Winston & Strawn  
RN Sherman - BPA/1399 \*

\*under separate transmittal

# REQUEST FOR EMERGENCY PLAN CHANGE

Attachment 1

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## PROPOSED CHANGE SYNOPSIS

### SUMMARY:

This proposed Emergency Plan (E-Plan) change requests NRC approve the removal of predetermined effluent radiation monitor threshold readings for the Emergency Action Levels (EALs), presented in Section 4, Table 3, "Effluent Monitor Classification Thresholds."

For gaseous releases Energy Northwest relies on a computerized dose assessment program to identify offsite dose release rates and applicable EALs. Upon approval, Energy Northwest will remove the information from the Emergency Plan Implementing Procedure (EPIP) 13.1.1, "Classifying the Emergency." The change will enhance the E-Plan by focusing EAL classification based upon projected dose assessments using the computerized Quick Emergency Dose Projection System (QEDPS). The QEDPS uses the most recent gaseous effluent monitor, plant, and meteorological data for accurate dose projections. On-shift personnel have demonstrated they can use the QEDPS to promptly obtain computed values until the emergency response staff has activated the Emergency Operations Facility (EOF), Alternate EOF, or Technical Support Center (TSC).

In addition to EALs based on gaseous effluent monitors, Table 3 lists threshold values for declaration of an Unusual Event (UE) and an Alert based on liquid effluent monitors. The offsite radioactivity release category shown in Table 4-1 adequately assigns EALs based on liquid effluent releases that are a multiple of limits in Offsite Dose Calculation Manual (ODCM) Sections 6.2.1.1 and 6.2.1.2. Removing Table 3 has no impact on EALs based on the liquid releases since they are adequately addressed by Table 4-1.

Energy Northwest determined that deleting EALs based on defined effluent radiation monitors constitutes a decrease in the effectiveness of the E-Plan because it removed information emergency personnel could use to determine EALs. With the availability of the QEDPS, the Control Room and emergency response staff no longer need or use the gaseous effluent radiation monitor thresholds for emergency classification. Using the QEDPS for gaseous releases rather than the thresholds presented in Table 3 and using analysis results and Category 5.1 for liquid releases does not alter the capability of the Control Room staff to perform dose assessments in support of timely (15 minute) emergency classification, nor does it reduce their ability to determine any associated protective action recommendations. Removing Table 3 and using the QEDPS and liquid effluent analysis results to determine EALs will not result in increased dose to the public; will not degrade the ability to estimate dose to the public; and will not cause any relaxation in the capability or timing of the emergency response organization to respond to an emergency.

# **REQUEST FOR EMERGENCY PLAN CHANGE**

Attachment 1

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## **DESCRIPTION OF PROPOSED CHANGES:**

Section 4, "Emergency Classification and Notification," Table 4-1, is revised to remove reference to Table 3. Table 3, "Effluent Monitor Classification Thresholds," will be removed in its entirety. Upon NRC approval, Energy Northwest will remove Table 3, "Effluent Monitor Classification Thresholds," from the EAL scheme presented in EPIP 13.1.1, "Classifying the Emergency," and associated document EPIP 13.1.1A, "Classifying the Emergency – Technical Bases."

# REQUEST FOR EMERGENCY PLAN CHANGE

Attachment 2

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## JUSTIFICATION OF PROPOSED CHANGE

### PROPOSED CHANGE:

This Emergency Plan (E-Plan) change requests removal of reference to predetermined effluent radiation monitor threshold readings from the Emergency Action Levels (EALs) presented in Section 4, and the removal of Table 3 from Table 4-1 of the E-Plan. Table 3, "Effluent Monitor Classification Thresholds," provides the gaseous and liquid effluent monitor classification thresholds. Energy Northwest relies on a computerized dose assessment program to identify offsite dose release rates and the applicable EALs for gaseous releases. The effluent monitor threshold values are only used to determine EALs if the dose projection can not be performed. The liquid effluent monitors are not used in the dose projections. Upon approval, Energy Northwest will remove the effluent radiation monitor threshold information from the Emergency Plan Implementing Procedure (EPIP) 13.1.1, "Classifying the Emergency."

### HISTORY:

Predetermined gaseous effluent radiation monitor threshold readings were added to the emergency classification scheme over a decade ago in response to comments made during an NRC review of the Columbia Generating Station (Columbia) E-Plan, Revision 11 and EPIP 13.1.1, Revisions 13 and 14 (Reference 1). Reference 1, comment 17, reads in part:

Unless real-time, on-line capability has been installed at WNP-2, or computerized dose assessment capability to promptly obtain computed values has been demonstrated by on-shift personnel, the EAL as written does not meet classification guidelines of 15 minutes to classify from the time plant conditions are in place that require the classification. Instrument values that require minimal conversion and chemical grab sample values where appropriate, that are routinely monitored, alarmed, or measured, should be provided as EALs equivalent to the NUREG-0654 IC.

If dose assessment equipment with adequate backup capability has demonstrated its ability to meet classification criteria with the listed EALs, no action is required by the licensee.

The review comments for the Site Area Emergency (SAE) (comment 23) and General Emergency (GE) (comment 25) EALs are similar to comment 17. In Reference 2, the NRC accepted adding gaseous effluent radiation monitor classification thresholds to EPIP 13.1.1, Revision 18 as further resolution of comments made on the Columbia E-Plan, Revision 11. Reference 2 states:

Comment: Predetermined effluent/radiation monitor readings corresponding to threshold site boundary dose rates for the SAE and GE classification levels, have not been incorporated into the EALs.

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Response: The licensee committed to address this comment in Revision 18 to 13.1.1. The licensee proposed to include the calculated threshold effluent/monitor readings as new SAE and GE EALs. The licensee also proposed to incorporate the use of a 15-minute window to verify offsite doses by performing an actual dose calculation. If the calculations could not be performed within 15 minutes, the event would be classified based on the EAL monitor reading.

Current Status: This element was satisfactorily addressed in Revision 18.

### **JUSTIFICATION FOR CHANGE:**

Over the past decade, on-shift dose assessment capability for gaseous releases has progressed from calculations using spreadsheets and hand-held calculators to a simple computer program, Quick Emergency Dose Projection System (QEDPS). The QEDPS is a stand-alone program that is independent of the Local Area Network connection. The dose assessment using the QEDPS is based on real time gaseous effluent monitor, plant, and meteorological data for accurate dose projections. Energy Northwest has installed the QEDPS on three computers in the Control Room and on several computers in other Emergency Response Facilities (ERFs) (Technical Support Center [TSC], Emergency Operations Facility [EOF], Joint Information Center [JIC], and the Alternate EOF). With the QEDPS tool, on-shift and emergency response staff can complete computerized dose assessments for gaseous releases and reach the resulting Protective Action Recommendations (PARs) more reliably and accurately than a decade ago.

The QEDPS is based on Version 2.0 of the NRC dose projection program RASCAL. The QEDPS results provide dose projections out to 10 miles, which is adequate for initial phases of an event. The QEDPS operates in a Microsoft Windows environment. A valid dose projection typically takes an individual trained in the QEDPS software about one minute to complete. While the QEDPS does not have automatic data feed from the plant computer or meteorological sensors, the user easily obtains the required data from computer data screens designed for dose projection purposes. Manual data entry is required for meteorological data, the radiation monitor selected, and the radiation monitor indication. The QEDPS includes error checking of entered parameters (e.g., value out of range or incorrect units). The user must also select filtered or unfiltered release.

The QEDPS is the preferred method for determining that release classification thresholds have been reached since real time meteorological data (stability class, wind speed, and wind direction) and plant conditions (monitor readings, flow rates, release duration, time since reactor shutdown, and standby gas treatment status) are used as inputs. The QEDPS provides a fast, accurate, and reliable basis for classification and PARs. Air samples may be used as input parameters in the QEDPS for validation of initial offsite dose assessment calculations, but are not required for initial dose projections. Since Table 3 threshold projections for gaseous releases are rough estimates without real time input, the EAL table contains the following instruction:

## REQUEST FOR EMERGENCY PLAN CHANGE

Attachment 2

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NOTE: If a dose projection cannot be performed and the monitor reading is sustained for longer than the specified time then the declaration must be made based on the valid reading.

Energy Northwest believes the NRC comments in Reference 1 would not have been an issue had the current the QEDPS installation existed at the time of the review. Since the current QEDPS installation provides computerized dose assessment capability with robust backup, emergency classifications are no longer made based on the Table 3 thresholds. Therefore, maintenance of the values contained in Table 3 provides no added benefit.

Energy Northwest has installed the QEDPS on the Shift Technical Advisor (STA) work station and on two separate computers at the Shift Manager (SM) work station. The STA work station computer power is backed by the Division 2 emergency diesel generator (EDG) and a battery-backed inverter power supply (IN-5). The Division 1 EDG provides the backup power for the two work stations in the SM office. Loss of the QEDPS dose assessment capability in the control room would require the failure of three computers, the loss of off site power and two EDGs and an inverter, or some combination of these failures.

On-shift personnel have demonstrated they can use the QEDPS to promptly obtain dose assessment values until an ERF is activated to assume that responsibility. In the Control Room, the SM, Control Room Supervisor (CRS), STA, and the Incident Advisor (IA) are trained to use the QEDPS for dose projections. Shift staffing provides assurance that key functional tasks such as classifications, offsite notifications, PARs, and dose assessment can be performed promptly (15 minutes) without additional augmenting personnel. Emergency response duties are included in the licensed operator training program. The simulator training typically begins with a normal operating condition and escalates to an accident condition that requires the operations staff to enter the EPIPs. In these simulator training scenarios, the operations staff performs the functions they would be required to perform in an emergency condition prior to the activation of the ERFs. Evaluated requalification training demonstrates the ability to adequately perform such key functional tasks as event classification, offsite dose assessment calculations, offsite communications, notifications, accident mitigation, assessment of core thermal hydraulics, and response prioritization and tracking.

In addition to EALs based on the gaseous effluent monitors, Table 3 also lists threshold values for declaration of an Unusual Event (UE) and an Alert based on liquid effluent monitors. Revision 15 added the symptomatic EALs for liquid releases based on the Offsite Dose Calculation Manual (ODCM) and EALs based on liquid effluent threshold limits in March 1995. Category 5, offsite radioactivity release, shown in Table 4-1 adequately assigns EALs based on liquid effluent releases as multiples of the limits in ODCM Sections 6.2.1.1 and 6.2.1.2. Energy Northwest established these limits to preclude challenging the limits in 10 CFR 20, Appendix B, Table 2, Column 2, for liquid effluents released to the environment. The NRC established limits in Column 2 using factors such as annual water intake for the "Reference Man," because the liquid releases contribute to dose by consumption rather than inhalation. The process streams monitored by these instruments include the floor drain tank (FDR), plant service

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water (TSW), and standby service water (SW). The FDR tank is a batch release through an administratively controlled release path which is only allowed if levels are below the ODCM limits. The TSW and SW process streams feed into the circulating water system (CW) where the effluent would be diluted. The CW system has a release path to the river (environment), while TSW and SW do not. The TSW and SW process streams are normally isolated from the CW system and the paths have not been opened for approximately a decade. These streams would be sampled if the connection to the CW system were opened. The values assigned for the EALs are based on the ODCM limits. However, they do not take into consideration that if the setpoints were reached, the release would not be allowed or that if the effluent was released from TSW or SW, significant dilution from the CW system would reduce the concentration of the radionuclides in the release to well below the EAL ODCM based limits. The liquid releases do not contribute to the dose projections calculated by QEDPS and are not included in the accident analyses that project dose consequences to the public.

Energy Northwest staffs all ERFs at the Alert level in accordance with the E-Plan to ensure proper staffing of the facilities should conditions degrade to a SAE or GE classification. The SAE and GE involve likely or actual major failures of plant functions needed for protection of the public and are the most likely to require offsite dose projections. In addition to the three Control Room computers with the QEDPS, there are two in the TSC, three in the EOF, and one in the Alternate EOF. These three ERFs have separate primary power sources backed by separate EDGs. Rather than the Control Room operations staff, the Chemistry/Effluent Manager in the TSC or the Dose Projection Health Physicist in the EOF or Alternate EOF have the primary responsibility to perform dose projections at SAE and GE. It is not credible that the QEDPS and the emergency response staff would be unavailable to provide dose projections for emergency classification and the PARs. Again, the maintenance of the values in Table 3 provides no benefit.

The removal of Table 3, "Effluent Monitor Classification Thresholds," from the emergency classification scheme is a decrease in effectiveness of the E-Plan, because information that could be used to classify the emergency would be removed from the E-Plan. Based on the number of computer stations with the QEDPS installed and the various power supplies, Energy Northwest has demonstrated the availability and the installed redundancy of the QEDPS. The Control Room operations staff has demonstrated the ability to promptly and correctly use the QEDPS in support of timely (15 minute) classification of emergency levels and to make PARs associated with an offsite release without using Table 3. The emergency response staff has also demonstrated the ability to determine emergency levels and to make PARs using the QEDPS. In addition, the offsite radioactivity release category shown in Table 4-1 adequately assigns EALs based on liquid effluent releases. Therefore, Energy Northwest has determined that the removal of Table 3 will not result in increased dose to the public; will not degrade the ability to estimate dose to the public; and will not cause any relaxation in the capability or timing of the emergency response organization to respond to an emergency.

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### **REFERENCES**

1. Letter dated June 30, 1992, RA Scarano (NRC) to GC Sorensen (WPPSS), "Review of the Washington Public Power Supply System Nuclear Project Unit 2 (WNP-2) Emergency Preparedness Plan (EPP), Revision 11, and Emergency Plan Implementing Procedure (EPIP) 13.1.1, Revisions 13 and 14"
2. Letter dated December 14, 1993, RJ Pate (NRC) to JV Parrish (WPPSS), "NRC Inspection Report 50-397/93-42"

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Attachment 3

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**ATTACHMENT 3**

**MARK-UP OF PROPOSED E-PLAN CHANGE**

CATEGORY	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY																								
5 Radioactivity Release 5.1 Offsite Release	Any unplanned release of gaseous or liquid radioactivity to the environment that exceeds two times ODCM limits for 60 minutes or longer	Any unplanned release of gaseous or liquid radioactivity to the environment that exceeds 200 times the radiological specifications for 15 minutes or longer	Offsite dose resulting from an actual or imminent release of gaseous radioactivity that exceeds 100 mrem TEDE OR 500 mrem thyroid CDE for the actual OR projected duration of the release	Offsite dose resulting from an actual or imminent release of gaseous radioactivity that exceeds 1000 mrem total effective dose equivalent OR 5000 mrem thyroid committed dose equivalent for the actual OR projected duration of the release using actual meteorology																								
	<p><del>5.1.U.1</del>  <table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>def</td> </tr> </table>   Offsite dose calculations cannot be performed  AND  A valid reading exists which exceeds or is expected to exceed Table 3 column "UE" for GT 60 minutes</p>	1	2	3	4	5	def	<p><del>5.1.A.1</del>  <table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>def</td> </tr> </table>   Offsite dose calculations cannot be performed  AND  A valid reading exists which exceeds or is expected to exceed Table 3 column "Alert" for GT 15 minutes</p>	1	2	3	4	5	def	<p><del>5.1.S.1</del>  <table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>def</td> </tr> </table>   Offsite dose calculations cannot be performed  AND  A valid reading exists which exceeds or is expected to exceed Table 3 column "Site Area" for GT 15 minutes</p>	1	2	3	4	5	def	<p><del>5.1.G.1</del>  <table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>def</td> </tr> </table>   Offsite dose calculations cannot be performed  AND  A valid reading exists which exceeds or is expected to exceed Table 3 column "General" for GT 15 minutes</p>	1	2	3	4	5	def
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Table 4-1  
EP 4.22

COLUMBIA GENERATING STATION EMERGENCY CLASSIFICATION TABLE

TABLE 3

Table 3 Effluent Monitor Classification Thresholds				
Monitor	UE	Alert	Site Area	General
NOTE: If a dose projection cannot be performed, and the monitor reading is sustained for longer than the specified time then the declaration must be made based on the valid reading.				
	60 minutes	15 minutes	15 minutes	15 minutes
PRM-RE-1B Reactor Bldg. Exhaust Inter.	1.35E4 cps	N/A	N/A	N/A
PRM-RE-1C Reactor Bldg. Exhaust Hi	N/A	1.14E3 cps	9.65E3 cps	9.35E4 cps
TEA-RIS-13 Turbine Bldg. Exhaust. Low	1.7E4 cpm	4.4E4 cpm	4.4E5 cpm	N/A
TEA-RIS-13A Turbine Bldg. Exhaust, Int.	N/A	N/A	N/A	11 PMU
WEA-RIS-14 Rad Waste Bldg. Exhaust Low	1.2E5 cpm	1.7E5 cpm	1.7E6 cpm	N/A
WEA-RIS-14A Rad Waste Bldg. Int.	N/A	N/A	N/A	29 PMU
TSW-RIS-5 TSW Effluent	2E - 5 $\mu\text{Ci/cc}$	2E - 3 $\mu\text{Ci/cc}$	N/A	N/A
FDR-RIS-606 Rad. Waste Effluent	2 x Hi-Hi alarm	200 x Hi-Hi alarm	N/A	N/A
SW-RIS-604 SW 'A' Process	2.0E2 cps	2.0E4 cps	N/A	N/A
SW-RIS-605 SW 'B' Process	2.0E2 cps	2.0E4 cps	N/A	N/A

Table 4-1  
EP 4.36

Revision 45  
August 2006