

Approved By W. F. Kitchens	Vogtle Electric Generating Plant 	Procedure Number 36015-C	Rev 23
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PRB REVIEW REQUIRED

PROCEDURE USAGE REQUIREMENTS-	SECTIONS
Continuous Use: Procedure must be open and readily available at the work location. Follow procedure step by step unless otherwise directed.	NONE
Reference Use: Procedure or applicable section(s) available at the work location for ready reference by person performing steps.	ALL
Information Use: Available on plant site for reference as needed.	NONE

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REFERENCE USE

1.0 **PURPOSE**

The purposes of this procedure are to provide:

- 1.1** Instructions for analyzing, documenting, and administratively controlling the release of liquid radioactive wastes within the requirements of the methodology of the Vogtle Offsite Dose Calculation Manual (ODCM). This procedure implements section two of the (ODCM) and its requirements. This procedure also satisfies the requirements of ODCM Table 2-3, 2.1.3, 2.1.3.2, and 2.1.3.3.
- 1.2** A means of satisfying the requirements of ODCM Section 2.1.1 by adding Data Sheet 3.
- 1.3** Step by step instructions for completing and routing liquid radioactive waste release permits.

2.0 **PRECAUTIONS AND LIMITATIONS**

2.1 During release of radioactive material in liquid effluents the following effluent monitors shall be set to alarm and initiate automatic closure of their respective valves when the concentration of radioactive material in the monitored stream reaches the alarm set point as determined by performing the calculations defined in the ODCM for the respective monitor. Whenever the monitor is inoperable, effluent releases via this pathway may continue provided that prior to initiating a release, the steps in section 2.3 are followed.

2.1.1 Liquid Waste Management System Monitor 1(2)RE-0018; valve 1(2)1901-RV-0018.

NOTE

The following monitors are on pathways of potential release of liquid effluents if primary to secondary leakage exist. In the absence of confirmed primary to secondary leakage these monitors are NOT release monitors.

- 2.1.2** Steam Generator Blowdown Effluent Radioactivity Monitor 1(2)RE-0021; valve 1(2)RV-0021
- 2.1.3** Turbine Building Drain Effluent Radioactivity Monitor 1(2)RE-0848; valve 1(2)HV-877A, 877B, 844A, 844B

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NOTE

The following monitors are installed to alert the operators that a radioactive leak into the NSCW system has occurred. The potential for the above to exist is very remote. The setpoints for these monitors are established in accordance with the methodology of the ODCM.

- 2.1.4 Nuclear Service Cooling System Radioactive Monitors 1(2)RE-0020A and B
- 2.2 If problems are experienced in maintaining acceptably low levels in effluents of liquid radioactive waste systems, an evaluation of system operation should be made covering as a minimum the following:
 - 2.2.1 Ion Exchanger Decontamination Factors (DF)
 - 2.2.2 Filter DFs
 - 2.2.3 Waste water management-source of high activity or excess waste volume
- 2.3 The liquid effluent monitor 1(2)RE-0018 shall be operable during batch releases. The alarm setpoint shall be determined in accordance with the methodology and parameters of the ODCM. Whenever the monitor is inoperable, effluent releases via this pathway may continue provided that prior to initiating a release:

NOTE

The Principal Gamma Emitters for which the Minimum Detectable Concentration (MDC) limit applies include Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, and Ce-141. Ce-144 shall also be measured, but with an MDC of 5 E-06 $\mu\text{Ci/ml}$.

- 2.3.1 At least two independent samples are analyzed in accordance with ODCM requirement in Section 2.1.2.3. The concentration of the isotopes in the two samples should agree according to the acceptance criteria of Data Sheet 6.
- 2.3.2 At least two technically qualified members of the facility staff independently verify release rate calculation and discharge line valving.
- 2.4 Otherwise, suspend release of radioactive effluents via this pathway.

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- 2.4.1 Once a year, take a series of samples during the interval of discharge to determine whether any differences exist as a function of time and to assure that individual samples are representative of the effluent mixture. Take a sample at the beginning, in the middle, and towards the end of the discharge.
- 2.4.2 Compare the samples and document the results on Data Sheet 6.
- 2.4.3 If the samples fail to meet the acceptance criteria the nuclear specialist should evaluate the sampling, analysis and discharge process to determine the cause of the failure.

NOTE

The following monitors normally are not monitoring effluents. In the absence of confirmed primary to secondary leakage the pathways are not radioactive.

- 2.5 The appropriate liquid effluent monitor 1(2)RE-0021, [Steam Generator Blowdown Effluent], 1(2)RE-0848 [Turbine Building Drain Effluent] shall be operable during continuous releases. If a monitor is out of service, effluent releases via the listed pathways may continue provided grab samples are obtained and sampled for radioactivity at Minimum Detectable Concentration of 5.0E-7 microcuries per ml. The following sampling schedule applies.
 - 2.5.1 At least once per 12 hrs when the specific activity of the secondary coolant is greater than 0.01 microcuries/gm DOSE EQUIVALENT I-131 or
 - 2.5.2 At least once per 24 hrs when the specific activity of the secondary coolant is less than or equal to 0.01 microcuries/gm DOSE EQUIVALENT I-131.
- 2.6 Radiation monitors 1(2)RE-0020 A&B shall be operable at all times. If a monitor is out of service, effluent releases may continue via this pathway provided that, at least once per 12 hr, grab samples are obtained and analyzed for radioactivity at a Minimum Detectable Concentration of no more that 5.0E-7 microcuries/ml.
- 2.7 The flow rate of the release shall be monitored continuously during the release. If flow monitors are inoperable, an estimate of the release flow rate shall be determined and recorded at least once per 4 hrs during actual releases. (Pump performance curves may be used as estimates).
- 2.8 Prior to release of any radioactive liquid, at a minimum, a representative sample shall be obtained and analyzed as required to meet the specifications of 10 CFR 20, 10 CFR 50 appendix I and the EPA/NPDES permit as well as the requirements of the ODCM.

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<p>2.9</p> <p>2.10</p> <p>2.11</p> <p>2.12</p> <p>2.12.1</p> <p>2.12.2</p> <p>2.12.3</p> <p>2.12.4</p> <p>3.0</p> <p>3.1</p> <p>3.2</p>	<p>Simultaneous monitor tank releases from two different units shall not be allowed without authorization from the Chemistry Manager. The Chemistry Manager may authorize simultaneous monitor tank discharges, by ensuring allocation factors are properly modified to meet ODCM requirements, prior to simultaneous discharges.</p> <p>Prior to processing any liquid release permit, on May first and January first the Nuclear Specialist will verify that the software has been changed to the proper "z" value.</p> <p>The more restrictive 31 day dose projections for liquid effluents, specified in ODCM requirement 2.1.4, are utilized in the EMS liquid release computer software <u>AT ALL TIMES</u>. If notified by the Radwaste Group that the Liquid Waste Processing System is not being fully utilized to process liquid waste, ensure that the "LIMITS EXCEEDED" field on the terminal screen says "NONE", and that SECTION V of the permit indicates the release meets all ODCM requirement.</p> <p>The more restrictive 31 day dose projections for liquid effluents, specified in ODCM requirement 2.1.4 are utilized in the EMS computer software <u>AT ALL TIMES</u>. If the computer indicates these more restrictive limits will be exceeded for a particular release, Chemistry Supervision should evaluate the proposed release as follows:</p> <p>Contact Radwaste Group and <u>VERIFY</u> that the Liquid Waste Processing System is being fully utilized. This will allow using the higher (less restrictive) quarterly and annual effluent dose limits of ODCM requirements in 2.1.3.</p> <p>Verify that the proposed release does not exceed the limits of ODCM Section 2.1.3.</p> <p>Utilizing the appropriate password (available through the Nuclear Specialist), override the "Permit Limits Exceeded" step and continue permit processing.</p> <p>Document verification of Liquid Waste Processing System being fully utilized and verification that the proposed release will not exceed the dose limits of ODCM requirement 2.1.3 on Section V of the release permit. Sign and date Section V of the release permit.</p> <p><u>PREREQUISITES</u></p> <p>Adequate assured dilution flow should be available during a release of radioactive liquids.</p> <p>The Process and Effluent Radiation Monitoring System (PERMS) shall be operable and the appropriate monitor setpoint established per the requirements of the ODCM prior to release of radioactive liquids or the requirements of Step 2.3 of this procedure shall be met.</p>	

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3.3 The Countroom Analysis System must be operational with the Effluent Management System (EMS) software and data base current to the release in question.

3.4 Prior to preparing a liquid release permit for a batch release, the liquid in question shall be transferred to a waste monitor tank, recirculated for at least the minimum time required, sampled and analyzed. A representative sample from at least one representative batch per month shall be analyzed for dissolved, entrained fission and activation gases and tritium. Requirement to sample for Tritium while RHUT tank is being released to account for appropriate release flow rate.

3.4.1 Tritium analysis results should be added into the Chemistry data base.

3.5 Prior to preparing a liquid batch release permit, verify that there are no other outstanding liquid batch permits open. If there are, a new permit can not be generated without Chemistry Manager or higher approval and the allocation factors must be adjusted to accommodate this situation.

4.0 **PROCEDURE**

4.1 **RESPONSIBILITIES**

4.1.1 The Chemistry Department has the lead responsibility for evaluating effluent waste release, preparing radioactive waste release permits, maintaining effluent release data and preparing the annual effluent release reports. The Chemistry Department is responsible for:

4.1.1.1 Completing PARTS I, II, III, IV of the Liquid Release Permit (LRP) and verifying the data by performing a technical review and signing SECTION V.

4.1.1.2 Updating the LRP after completion of the release by operations and distributing necessary copies.

4.1.1.3 Maintaining effluent records to ensure documentation of monitoring and surveillance results performed in accordance with ODCM.

4.1.1.4 Compiling effluent release data for submission annually.

4.1.1.5 Maintaining the Effluent Management System software (EMS) current with the ODCM. The overview of EMS is described in Step 4.1.3.

4.1.1.6 Making changes to the EMS data base as required to maintain functional readiness.

4.1.1.7 Performing bench mark test cases to verify and validate V/V EMS.

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4.1.2 The Operations Department is responsible for performing the actual release and documenting the actual release data on section VI. of the release permit.

4.1.2.1 Notifying the Chemistry Department of any off-normal condition noted when making the release.

4.1.2.2 Returning the completed release permit to the chemistry department after completion.

4.1.2.3 Estimating release flow rate and recording once per four hours if the flow monitor is inoperable.

4.1.3 EMS Software Overview

4.1.3.1 Prior to the release of potentially radioactive effluents from a power plant into the surrounding water, detailed analyses and calculations must be made to insure that such effluent releases are within the acceptable limits of safety as specified by NRC regulations.

4.1.3.2 A major function of EMS is the generation of release permits, through which radiological impact of individual releases may be determined and accounted for. Release permits are of two types;

- (1) Pre-Release Permits, which determine whether the proposed release can be accomplished within regulatory limits, and
- (2) Post Release Permits, which document the actual release circumstances, the radionuclide concentrations, and the radiological impacts.

4.1.3.3 The main sources of regulations affecting effluent releases are these:

- a. 10 CFR 20, which governs the rate of effluent release through the plant's liquid discharge point, and provides the basis for calculating the Effluent Concentration Limit of radionuclides for a given release.
- b. 10 CFR 50 appendix I, which specifies the maximum permissible dose (both quarterly and annually) to a hypothetical individual who could be exposed to radiation as the result of effluent releases.
- c. Subsection 2.1.4 of Offsite Dose Calculation Manual requirements.
- d. Reg guide 1.21 which governs the reporting of radioactive effluent release data on an annual basis.

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4.2 PREPARATIONS FOR PROCESSING LIQUID RELEASE PERMITS

- 4.2.1 After a minimum of 30 minutes of recirculation time for a 5000 gallon waste monitor tank, or a minimum of 45 minutes of recirculation time for a 20,000 gallon waste monitor tank has passed, obtain a one liter sample in a narrow mouth one liter poly bottle from the source to be released in accordance with Procedure 37000-C, "General Grab Sampling Techniques".
- 4.2.2 Prepare the sample for gamma isotopic analysis in accordance with Procedure 33035-C, "Gamma Spectroscopy For Radiochemistry". The sample should normally be counted on the high efficiency detectors or one of the medium efficiency detectors. The count time should be set to ensure the lower limit of detection is met. When counting is completed, remove the sample and save it for compositing. Refer to Procedure 33040-C, "Compositing Samples Weekly, Monthly, Quarterly" for more information.
- 4.2.3 At the end of the counting time the gamma isotopic analysis results will be printed out on the system printer. Review all data for correctness and to ensure the data relates to the sample for the release being prepared. Any errors noted shall be corrected prior to proceeding.

CAUTION

Only one Waste Monitor Tank for the site shall be allowed to be released at a time unless specifically authorized by the Chemistry Manager

- 4.2.4 When the data has been verified correct, proceed to a terminal located in the counting room. Log on to access Effluent Management System.
- 4.2.5 Under the main menu, select "**EFFLUENT MANAGEMENT**" and press "**RETURN**"
- 4.2.6 The "**EFFLUENT MANAGEMENT**" menu will appear. Select "**PROCESS LIQUID PERMIT**" and press "**RETURN**".
- 4.2.7 The terminal will prompt, for the release point "**ENTER RELEASE POINT NUMBER**" and press "**RETURN**". If the release point number is not known then enter "?" and press "**RETURN**".
- 4.2.8 From the sample analysis printout enter the sample ID number and press "**RETURN**".

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4.2.9 Proceed to the step that corresponds to the following process.

- 4.3 TO PROCESS A BATCH RELEASE
- 4.4 TO PROCESS A CONTINUOUS RELEASE
- 4.5 TO CLOSE A BATCH RELEASE
- 4.6 TO CLOSE A CONTINUOUS RELEASE
- 4.7 EDIT A RELEASE PERMIT
- 4.8 DELETE A RELEASE PERMIT

NOTE

Once into the EMS program there are a few keys that are used most often. They are:

- A. The "TAB" key
- B. The "CTRL" key
- C. The "DO" key
- D. The "RETURN" key
- E. The "PF1" key
- F. The "PF13" key
- G. The "PF3" key
- H. The "PF4" key

The function of each is as follows:

- A. The "TAB" key moves the cursor forward through the screen. No data is changed when using the "TAB" key.
- B. The "CTRL" key is held down and the "P" key is pressed to move the cursor backward through the screen. No data is changed.

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- C. The "DO" key is used to perform a function, executes a process within the software.
- D. The "RETURN" key is used to terminate an input. This key will blank (ZERO) a data field.
- E. The "PF1" key (also known as the menu key) is used to move the cursor to the command line at the bottom of each screen. This key is also used to call data onto the screen from some menus.
- F. The "F13" key is used to obtain "LIQUID PERMIT ENTRY NUMBER". In the "LIQUID PERMIT ENTRY NUMBER MENU" "PF3" will select the permit number or return to the "LIQUID PERMIT PROCESSING MENU"
- G. The "PF3" key will return to the previous menu.
- H. The "PF4" key will quit the current job and return to the previous menu.

4.3 PROCESSING BATCH LIQUID EFFLUENT RELEASE PERMITS

- 4.3.1 Log on to the terminal in the counting room per steps 4.2.4 through 4.2.9 if necessary.
- 4.3.2 The "LIQUID PERMIT PROCESSING" menu will be displayed. Select the "DEFINE AND OPEN A NEW LIQUID PERMIT" function and press "DO".
- 4.3.3 Verify the CORRECT UNIT for which permit is being processed.

CAUTION

The displayed permit number should be the next available for a permit that is to be opened. However, other permit numbers may have been used to define a release for specified release point number or an interrupted status may be displayed. Refer to the liquid permit number log book located in the counting room for the correct number if not known.

- 4.3.4 The "LAST PERMIT INFORMATION" menu will be displayed with the cursor flashing at "DEFINE AND OPEN A PERMIT" answer "Y" for "YES" and press "RETURN".

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- 4.3.5 The "DEFINE AND OPEN A NEW LIQUID PERMIT" menu will be displayed with the cursor flashing at the "RELEASE START", enter the release start "DATE/TIME" and press "RETURN".
- 4.3.6 Move the cursor to the release flow rate field. To select the default value press "TAB" or enter the desired flow rate and press "RETURN". Press "TAB" until you get to the "Dilution Volume" field.
- 4.3.7 At the "DILUTION VOLUME" field press "RETURN".
- 4.3.8 At the recirc. started field enter "DATE/TIME" and press "RETURN".
- 4.3.9 At the collection "DATE/TIME" field enter "DATE/TIME" of collection and press "RETURN".
- 4.3.10 At the collected by field enter the persons initials collecting the sample and press "RETURN".
- 4.3.11 Enter an "X" for an unplanned release or if it is not an unplanned release press "TAB".
- 4.3.12 Review all entries carefully then press "F14" to "FILL" data.

NOTE

The estimated release end date/time will be calculated and automatically entered at the "FILL" step.

- 4.3.13 After reviewing the data on the screen press "F10" to save data.

NOTE

If "RELEASE START date is before today, Proceed?" is displayed. Type "YES" and press "RETURN".

- 4.3.14 Press "PROCESS" (DO) key.
- 4.3.15 The terminal displays "EXECUTING"
- 4.3.16 The "CONCENTRATIONS" table screen will appear with only the composite data listed. This will be the area where the gamma spectral data results will be displayed.

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NOTE

Do not edit the isotopes list until the "vms-gsp" (F12) key has been pressed. Instruction for editing are covered in step 4.3.20

- 4.3.17 Press "VMS-GSP" (F12) key.
- 4.3.18 The concentrations table will be filled with the nuclides and their activities.
- 4.3.19 Compare the data displayed with the data shown on the Nuclide Identification print out for that sample and the composites from Open CDM. If composite data from the concentration table does not match, use the data from Open CDM.
- 4.3.20 If editing is required, refer to applicable sections of Procedure 33035-C, "Gamma Spectroscopy For Radiochemistry", for spectral review guidelines and proceed as follows:
 - 4.3.20.1 Make all necessary changes.

NOTE

If any isotope is to be deleted "Remove Key" or "Delete" option may be used.

- 4.3.20.2 You will be prompted "Has this been authorized?" : press "Y", then enter the password (SEMS). Save all data by pressing "F10" key.
- 4.3.20.3 Document the changes either on spectral data or on the permit.
- 4.3.20.4 If no further editing is required press "Process (Do)" key.
- 4.3.21 The software will calculate the dose for this sample.

CAUTION

If the "LIMITS EXCEEDED" indicates something other than "NONE", notify the chemistry supervision before proceeding. (See Steps 2.12 thru 2.12.4).

- 4.3.22 The terminal displays "LIQUID EFFLUENT PERMIT". Ensure that the limits exceeded flashes "NONE".
 - 4.3.22.1 Observe the results screen and take note of the data displayed on the lower left side. The value displayed for the release point monitor is the maximum calculated setpoint that can be used for the RE-0018 setpoint.

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- 4.3.22.2 Compare the maximum allowable setpoint to the expected response, the expected response is the total gamma activity. If the expected response is greater than one-half of the maximum allowable setpoint, adjust release flow rate to a lower value to increase the maximum allowable setpoint or request the tank be reprocessed to lower the activity. By verbal authorization of Chemistry Supervision or higher management, tanks may be discharged when the expected response is greater than one-half of the high alarm setpoint.
- 4.3.23 The cursor is now located at the command line. Press "PROCESS" (DO) key.
- 4.3.24 The terminal will display "PERMIT WILL BE OPENED, ARE YOU SURE? Y/N". Type "Y" and press "RETURN".
- 4.3.25 The cursor moves to the command line. Press "REPORT" (F20) key.
- 4.3.26 The terminal will display "COPIES FOR THE SPECIAL REPORT" [2]". Press "RETURN".
- 4.3.27 The terminal will display "COPIES OF STANDARD REPORT" [1]". Press "RETURN".
- 4.3.28 The cursor moves to the command line. Press "QUIT" (PF4) key. The display will ask if you are sure you want to quit: give the appropriate response.
- 4.3.29 The permit will be printed on the system printer. If a setpoint other than the value printed on the release permit is to be used, make the changes on both copies of the permit.
- 4.3.30 Assemble the data package which includes two copies of the special report (BATCH LIQUID EFFLUENT PERMIT), the Standard Report and the Gamma Spectral Nuclide Report Forms.
- 4.3.31 Ensure the permit number is logged on the Liquid Radioactive Waste Permit Log and complete Data Sheet 1 of procedure 33040-C.
- 4.3.32 Attach Data Sheet-3 and Data Sheet-4 to permit and set up monitor as needed.
- 4.3.33 Save sample for compositing in accordance with Procedure 33040-C.
- 4.3.34 If the radiation monitor is to be used for the release, set up the monitor in accordance with procedure 34311-C, "Operation of DRMS Liquid Release Monitors 1(2)RE-018".
- 4.3.35 Deliver the special report (Liquid Effluent Permit) to the approving authority. Liquid effluent permits may be approved by HP/Chemistry supervision or Operations supervision.

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4.3.36 The signed copy of the special report (Liquid Effluent Permit) is then delivered to Operations USS to make the release. The rest of the data package is returned to the counting room and filed.

4.3.37 Perform an RE-0018 pulse test upon Operations request. Pulse tests are directed from procedures 13216-1/2.

4.3.38 After the release has been made, Operations delivers the completed special report to Chemistry for closure using section 4.5 of this procedure.

4.4 PROCESSING CONTINUOUS LIQUID EFFLUENT RELEASE PERMITS

4.4.1 Log on to the terminal in the Counting Room per Steps 4.2.4 thru 4.2.9 if necessary.

4.4.2 The "LIQUID PERMIT PROCESSING" menu will be displayed. Select the "DEFINE AND OPEN A NEW LIQUID PERMIT" function and press "DO". Enter the correct release point number and press "RETURN".

4.4.3 Verify the CORRECT UNIT for which permit is being processed.

4.4.4 The "LAST PERMIT INFORMATION" menu will be displayed with the cursor flashing at "DEFINE AND OPEN A PERMIT" answer "Y" for "YES" and press "RETURN".

CAUTION

The displayed permit number should be the next available for a permit that is to be opened. However, other permit numbers may have been used to define a release for specified release point number or an interrupted status may be displayed. Refer to the liquid permit number log book located in the Counting Room for the correct number if not known.

4.4.5 The "DEFINE AND OPEN A NEW LIQUID PERMIT" menu will be displayed with the cursor flashing at the "RELEASE START". Then enter the release start "DATE/TIME" and press "RETURN".

4.4.6 The cursor moves to the release end. Enter release end date/time and press "RETURN".

4.4.7 The cursor moves to the release flow rate field. To select the default value press "Tab" or enter the desired flow rate and press "RETURN". Tab through to the release volume field.

4.4.8 At the release volume field, press "RETURN" to zero out the field.

4.4.9 Tab through to the collection date/time field and enter "COLLECTION DATE/TIME" and press "RETURN".

4.4.10 At the collected by field, enter initials of the person collecting the sample and press "RETURN".

4.4.11 Enter an "X" if this is an unplanned release and press "TAB".

NOTE

The dilution volume will be calculated and automatically entered at the "FILL" step.

4.4.12 Verify that all entries are correct and press "FILL" (F14).

4.4.13 After reviewing the data on the screen press "F10" to save data.

NOTE

If "RELEASE START date is before today. Proceed?" is displayed. Type "YES" and press "RETURN".

4.4.14 Press "PROCESS" (DO) key.

4.4.15 The terminal displays "EXECUTING".

4.4.16 The "CONCENTRATIONS" table screen will appear. This will be the area where the gamma spectral data results will be displayed.

4.4.17 Press "VMS-GSP" (F12) key

4.4.18 The concentrations table will be filled with the nuclides and their activities.

4.4.19 Compare the data displayed with the data shown on the nuclide identification printout for that sample.

4.4.20 If no more editing is required then press "PROCESS" (DO) key..

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- 4.4.21 If editing is required because an isotope is to be deleted, refer to applicable sections of Procedure 33035-C, "Gamma Spectroscopy for Radiochemistry", for spectral review guidelines and proceed as follows:
- a. Enter the password (SEMS).
 - b. Document the changes on the spectral data.
 - c. Make sure the cursor is on the isotope to be removed. Press the "Remove" key.
 - d. The display will prompt with "Has this been authorized." Press "Y" for yes.
 - e. The system will ask for the password (SEMS) . Put in the password (SEMS) and press the "Return" key.
 - f. The display will read "by Sample or Row"." Type "R" for Row.
 - g. Continue to delete isotopes until all are deleted that are required.
 - h. If no further editing is required press "Process (Do)" key.

CAUTION

If the "LIMITS EXCEEDED" indicates something other than "NONE", notify the Chemistry Supervision before proceeding. (See Steps 2.12 thru 2.12.4).

- 4.4.22 The terminal displays "LIQUID EFFLUENT PERMIT". Ensure that the limits exceeded flashes "NONE".
- 4.4.23 The cursor is now located at the command line. Press "PROCESS" (DO) key.
- 4.4.24 The terminal will display "PERMIT WILL BE OPENED, ARE YOU SURE? Y/N". Type "Y" and press "RETURN".
- 4.4.25 The cursor moves to the command line. Press "REPORT" (F20) key.
- 4.4.26 The terminal will display "COPIES FOR THE SPECIAL REPORT" [2]". Press "RETURN".
- 4.4.27 The terminal will display "COPIES OF STANDARD REPORT" [1]". Press "RETURN".
- 4.4.28 The cursor moves to the command line. Press "QUIT" (F4) key. The display will ask if you are sure you want to quit: give the appropriate response.

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- 4.4.29 The permit will be printed on the system printer. If a setpoint other than the value printed on the release permit is to be used, make the changes on both copies of the permit.
- 4.4.30 Assemble the data package which includes two copies of the special report (CONTINUOUS LIQUID EFFLUENT PERMIT), the Standard Report and the Gamma Spectral Nuclide Report Forms.
- 4.4.31 Ensure the permit number is logged on the Liquid Radioactive Waste Permit Log and the sample is saved for compositing in accordance with Procedure 33040-C.
- 4.4.32 Compare monitor setpoint values specified in Section IV of the permit cover sheet to the actual monitor setpoint value. If the values agree no changes are needed. If the values disagree, change the monitor setpoint and/or gain factor to agree with the Permit Section IV value.
- 4.5 CLOSING THE BATCH LIQUID EFFLUENT RELEASE PERMIT**
- 4.5.1 The unsigned permit is discarded and the returned completed permit is attached to the data package. The permit is now ready to be closed. Verify information in Section VI-Release Data is complete.
- 4.5.2 Log on to the terminal in the counting room per Steps 4.2.4 thru 4.2.9 if necessary.
- 4.5.3 The "LIQUID PERMIT PROCESSING" menu will be displayed, select the "CLOSE A LIQUID PERMIT FUNCTION" and press "DO".
- 4.5.4 The "CLOSE A LIQUID PERMIT" menu will be displayed, enter the release point number and press "RETURN".
- 4.5.5 The terminal will display data from the permit. Make certain this is the permit to be closed.
- 4.5.6 Then press the "PROCESS" (DO) key to continue.
- 4.5.7 The cursor moves to "RELEASE START". Enter the actual release start date/time from Section VI of the release permit and press "RETURN".



NOTE

The software will calculate the release Stop date/time. This may not match the Stop date/time from Section VI of the release permit.

- 4.5.8 The cursor moves to "RELEASE END" and press "RETURN".
- 4.5.9 The cursor moves to "RELEASE FLOW RATE". Enter the actual flow rate (avg.) from Section VI of the release permit and press "RETURN".
- 4.5.10 The cursor moves to "START %", enter the start volume % of the tank and press "RETURN".
- 4.5.11 Then the cursor moves to "STOP %", enter the stop volume % of the tank and press "RETURN".
- 4.5.12 The cursor moves to "RELEASE VOLUME", press "RETURN" to zero out the data field.
- 4.5.13 Press "CTRL P" until the cursor gets to the STOP %.
- 4.5.14 Press "Tab" until the cursor moves to dilution flow rate.

NOTE

The dilution flow rate will be calculated by the software.

- 4.5.15 The cursor moves to "DILUTION FLOW RATE", press "RETURN" to zero out the data field.
- 4.5.16 The cursor moves to "DILUTION VOLUME". Enter actual dilution volume from Section VI of the release permit and press "RETURN". This number is calculated from the totalizer stop volume minus the totalizer start volume and entered in gallons.
- 4.5.17 Verify all data is correct. Any data that is not correct can be changed by moving the cursor to that field and making the necessary corrections and pressing "RETURN".
- 4.5.18 Press "FILL" (F14).
- 4.5.19 If data is correct, press the "SAVE" (F10) key.



NOTE

If "RELEASE START date is before today. Proceed?" is displayed. Type "YES" and press "RETURN".

4.5.20 The terminal will flash "PERMIT AND SAMPLE ENTRIES UPDATED".

4.5.21 Press "PROCESS" (DO) key. The terminal displays Concentration Table. If no editing is required press "Process (Do)" key.

CAUTION

If the "LIMITS EXCEEDED" indicates something other than "NONE", notify the chemistry supervision before proceeding. (see Steps 2.12 thru 2.12.4)

4.5.22 The terminal displays "LIQUID EFFLUENT PERMIT". Ensure that the "LIMITS EXCEEDED" flashes "NONE".

4.5.23 The cursor moves to the command line. Press "PROCESS" (DO) key.

4.5.24 The terminal will flash "PERMIT WILL BE CLOSED".

4.5.25 The terminal will flash "ARE YOU SURE? Y/N". Enter "Y" and press "RETURN".

4.5.26 The terminal will flash "TABLES UPDATED SUCCESSFULLY".

4.5.27 The cursor moves to the command line. Press "REPORT" (F20) key.

4.5.28 The terminal will display "COPIES OF STANDARD REPORT" [1]. Press "RETURN". The terminal displays "SCHEDULING REPORT".

4.5.29 The cursor moves to the command line. Press "QUIT" (PF4) key.

4.5.30 The terminal will display "ARE YOU SURE YOU WANT TO QUIT? Y/N".

4.5.31 Enter "Y" and press "RETURN".

4.5.32 The printout is available at the system printer.

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4.5.33 Review the printout for accuracy and forward the permit update to qualified HP/Chemistry supervision for review and signature.

4.5.34 Perform the following:

- a. Attach the permit update to the data package.
- b. Make the necessary entries on the Liquid Radioactive Waste Permit Log.
- c. File the completed data package in accordance with 31045-C, "Chemistry Logkeeping, Filing And Record Storage".
- d. Complete Data Sheet 1 of 33040-C, "Compositing Samples Weekly, Monthly, Quarterly".

4.5.35 After the release, setup radiation monitor used for the release in accordance with procedure 34311-C, "Operation of DRMS Liquid Release Monitor 1(2)RE-0018".

4.6 CLOSING THE CONTINUOUS LIQUID EFFLUENT RELEASE PERMIT

4.6.1 The unsigned permit is discarded and the returned completed permit is attached to the data package. The permit is now ready to be closed. Verify information in Section VI-Release Data is complete and signed by the operator.

4.6.2 Log on to the terminal in the counting room per Steps 4.2.4 thru 4.2.9 if necessary.

4.6.3 The "LIQUID PERMIT PROCESSING" menu will be displayed, select the "CLOSE A LIQUID PERMIT FUNCTION" and press "DO".

4.6.4 The "CLOSE A LIQUID PERMIT" menu will be displayed, enter the release point number and press "RETURN".

4.6.5 The terminal will display data from the permit. Make certain this is the permit to be closed.

4.6.6 Then press the "PROCESS" (DO) key to continue.

4.6.7 The cursor moves to "RELEASE START". Enter the actual release start date/time from Section VI of the release permit and press "RETURN".

4.6.8 The cursor moves to "RELEASE END". Enter the actual release stop date/time from Section VI of the release permit and press "RETURN".

NOTE

The stop date/time may change on the final display from what is input due to the internal calculations of the effluent flow and effluent volume.

4.6.9 The cursor moves to "RELEASE FLOW RATE". Enter the actual flow rate (avg.) from Section VI of the release permit and press "RETURN".

4.6.10 Move the cursor to "RELEASE VOLUME", press "RETURN" to zero out the data field.

4.6.11 The cursor moves to "DILUTION FLOW RATE", press "RETURN" to zero out the data field.

4.6.12 The cursor moves to "DILUTION VOLUME". Enter actual dilution volume from Section VI of the release permit and press "RETURN". This number is calculated from the totalizer stop volume minus the totalizer start volume and entered in gallons.

NOTE

The dilution flow rate will be calculated by the software.

4.6.13 Verify all data is correct. Any data that is not correct can be changed by moving the cursor to that field and making the necessary corrections and pressing "RETURN".

4.6.14 Press "FILL" (F14).

4.6.15 If data is correct, press the "SAVE" (F10) key.

NOTE

If "RELEASE START date is before today. Proceed?" is displayed. Type "YES" and press "RETURN".

4.6.16 The terminal will flash "PERMIT AND SAMPLE ENTRIES UPDATED".

4.6.17 Press "PROCESS" (DO) key. The terminal displays "Concentration Table



CAUTION

If the "LIMITS EXCEEDED" indicates something other than "NONE", notify the chemistry supervision before proceeding. (see Steps 2.12 thru 2.12.4)

- 4.6.18 The terminal displays "LIQUID EFFLUENT PERMIT". Ensure that the "LIMITS EXCEEDED" flashes "NONE".
- 4.6.19 The cursor moves to the command line. Press "PROCESS" (DO) key.
- 4.6.20 The terminal will flash "PERMIT WILL BE CLOSED".
- 4.6.21 The terminal will flash "ARE YOU SURE? Y/N". Enter "Y" and press "RETURN".
- 4.6.22 The terminal will flash "TABLES UPDATED SUCCESSFULLY".
- 4.6.23 The cursor moves to the command line. Press "REPORT" (F20) key.
- 4.6.24 The terminal will display "COPIES OF STANDARD REPORT" [1]. Press "RETURN". The terminal displays "SCHEDULING REPORT".
- 4.6.25 The cursor moves to the command line. Press "QUIT" (F4) key.
- 4.6.26 The terminal will display "ARE YOU SURE YOU WANT TO QUIT? Y/N".
- 4.6.27 Enter "Y" and press "RETURN".
- 4.6.28 The printout is available at the system printer.
- 4.6.29 Review the printout for accuracy. Forward the permit update to a qualified chemistry personnel for review and signature.
- 4.6.30 Attach the permit update to the data package, make the necessary entries on the Liquid Radioactive Waste Permit Log, and file the completed data package in accordance with 31045-C, "Chemistry Logkeeping, Filing And Record Storage".

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4.7 EDIT A RELEASE PERMIT

NOTE

Open and closed permits for both liquid and gaseous effluents can be edited but editing closed permits requires a special password (SEMS)

- 4.7.1 Log onto the terminal in the Counting Room per Steps 4.2.4 through 4.2.9.
- 4.7.2 Enter the sample numbers and press "RETURN".
- 4.7.3 The "LIQUID PERMIT PROCESSING" will be displayed.
- 4.7.4 Select the "EDIT A LIQUID PERMIT" and press "DO".
- 4.7.5 The cursor is located at "RELEASE POINT;" put in the release point number and press "RETURN". The terminal displays data from the permit.
- 4.7.6 The cursor moves to "PERMIT NUMBER". Press "PROCESS" (DO) key.
- 4.7.7 The screen will display the permit information. Make necessary changes. If editing an opened batch release, place zeros for the release end and dilution volume. This is done by pressing "Tab" until you get to those fields and press "Return". If editing an opened continuous release place zeros for the release volume and dilution volume. This is done by pressing "Tab" until you get to those fields and press "Return". After all editing is completed press fill (F14). Then Save (F10).
- 4.7.8 Press Process "DO" key. The terminal displays "Concentration Table". If no editing is required press "Process" (DO) key.
- 4.7.9 If a different sample ID number was used to open the permit than to close the permit, press VMS-GSP (F12) to bring up the new sample information.
- a. Save the data using the F10 (save) key. Press "Process" (Do) key.
 - b. If editing is required because an isotope is to be deleted, refer to applicable sections of Procedure 33035-C, "Gamma Spectroscopy for Radiochemistry", for spectral review guidelines.
 - c. Enter the password (SEMS).
 - d. Document the basis for editing either on the spectral data or the release permit.
 - e. Make sure the cursor is on the isotope to be removed. Press the "Remove" key.

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- f. The display will prompt with "Has this been authorized." Press "Y" for yes.
- g. The system will ask for the password (SEMS) obtained from the nuclear specialist. Put in the password (SEMS) and press the "Return" key.
- h. The display will read "by Sample or Row." Type "R" for Row.
- i. Continue to delete isotopes until all are deleted that are required.
- j. If no further editing is required save the data using the F10 (save) key and press "Process (Do)" key.

CAUTION

If the "LIMITS EXCEEDED" indicates something other than "NONE", notify the chemistry supervision before proceeding. (See Steps 2.12 thru 2.12.4)

- 4.7.10 The terminal displays "LIQUID EFFLUENT PERMIT". Ensure that the "LIMITS EXCEEDED" flashes "NONE".
- 4.7.11 The cursor moves to the command line. Press "PROCESS" (DO) key.
- 4.7.12 The terminal displays " THE PERMIT WILL BE OPENED. ARE YOU SURE? Y/N". Type "Y" and press "RETURN".
- 4.7.13 The tables are updated and the permit is open for the new values.
- 4.7.14 Press F20 for reports.
- 4.7.15 The terminal displays "COPIES OF SPECIAL REPORT [2]/COPIES OF STANDARD REPORT [1]." Press "RETURN".
- 4.7.16 The cursor moves to the command line. Press "QUIT" (F20) key. The terminal will display "ARE YOU SURE YOU WANT TO QUIT? Y/N". Enter "Y" and press "RETURN".
- 4.7.17 The printout is available at the system printer.
- 4.7.18 Review the printout for accuracy. Forward the permit update to a qualified chemistry personnel for review and signature.



4.8 DELETE A RELEASE PERMIT

NOTE

Open and closed permits for both liquid and gaseous effluents can be deleted but requires a special password (SEMS).

- 4.8.1 Log onto the terminal in the Counting Room per Steps 4.2.4 through 4.2.9.
- 4.8.2 Press "RETURN" for the sample number.
- 4.8.3 The "LIQUID PERMIT PROCESSING" will be displayed.
- 4.8.4 Select the "DELETE A LIQUID PERMIT" and press "DO".
- 4.8.5 The cursor is located at "RELEASE POINT;" press "TAB". The terminal displays data from the permit.
- 4.8.6 The cursor moves to "PERMIT NUMBER". Verify that this is the permit number you want. Press "PROCESS" (DO) key.
- 4.8.7 For a closed permit a message "HAS THIS BEEN AUTHORIZED? (Y/N)" is displayed. Enter "Y". Type in the proper password (SEMS). For an open permit, deleting and open permit. "ARE YOU SURE? Y/N" is displayed. Press "Y".
- 4.8.8 For a closed permit "CALCULATING DOSE FOR SAMPLE _____" is displayed and the permit is deleted. For an open permit "VALUES CALCULATED NO SUBTRACTION NEEDED" is displayed, and the permit is deleted.

4.9 UNPLANNED RELEASES

- 4.9.1 Unplanned releases could occur through improper valve lineup of the liquid waste management system, by pipe breakage/equipment leakage or tank overflow. Each incident should be treated on a case-by-case basis. The following steps provide guidelines for processing the release:
 - 4.9.1.1 When the unplanned release is discovered or when notified that a release is occurring; STOP the release via the unplanned pathway if possible or try to redirect the flow to the liquid waste management system.
 - 4.9.1.2 If possible, a sample should be obtained from the source to be used to quantify the isotopic activity of the liquid. The events leading up to the loss of liquid via the unplanned pathway should be investigated to determine the nature and source of the spill.

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- 4.9.1.3 An estimated release volume should be made based on changes in the source tank level, pump design flow information, piping system design, estimated release time/duration, etc.
- 4.9.1.4 If a process monitor was involved, strip chart readings or historical data files should be examined and correlated to known controlled release data for additional information.
- 4.9.1.5 The IPC and operations logs can also be used to gather data required to quantify the release.
- 4.9.1.6 Process the release as a batch liquid by performing the appropriate steps of section 4.3 of this procedure. Use release point #13 or #14, for this process.

NOTE

For the EMS software to process a release it must have sample information. This information can be input manually to the concentrations table or old sample data can be called in to be used. This process requires special permission/password (SEMS) to perform. Contact Chemistry Support Supervisor prior to proceeding.

4.10 40CFR190 CALCULATIONS

- 4.10.1 If twice the limits of ODCM 2.1.3, 3.1.3 and 3.1.4 have been exceeded, fill out Data Sheet 5 to determine if the limits of 40CFR190 have been approached or exceeded. Compliance with the above limits is considered adequate to ensure compliance with 40CFR190, per the requirements of ODCM 5.1.
- 4.10.2 If the limits of 40CFR190 are being approached, it may be necessary to perform more frequent calculations to assure those limits are not exceeded.

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4.10.3 In addition to Data Sheet 5, it may be necessary to calculate the curie content for radioactive storage boxes, liners, moats and basins to see if a reportable quantity exists per 40CFR302.

40CFR302 does not have to be implemented if releases of radioactivity is the result of a "Nuclear Incident" or if 40CFR190 has not been exceeded. A release is defined as any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment (including the abandonment or discarding of barrels, containers, or other closed receptacles containing any hazardous substances or pollutant or contaminant). The EPA also considers the storage of a Reportable Quantity of hazardous material into any unenclosed containment structure where the hazardous material is exposed to the environment, to be a release. This includes the placement of material containing radionuclides in tanks or other containment structures outside a building and not totally sealed off from the environment as a release also.

An unenclosed containment structure means any surface impoundment, lagoon, tank or other holding device that has an open side with the contained materials directly exposed to the ambient environment. It does not include tanks that have vents or piping systems to prevent over-pressurization or to provide for material transfer or treatment.

A nuclear incident is an incident subject to NRC requirements for financial protection under section 170 of the Atomic Energy Act. This could include any occurrence of bodily injury, sickness, disease, death, loss of or damage to property or loss of use of property resulting from the radioactive, toxic explosive or other hazardous properties of source, special nuclear, or by-product material.

4.10.4 To implement 40CFR302, each release in a 24 hour period, per the above definition, should be compared to the reportable quantity of curies for each isotope in Appendix B of 40CFR part 302. If 40CFR190 has been exceeded per 4.9.1, and the reportable quantity has been exceeded then the EPA National Response Center should be notified thru Environmental Affairs Dept. in Atlanta. The information should include:

- a. A release has occurred,
- b. The substances for which notification is required,
- c. The types of releases subject to the notification requirements (ie, gas, liquid, etc.),

In addition, Environmental Affairs should report this to each local emergency planning committee for any areas likely to be affected by the release and to the State Commission of any State likely to be affected by the release.

If multiple isotopes are involved, the curies divided by the Reportable quantity for that isotope will be calculated. The results will be summed and if the sum of these ratios is greater than 1, then it is a reportable quantity. If the isotope is not in Appendix B of 40CFR Part 302, then it is assigned a reportable quantity of one curie.

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5.0 REFERENCES

5.1 PROCEDURES

- 5.1.1 33035-C, "Gamma Spectroscopy For Radiochemistry"
- 5.1.2 33040-C, "Weekly, Monthly, Quarterly Compositing"
- 5.1.3 37000-C, "General Grab Sampling Techniques"
- 5.1.4 34233-C, "Operation Of The DRMS Minicomputer"
- 5.1.5 35420-C, "Monitoring Of The Liquid Waste Management System"
- 5.1.6 31045-C, "Chemistry Logkeeping Filing And Record Storage"
- 5.1.7 36013-C, "EMS Data Base Control"
- 5.1.8 34311-C, "Operation Of DRMS Liquid Release Monitors 1(2)RE-0018"
- 5.1.9 34330-C, "Surveillance Of DRMS"
- 5.1.10 34331-C, "Management Of DRMS Status And Parameters"

5.2 VEGP Offsite Dose Calculation Manual

5.3 FSAR

- 5.3.1 Chapter 11, Section 11.2 - Liquid Waste Management System

5.4 P&ID's

- 5.4.1 1X4DB124 - Waste Processing System-Liquid
- 5.4.2 1X4DB125 - Waste Processing System-Liquid
- 5.4.3 1X4DB126 - Waste Processing System-Liquid

5.5 TECHNICAL MANUALS

- 5.5.1 Canberra Industries, Inc., "Effluent Management System Operators Manual", (07-0544)

END OF PROCEDURE TEXT



TABLE 2

RELEASE POINT DEFINITIONS

Release Point Number	Description
1	Unit 1 Waste Monitor Tank Small Tank (9 or 10)
2	Unit 1 Waste Monitor Tank Large Tank (12 or 13)
3	Unit 2 Waste Monitor Tank Small Tank (9 or 10)
4	Unit 2 Waste Monitor Tank Large Tank (12 or 13)
5	U-1 Waste Water Retention Basin (SWWRB)
6	U-2 Waste Water Retention Basin (NWWRB)
7	Unit 1 Steam Gen. Blowdown
8	Unit 2 Steam Gen. Blowdown
9	Unit 1 Turbine Bldg. Sump
10	Unit 2 Turbine Bldg. Sump
11	Unit 1 NSCW
12	Unit 2 NSCW
13	Unit 1 Undefined Misc. Liquid
14	Unit 2 Undefined Misc. Liquid



TABLE 3

**TANK PERCENT LEVEL VS. GALLONS WASTE
MONITOR TANK 1-1901-T6-009 AND 1-1901-T6-010**

TANK GAUGE READING %	TANK VOLUME (GAL.)	TANK GAUGE READINGS %	TANK VOLUME (GAL.)	TANK GAUGE READINGS %	TANK VOLUME (GAL.)
0	52	34	1805	67	3507
1	104	35	1857	68	3559
2	155	36	1909	69	3610
3	207	37	1960	70	3662
4	258	38	2012	71	3713
5	310	39	2063	72	3765
6	361	40	2115	73	3817
7	413	41	2166	74	3868
8	465	42	2218	75	3920
9	516	43	2270	76	3971
10	568	44	2321	77	4023
11	619	45	2373	78	4074
12	671	46	2424	79	4126
13	722	47	2476	80	4178
14	774	48	2527	81	4229
15	826	49	2579	82	4281
16	877	50	2631	83	4332
17	929	51	2682	84	4384
18	980	52	2734	85	4435
19	1032	53	2785	86	4487
20	1083	54	2837	87	4539
21	1135	55	2888	88	4590
22	1187	56	2940	89	4642
23	1238	57	2991	90	4693
24	1290	58	3043	91	4745
25	1341	59	3095	92	4796
26	1393	60	3146	93	4848
27	1444	61	3198	94	4900
28	1496	62	3249	95	4951
29	1548	63	3301	96	5003
30	1599	64	3352	97	5054
31	1651	65	3404	98	5106
32	1702	66	3456	99	5157
33	1754			100	5209



TABLE 3 (CONT'D.)

**TANK PERCENT LEVEL VS. GALLONS WASTE
MONITOR TANK 2-1901-T6-009 AND 2-1901-T6-010**

TANK GAUGE READING %	TANK VOLUME (GAL.)	TANK GAUGE READINGS %	TANK VOLUME (GAL.)	TANK GAUGE READINGS %	TANK VOLUME (GAL.)
1	105.67	35	1851.70	69	3596.92
2	157.03	36	1903.03	70	3648.25
3	208.49	37	1954.36	71	3699.58
4	259.95	38	2005.69	72	3750.91
5	311.41	39	2057.52	73	3802.24
6	362.87	40	2108.35	74	3853.57
7	414.33	41	2159.68	75	3904.90
8	465.79	42	2211.01	76	3956.23
9	517.12	43	2262.34	77	4007.56
10	568.45	44	2313.67	78	4058.89
11	619.78	45	2365.00	79	4110.22
12	671.11	46	2416.33	80	4161.55
13	722.44	47	2467.66	81	4212.88
14	773.77	48	2518.99	82	4264.21
15	825.10	49	2570.33	83	4315.54
16	875.43	50	2621.65	84	4366.87
17	927.76	51	2672.98	85	4418.20
18	974.09	52	2724.31	86	4469.53
19	1030.42	53	2775.64	87	4520.86
20	1081.75	54	2826.97	88	4572.19
21	1133.08	55	2878.30	89	4623.52
22	1184.41	56	2929.63	90	4674.85
23	1235.74	57	2980.96	91	4726.18
24	1287.07	58	3032.29	92	4777.51
25	1338.40	59	3083.62	93	4828.84
26	1389.73	60	3134.95	94	4880.17
27	1441.06	61	3186.28	95	4931.50
28	1492.39	62	3237.61	96	4882.83
29	1543.72	63	3288.94	97	5034.16
30	1595.05	64	3340.27	98	5085.44
31	1646.38	65	3391.60	99	5136.82
32	1697.71	66	3442.93	100	5188.15
33	1749.04	67	3494.26	overflow	5239.48



TABLE 3 (CONT'D.)

**TANK PERCENT LEVEL VS. GALLONS WASTE
MONITOR TANK A-1901-T6-012 AND A-1901-T6-013**

TANK GAUGE READING %	TANK VOLUME (GAL.)	TANK GAUGE READINGS %	TANK VOLUME (GAL.)	TANK GAUGE READINGS %	TANK VOLUME (GAL.)
0	529.90	34	7092.85	68	13643.80
1	722.58	35	7285.53	69	13836.48
2	915.25	36	7478.20	70	14029.15
3	1107.925	37	7670.88	71	14221.83
4	1300.60	38	7863.55	72	14414.50
5	1493.28	39	8056.23	73	14607.18
6	1685.95	40	8248.90	74	14799.85
7	1878.63	41	8441.58	75	14992.63
8	2071.30	42	8634.25	76	15185.20
9	2263.98	43	8826.93	77	15377.88
10	2456.65	44	9019.60	78	15570.55
11	2649.33	45	9212.28	79	15763.23
12	2843.00	46	9404.95	80	15955.90
13	3036.68	47	9597.63	81	16148.58
14	3230.35	48	9790.30	82	16341.25
15	3424.03	49	9982.80	83	16533.93
16	3617.70	50	10175.65	84	16726.60
17	3811.38	51	10368.33	85	16919.28
18	4005.05	52	10561.00	86	17111.95
19	4198.73	53	10753.68	87	17304.63
20	4392.40	54	10946.35	88	17497.30
21	4586.08	55	11139.03	89	17689.98
22	4779.75	56	11331.70	90	17882.65
23	4973.43	57	11524.38	91	18075.33
24	5166.10	58	11717.05	92	18268.00
25	5358.78	59	11909.73	93	18460.68
26	5551.45	60	12102.40	94	18653.35
27	5744.13	61	12295.08	95	18846.03
28	5936.80	62	12487.75	96	19038.70
29	6129.48	63	12680.43	97	19231.38
30	6322.15	64	12873.10	98	19424.05
31	6514.83	65	13065.78	99	19616.73
32	6707.50	66	13258.45	100	19788.70
33	6900.18	67	13451.13	overflow	

Approved By
W. F. Kitchens
Date Approved
05/13/2005

Vogtle Electric Generating Plant 

RADIOACTIVE LIQUID EFFLUENT RELEASE PERMIT GENERATION AND DATA CONTROL COMPUTER METHOD

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EXAMPLE

VOGTLE ELECTRIC GENERATING PLANT **930004.001.003.L**
36015-C **UNIT # 1**
BATCH LIQUID EFFLUENT PERMIT Allocation 100%

I. REQUEST		
X	NOFIMAL	RELEASE POINT
	UNPLANNED	UNIT 1 WASTE MT 1-1901-T6-010
RELEASE VOLUME (ESTIMATED)		ESTIMATED START
5.90000E+03 GALLONS		26-JAN-1989 22:00:00
DILUTION FLOW AVAILABLE		ESTIMATED STOP:
1.20000E+04 GPM		26-JAN-1989 23:18:40
		DISCHARGE POINT
		BLOWDOWN SUMP

II. SAMPLE IDENTIFICATION		
NUMBER	COLLECTION DATE/TIME	ANALYSIS DATE/TIME
46	26-JAN-1989 15:00:00	26-JAN-1989 15:56:44
Configuration File Name: 93100068. CNF		

III. RADIOANALYSIS - LIQUID		
MPC FRACTION SUM	PROJ TOT-BODY DOSE (31-DAYS)	ORGAN DOSE (31-DAYS)
4.47E-02 < 1.00	3.53E-03 < 0.18	5.72E-03
DK. GAS SUM	CUM TOT-BODY DOSE (Q)	ORGAN DOSE (Q)
0.00E+00 < 2.0E-04	2.96E-03 < 1.5	4.79E-03 < 5.0
	CUM TOT-BODY DOSE (A)	ORGAN DOSE (A)
	2.96E-03 < 3.0	4.79E-03 < 10.0

IV. RADIATION MONITOR(S)				
NUMBER	SETPOINT	EFFECTIVE GAIN	EXPECTED RESPONSE	ACTUAL RESPONSE
1-RE-0018	3.05E-04 µCi/m1	1.60E-08 µCi/cpm	4.78E-05 µCu/M1	µCi/m1

V. AUTHORIZATION		
MAXIMUM VOLUME	MAXIMUM EFFLUENT FLOW RATE	MINIMUM DILUTION FLOW
5.9000E+03 GALLONS	7.5000E+01 GPM	1.2000E+04 GPM

The above-named source has been sampled and analyzed and is in compliance with applicable ODCM requirements. Release is authorized for the volume and flow rates specified.

TECHNICAL REVIEW: _____ USS/SS AUTHORIZATION: _____

VI. RELEASE DATA					
	TIME	DATE	TANK LEVEL %	EFFLUENT FLOW RATE	DILUTION TOTALIZER
START					
STOP				XXXXXXXXXXXX	

RELEASE PERFORMED BY: _____

Approved By
W. F. Kitchens

Vogle Electric Generating Plant



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RADIOACTIVE LIQUID EFFLUENT RELEASE PERMIT GENERATION AND DATA CONTROL COMPUTER METHOD

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EXAMPLE

**VOGTL ELEC TRIC GENERATING PLANT
36015-C CONTINUOUS LIQUID EFFLUENT PERMIT**

**NO.930005.005.001.L
UNIT # 1
Allocation 100%**

I. REQUEST				
X	NORMAL	RELEASE POINT	ESTIMATED START	
	UNPLANNED	UNIT 1 WASTE MT 1-1901-T6-010	20-FEB-1987 15:23:06	
RELEASE VOLUME (ESTIMATED) 3.5700E+07 GALLONS		ESTIMATED STOP: 20-FEB-1987 15:08:06		
DILUTION FLOW AVAILABLE 12.0000E+03 GPM		DISCHARGE POINT BLOWDOWN SUMP	EXTENDED: INITIAL	
II. SAMPLE IDENTIFICATION				
NUMBER	COLLECTION DATE/TIME		ANALYSIS DATE/TIME	
5				
Configuration File Name: 93100070.CNF				
III. RADIOANALYSIS - LIQUID				
MPC FRACTION SUM	TOT-BODY DOSE (31-DAYS)	ORGAN DOSE (31 DAYS)		
6.90E-05	1.10E-02 < 0.18	1.67E-02 < 0.63		
DIS. GAS SUM	CUM TOT-BODY DOSE (Q)	CUM ORGAN DOSE (Q)		
0.00E+00 < 2E.04	1.79E-02 < 1.5	2.73E-02 < 5.0		
	CUM TOT-BODY DOSE (A)	CUM ORGAN DOSE (A)		
	1.79E-02 < 3.0	2.73E-03 < 10.0		
IV. RADIATION MONITOR(S)				
NUMBER	SETPOINT	EFFECTIVE GAIN	EXPECTED RESPONSE	ACTUAL RESPONSE
	2.00E-06 µCi/m1	1.00E-00 µCi/cpm	10.00E-06 µCu/M1	µCi/m!
V. AUTHORIZATION				
MAXIMUM VOLUME	MAXIMUM EFFLUENT FLOW RATE	MINIMUM DILUTION FLOW/		
3.57000E+07 GALLONS	200 GPM	12,000 GPM		
The above-named source has been sampled and analyzed and is in compliance with applicable ODCM requirements. Release is authorized for the volume and flow rates specified.				

TECHNICAL REVIEW: _____ USS/SS AUTHORIZATION: _____

VI.	RELEASE DATA				
	TIME	DATE	TANK LEVEL %	EFFLUENT FLOW RATE	DILUTION TOTALIZER
START					
STOP				XXXXXXXXXXXX	

RELEASE PERFORMED BY: _____

Approved By
W. F. Kitchens

Vogtle Electric Generating Plant



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**RADIOACTIVE LIQUID EFFLUENT RELEASE PERMIT GENERATION AND
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**DATA SHEET 3
SOURCE CHECK**

PRIOR TO THE RELEASE OF THIS DISCHARGE, MONITOR RE-0018 MUST PASS A SOURCE CHECK AND PARAMETERS VERIFIED TO MEET ODCM REQUIREMENTS.

UNIT NUMBER _____

RELEASE NUMBER _____

RE-0018 SOURCE CHECK PASSED _____ FAILED _____

RE-0018 PARAMETER VERIFICATION PASSED _____ FAILED _____

LAB TECHNICIAN _____ DATE _____ TIME _____

CHEMISTRY REVIEW _____ DATE _____



DATA SHEET 4

LIQUID RADWASTE EFFLUENT LINE FLOW RATE

MEASUREMENT DEVICE CHANNEL CHECK

LIQUID EFFLUENT RELEASE # _____

DEVICE USED

UNIT 1:

1 FT-0018 _____

1 FI-1085A _____

1 FI-1085B _____

UNIT 2

2 FT-0018 _____

2 FI-1085A _____

2 FI-1085B _____

COMMON:

AFT-1084A _____

AFT-1084B _____

THE CHANNEL CHECK SHALL CONSIST OF VERIFYING INDICATIONS OF FLOW DURING PERIODS OF USE. IF FLOW IS INDICATED ON THE DEVICE, THE CHANNEL CHECK; OTHERWISE, IT FAILS.

FOR DEVICE BEING USED:

CHANNEL CHECK PASS _____

CHANNEL CHECK FAIL _____

SIGNATURE OF PERSON PERFORMING CHANNEL CHECK

DATE / TIME



DATA SHEET 5

40CFR190 CALCULATIONS

Organ _____

Except Thyroid _____

Q1	Unit 1 Liquid W Body Dose	_____	Q1	Unit 1 Liquid Thyroid Dose	_____	Q1	Unit 1 Liquid High Organ Dose	_____
Q2	Unit 1 Liquid W Body Dose	_____	Q2	Unit 1 Liquid Thyroid Dose	_____	Q2	Unit 1 Liquid High Organ Dose	_____
Q3	Unit 1 Liquid W Body Dose	_____	Q3	Unit 1 Liquid Thyroid Dose	_____	Q3	Unit 1 Liquid High Organ Dose	_____
Q4	Unit 1 Liquid W Body Dose	_____	Q4	Unit 1 Liquid Thyroid Dose	_____	Q4	Unit 1 Liquid High Organ Dose	_____
Q1	Unit 2 Liquid W Body Dose	_____	Q1	Unit 2 Liquid Thyroid Dose	_____	Q1	Unit 2 Liquid High Organ Dose	_____
Q2	Unit 2 Liquid W Body Dose	_____	Q2	Unit 2 Liquid Thyroid Dose	_____	Q2	Unit 2 Liquid High Organ Dose	_____
Q3	Unit 2 Liquid W Body Dose	_____	Q3	Unit 2 Liquid Thyroid Dose	_____	Q3	Unit 2 Liquid High Organ Dose	_____
Q4	Unit 2 Liquid W Body Dose	_____	Q4	Unit 2 Liquid Thyroid Dose	_____	Q4	Unit 2 Liquid High Organ Dose	_____
Q1	Unit 1 Gas Eff. W Body Dose	_____	Q1	Unit 1 Gaseous Thyroid Dose	_____	Q1	Unit 1 Gaseous High Organ Dose	_____
Q2	Unit 1 Gas Eff. W Body Dose	_____	Q2	Unit 1 Gaseous Thyroid Dose	_____	Q2	Unit 1 Gaseous High Organ Dose	_____
Q3	Unit 1 Gas Eff. W Body Dose	_____	Q3	Unit 1 Gaseous Thyroid Dose	_____	Q3	Unit 1 Gaseous High Organ Dose	_____
Q4	Unit 1 Gas Eff. W Body Dose	_____	Q4	Unit 1 Gaseous Thyroid Dose	_____	Q4	Unit 1 Gaseous High Organ Dose	_____
Q1	Unit 2 Gas Eff. W Body Dose	_____	Q1	Unit 2 Gaseous Thyroid Dose	_____	Q1	Unit 2 Gaseous High Organ Dose	_____
Q2	Unit 2 Gas Eff. W Body Dose	_____	Q2	Unit 2 Gaseous Thyroid Dose	_____	Q2	Unit 2 Gaseous High Organ Dose	_____
Q3	Unit 2 Gas Eff. W Body Dose	_____	Q3	Unit 2 Gaseous Thyroid Dose	_____	Q3	Unit 2 Gaseous High Organ Dose	_____
Q4	Unit 2 Gas Eff. W Body Dose	_____	Q4	Unit 2 Gaseous Thyroid Dose	_____	Q4	Unit 2 Gaseous High Organ Dose	_____
Q1	Highest TLD at Site Boundary	_____	Q1	Highest TLD at Site Boundary	_____	Q1	highest TLD at Site Boundary	_____
Q2	Highest TLD at Site Boundary	_____	Q2	Highest TLD at Site Boundary	_____	Q2	Highest TLD at Site Boundary	_____
Q3	Highest TLD at Site Boundary	_____	Q3	Highest TLD at Site Boundary	_____	Q3	Highest TLD at Site Boundary	_____
Q4	Highest TLD at Site Boundary	_____	Q4	Highest TLD at Site Boundary	_____	Q4	Highest TLD at Site Boundary	_____

TOTAL DOSE

(25mrems) _____

TOTAL THYROID DOSE

(75mrems) _____

TOTAL ORGAN DOSE

(25mrems) _____

If limits exceeded for 40CFR190, then implement 40CFR302 , if necessary

