OCCURRENCE REPORT WRITING

Bechtel BWXT Idaho, LLC
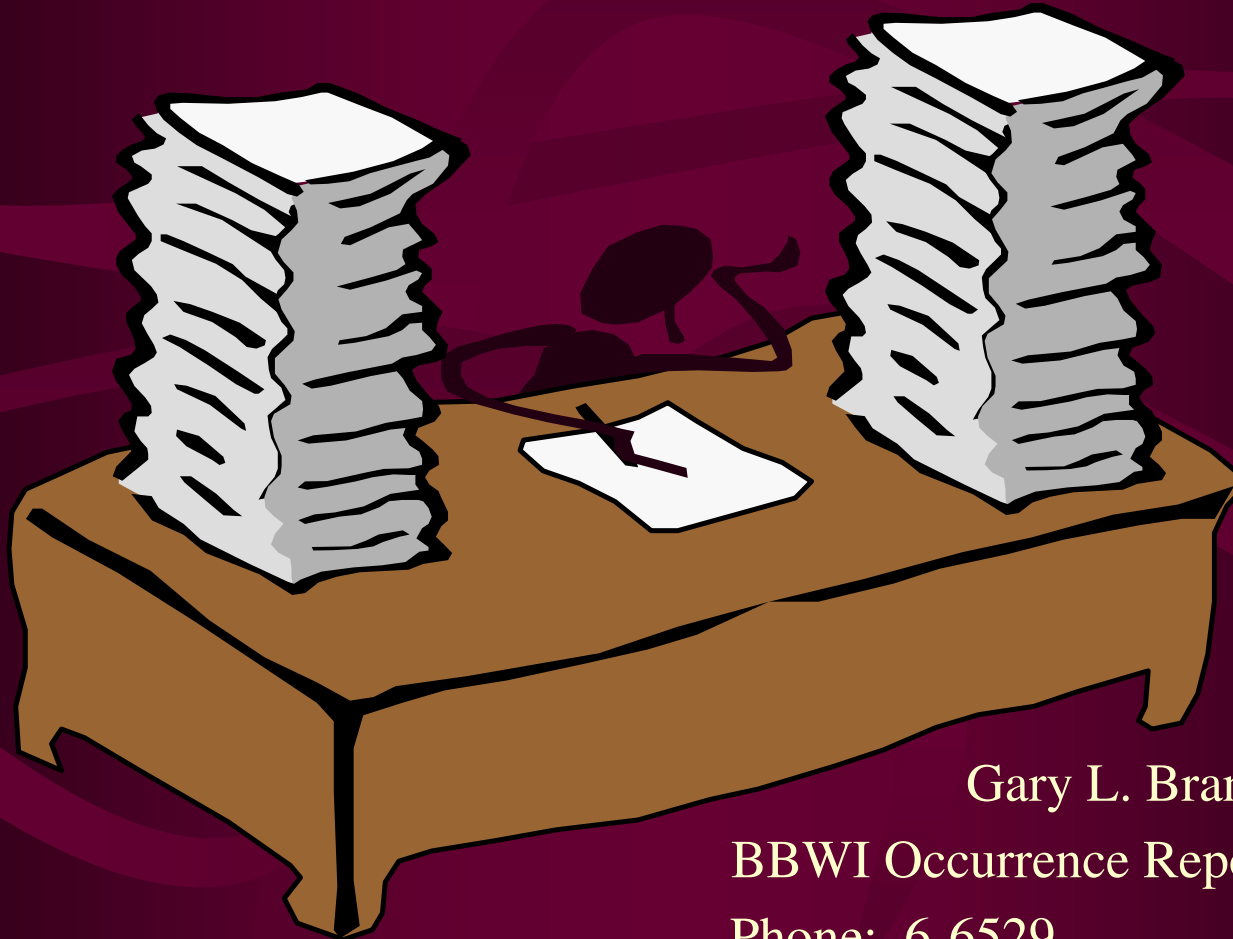
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Objectives

The Occurrence Report Writing course materials will provide students with the necessary information to make decisions as to acceptable entries into occurrence report fields by discussing:

▸ The purpose of writing occurrence reports

▸ How an acceptable report should be written

▸ The focus of occurrence report writing

▸ Each item in an occurrence report

Purpose of Writing Occurrence Reports

‣ To timely identify, categorize, notify, and report all reportable occurrences

‣ To report operations information related to safety, health, security, property, operations, or the environment

‣ To document the evaluation of events or conditions

‣ To maintain a central DOE operational data base containing all unclassified occurrence reports

‣ To provide sufficient detail to assess significance, consequences, and implications

‣ To evaluate actions in order to correct the condition and prevent recurrence

‣ To document lessons learned and trend adverse conditions

How Should an Occurrence Report Be Written

So a person with limited knowledge about facility operations or processes can understand the following:

- ▶ What has happened
- ▶ What actions were taken
- ▶ Results of actions
- ▶ Direct, contributing, and root causes
- ▶ Corrective actions
- ▶ Lessons learned

Focus of Occurrence Report Writing

‣ Used throughout the Department of Energy (DOE) Complex

‣ Read by individuals with different backgrounds

‣ Terminology - avoid using site-specific terms, acronyms, and jargon

‣ Writing strategies

‣ Tying the report together

Unnumbered Fields

The occurrence report has six unnumbered fields at the beginning. Information in some of these fields is entered automatically by the Occurrence Reporting and Processing System (ORPS).

- Name of facility
- Facility function
- Name of laboratory, site, or organization
- Facility manager/designee and telephone number
- Originator name, title, and telephone number
- Authorized Classifier (AC)

Site Facilities

▶ Name of the facility where the occurrence took place

▶ Possible entries for ID include

ATR	TAN
TRA	CFA
PBF	TOWN
FUELRCSTR	RWMC
PHASEOUT	WROC
LANDLORD	WERF
WASTEMNGT	INEELPROGM
SMC	

Facility Function

Type of activity function performed by the facility where the occurrence took place. See Appendix C in the Student Workbook for choice of entry.

Name of Laboratory, Site, or Organization

‣ Name of laboratory, site, or organization where the occurrence took place.

‣ If using ORPS, this information will automatically be entered into the report.

  ☞ Hanford Site

  ☞ Oak Ridge Site

  ☞ PANTEX Site

  ☞ Los Alamos National Laboratory

Facility Manager or Designee

▸ Enter the name, title, and telephone number of the facility manager with direct line responsibility for operation of the facility where the occurrence took place.

▸ The facility manager/designee is the individual responsible for verifying that the report is complete and accurate.

Example:

▸ Name field - 26 characters

Oliver Hardy

Title field - 36 characters

Operations Manager

Telephone number field - 10 characters

(999) 888-6666

Originator/Transmitter

The name, title, and phone number of the person who transmitted the report is entered automatically by the ORPS computer, based on authority file information.

Authorized Classifier (AC) Review

‣ Enter the name of the Authorized Classifier (AC) who reviewed the report and the date the review took place.

    Example:

    IM Safe

    03/14/1960

‣ AC review is required only if the occurrence took place at a facility that has the potential to generate classified information or Unclassified Controlled Nuclear Information (UCNI).

‣ Name field - 26 characters

‣ Date field - 10 characters (MM/DD/YYYY format)

(1) Occurrence Report Number

▸ An alphanumeric designator identifying the DOE operations office, DOE area office, DOE contractor or laboratory involved, facility, calendar year of the occurrence, and sequential number of the occurrence by facility.

▸ This is automatically assigned by ORPS based on authority file and facility designator. ORPS GUI will assign a temporary number until transmitted. (GAB) ID--BBWI-TOWN-2000-TEMP TITLE

▸ Examples:

  ☞ ID--BBWI-ATR-2000-0001

  ☞ SR--WSRC-MED-1991-0005

  ☞ AL-AO-MHSM-PANTEX-1991-0003

(2) Report Type and Date

‣ Identify the type of report being submitted:

    ☞ Notification

    ☞ Update

    ☞ Final

‣ ORPS automatically enters the date and time when each phase of the report is submitted.

‣ Determined by submittal selection

(2) Report Type and Date (cont.)

▶ Recategorization - provide an explanation for the recategorization (in Field #24) also include the date and time. Submit report, as an update or final, before the close of the next business day from the time of recategorization (not to exceed 80 hours).

▶ If the report is in hard copy form (i.e., classified), then all report dates and times (notification, update, etc.), must be included.

(3) Occurrence Category

‣ Select which category has been determined for the occurrence:

  ☞ Emergency

  ☞ Unusual

  ☞ Off-Normal

  ☞ Canceled

‣ Requirements for canceling a report:

  ☞ Submit report as a final

  ☞ Select "Canceled" in Field 3

  ☞ Provide a justification in Field 16 on why the event is no longer reportable.

Roll-Up Reporting

‣ Allow for off-normal occurrences only.

‣ May remain open for a period not to exceed 90 calendar days from categorization of the first rolled-up event, or when the number of occurrences reaches 30.

‣ Two basic types: Similar occurrences documented in a non-finalized occurrence report, and occurrences based on corrective actions in an approved final report.

‣ Refer to Appendix B in MCP-190 for roll-up reporting requirements and instructions.

(4) Number of Occurrences

‣ Enter the number of occurrences included in the report.

‣ The number will always be "1" unless the occurrence meets the specific requirements for roll-up reporting.

‣ Be sure to update this field for each additional occurrence added to the report. The first occurrence in a roll-up report will be identified as "1".

‣ For roll-up reports based on an approved final report, enter the occurrence report number of the original report.

(5) Division or Project

▸ Identify in full, the contractor project or organizational unit responsible for the facility at which the occurrence took place. Examples:

- Reactor Programs
- Utilities
- Projects/Construction

▸ Limit the entry to 36 characters

(6) DOE Secretarial Office

▶ Identify the specific DOE secretarial office responsible for the facility operation.

▶ If a facility is operationally responsible to more than one program office, enter the office most directly involved in the specific work activity that was being conducted during the occurrence.

(7) System, Building, or Equipment

▸ Identify all systems, equipment, or structural items involved in the occurrence.

▸ In the case of component failures, include the component manufacturer, model number, size, etc.

▸ Use consistent terminology.

▸ Limit the entry to 80 characters; additional information can be placed in Field 16.

▸ Example: Bldg., 12-60, Bay 2 Toledo Triple Beam Balance Scale

(8) UCNI

‣ Enter a "N" to indicate the report does not contain Unclassified Controlled Nuclear Information (UCNI).

‣ No classified/UCNI information is allowed on ORPS.

‣ If a report has classified or UCNI information, then a sanitized version must be entered into ORPS. The classified or UCNI version must be handled in accordance with existing procedures that govern classified sensitive documents.

(9) Plant Area

▶ Indicate the site-specific area where the occurrence took place:

☞ 200-West Area

☞ Cooling Tower Basin

☞ CPP-603

(10) Date and Time Occurrence Was Discovered

‣ Enter the date and time when facility staff became aware of the event/condition being reported.

‣ Use the MM/DD/YYYY and 24-hour clock (HHMM) format. Example: 01/15/1993 1100

‣ Discovery is defined as that time when facility staff becomes aware of the event/condition.

(11) Date and Time Occurrence Was Categorized

▶ Enter the date and time when facility manager/designee determined the event or condition constituted a reportable occurrence and determined its category.

▶ Use the MM/DD/YYYY and 24-hour clock (HHMM) format. Example: 01/15/1993 1135

▶ If an event's categorization is changed after the notification report is submitted, enter the date and time the categorization was revised in Field 24.

(12) DOE Notification

▸ This field is for notification to the DOE-HQ Emergency Operations Center (EOC) for an event categorized as an emergency or unusual occurrence.

▸ Enter the name of the EOC coordinator contacted, and the date and time of the notification. The EOC will pass on the information to the affected program manager.

▸ Use the MM/DD/YYYY and 24-hour clock (HHMM) format.

▸ Name field - 26 characters

Organization field - 8 characters

Example: 12/25/1993   1400   Howard D. Smith   HQ-EOC

(13) Other Notifications

▸ Enter date(s), time(s), name(s), and organization(s) of other notifications. This can include notifications to state and local agencies, DOE representatives, DOE and contractor management, and/or notifications to line management.

▸ This field is optional on all reports

  ☞ 01/15/1993   1230   M. L. Lowry   NRC
  ☞ 01/15/1993   1245   M. J. Jordan   EPA
  ☞ 01/15/1993   1300   E. M. John   FEMA

▸ If there are more than five other notifications, document them in the "Immediate Actions Taken and Results", Field 19.

(14) Subject or Title of Occurrence

▶ Enter a brief title or concise description that best details nature, cause, and result of the occurrence.

▶ Use consistent terminology: Freeze Protection, Nuclear Safety Violation, and Suspect/Counterfeit Items.

▶ Limit to 140 characters (2 lines of text).

▶ For any Unreviewed Safety Question, put the "USQ" acronym following the Subject/Title.

▶ For any Roll-Up Report, include "Roll-Up" in the Subject/Title

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(15) Nature of Occurrence

▸ Enter the code(s) from the list in Appendix A of MCP-190 that best describes the nature of occurrence. All applicable codes should be used. Up to three codes can be chosen.

☞   Basis for event categorization

Examples:

01) Facility Condition

    C. Safety Status

01) Facility Condition

    E. Vital/System/Component Degradation

(16) Description of Occurrence

▶ Provide a clear, concise, objective description of the incident.

▶ Provide a sequence of events.

▶ Include who, what, when, where and how.

▶ If drawings are referenced in the report, provide information on how and from whom they can be obtained.

▶ Use consistent terminology and avoid using plant-specific terms and acronyms.

(16) Description of Occurrence
Type of Information to be Included

‣ Method of discovery

‣ Component failures and failure modes

‣ Personnel error involved, including type and result of error

‣ Procedural problem encountered

‣ Response of automatic or manual safety systems and signals that initiated and terminated their operation

‣ Duration of failures

‣ Operator actions affecting course of events

‣ The loss of any safety equipment

‣ For contamination events, the information described in Sections 10.3.1.a and 10.3.2.a

(16) Description of Occurrence
Writing Strategies

‣ Write concisely and clearly, focusing on facts.

‣ Include details, such as the size of the contaminated area and contamination levels.

‣ Begin the description with a summary/introductory sentence that contains what happened, when the occurrence happened, and who discovered the occurrence.

‣ Follow the summary/introductory sentence with all pertinent facts in chronological order.

(16) Description of Occurrence
Writing Strategies (cont.)

‣ Provide enough detail to create an accurate and complete visual image of the event so that persons unfamiliar with the facility or operation can understand what happened.

‣ Tell the complete story. Include related and/or extenuating circumstances to provide a complete picture of the occurrence.

(16) Description of Occurrence
Unacceptable Examples

▶ Fire alarm system activated, resulting in evacuation by three personnel present.

▶ Electrical wiring shorted out.

▶ Contaminated crescent wrench found in bag.

▶ While surveying for shipment, fixed contamination was discovered.

(16) Description of Occurrence
Example - Adequate Description

Review Field #16 of the sample occurrence report. This description follows the suggested format of the DOE Order and includes the level of detail and information necessary to insure that anyone reading it can understand the event.

(17) Operating Conditions of Facility at Time of Occurrence

▸ Describe the operational status of the facility or equipment at the time of the occurrence (normal operations, shutdown, hot or cold standby, maintenance outage, etc.).

▸ In such cases as grass fires, vehicle accidents, contamination discovered outside area fence lines, etc., where operating conditions of the facility are not applicable, enter "Does not apply".

▸ Limit the entry to 140 characters (2 lines of text).

   Example: The stack's air filters were being replaced as part of a bi-weekly surveillance requirement.

(18) Activity Category

▸ Enter the code that best describes the ongoing activity at the time of the occurrence. These are the numerical codes that coincide with the activities listed below:

1   Construction

2   Maintenance

3   Normal Operations

4   Start-up

5   Shutdown

6   Facility/System/Equipment Testing

7   Training

8   Transportation

9   Emergency Response

10   Inspection/Monitoring

11   Facility Decontamination/Decommissioning

(19) Immediate Actions Taken and Results

‣ Describe immediate or remedial actions taken to return the facility, system, or equipment item to service, to correct or to alleviate the anomalous condition, and to record the results of those actions.

‣ Include only those actions taken in the short term (i.e., hours).

‣ You may include temporary measures to keep the facility in safe standby condition or to permit continued operation of the facility without compromising safety until a more thorough investigation can be conducted or permanent solution effected.

‣ List actions in sequential order.

(19) Immediate Actions Taken and Results
Writing Strategies

▸ Write the immediate actions to reflect what actually happened to stop the occurrence from continuing.

▸ Separate the immediate actions into a list of items (improves readability.)

▸ Include the results of the immediate actions.

(19) Immediate Actions Taken and Results
Writing Strategies (cont.)

▶ Maintain the actual time order in which immediate actions were taken.

▶ Indicate how much time elapsed between the occurrence and results of immediate actions.

▶ State only the facts as you know them - do not make judgements.

▶ Include titles of the individuals who performed the actions - do not include names.

(20) Direct Cause

‣ This is the cause that directly resulted in the occurrence.

‣ Select only <u>one direct cause</u> for the occurrence.

   Example:

      3B - Procedure Not Used or Used Incorrectly

      5A - No Training Provided

(21) Contributing Causes

‣ This is a cause that contributed to the occurrence, but would not have caused the occurrence by itself.

‣ Select up to three contributing cause codes.

‣ This is not a required field.

Example:

1A - Defective or Failed Part

2B - Lack of Procedure

5A - No Training Provided

6C - Inadequate Supervision

(22) Root Cause

▸ This is a cause that, if corrected, would prevent recurrence of this and similar occurrences.

▸ It could have generic implications to a broad group of possible occurrences.

▸ This is the most fundamental aspect of a cause that can logically be identified and corrected.

▸ The originator must ensure that causal analysis techniques have been employed per company procedure.

▸ There can be <u>only one root cause</u> for each occurrence (required in final report).

Example: 4B - Inadequate or Defective Design

6B - Work Organization/Planning Deficiency

7C - External Fire or Explosion

(23) Description of Cause

The root cause analysis method used must be included in this field.

Examples are:
‣ Change analysis
‣ Barrier analysis
‣ Tree diagrams
‣ Events and causal factors
‣ Management Oversight and Risk Tree (MORT)

(23) Description of Cause

‣ Discuss the cause of the occurrence, to include direct, contribution, and root causes and corresponding corrective actions identified.

‣ Discuss the results of causal analysis.

‣ Provide a detailed description of corrective actions to demonstrate that identified actions will address the cause(s) of the occurrence.

‣ If the cause codes provided by ORPS are not sufficient to accurately describe the cause of the event, use a code that is "as close as possible" and provide an explanation.

(23) Description of Cause
Writing Strategies

‣ Prepare a discussion adequate to lead the reader to the same conclusion made in the report.

‣ Reference separate documentation for root cause analysis and include how this documentation can be obtained.

‣ Cross-check the discussion of corrective actions to ensure that each identified cause is addressed by the corrective actions.

‣ Discuss the cause(s) and related corrective actions in the same order as identified in Fields 20, 21, and 22.

(23) Description of Cause

Review Field #23 of the sample occurrence report. This provides the proper format and the type of information that should be included in this field. This field is considered by DOE-HQ (and others) to be the most important field in the occurrence report. It is vital that all causes chosen in Fields 20-22 are analyzed, described, and assigned corrective actions in this field.

(24) Evaluation by Facility Manager

‣ The facility manager is responsible for providing an evaluation of the occurrence and its effects or possible effects on the plant, system, program, etc.

‣ Required field for a Notification Report IF both answers to the questions in Field #25 are "Yes".

‣ Justification statement and expected date to submit Final Reports past their original due date.

‣ Categorization revision information.

(25) Is Further Evaluation Required?

‣ Provide a "Y" for yes or a "N" for no.

‣ It is anticipated that this should be "Y" for a notification report or update report, indicating that further evaluation is necessary. Otherwise, a final report can be submitted. Must be marked "N" for a final report.

‣ If "Y" is chosen, indicating that further evaluation is required, then a "Y" or "N" must be indicated for the question, "If YES - before further operation?"

‣ If "Y" is chosen, indicating that further evaluation is required before further operation, then the person or organization that will perform the evaluation and the anticipated completion date of the evaluation must be included.

‣ This field is required for all reports, including the notification report. If "Y" is answered for both questions, an evaluation must be included in Field 24.

(26) Corrective Actions

‣ List all actions identified to correct the problem that, when completed, will prevent recurrence.

‣ Use action words such as *change, repair, replace, train, build,* etc.

‣ Provide target completion dates for each corrective action. If the action is complete, provide the completion date.

‣ Do not repeat immediate actions identified in Field 19 unless there are no further corrective actions beyond the immediate actions.

‣ Update the corrective action completion date when the corrective action is complete. The closure of the corrective action should be auditable.

(26) Corrective Actions
Roll-Ups

‣ For similar occurrences previously documented in an approved Final Report (as discussed in Section 5.7.2), the corrective action narrative should state, "The corrective actions are the same as those stated in the original approved Final Report" and provide the original approved Final Report number; the corrective action target date should be the latest target date on the original approved Final Report; and the corrective action completion date should be the final actual completion date for all of the corrective actions (i.e., the field will remain empty until completion of all of the corrective actions).

(26) Corrective Actions
Examples

▶ Inspect the linear detector alarm system and implement repairs or maintenance.

    Actionee: Barry Sanders, TD Enterprises

    Target Completion Date: 10/30/1993

    Completion Date: 09/30/1993

▶ Develop and implement maintenance and testing schedule to ensure that the linear detection system operates within prescribed parameters.

    Actionee: Babe Ruth, HR & Associates

    Target Completion Date: 06/30/1994

    Completion Date:

(27) Impact on Environment, Safety, and Health

‣ Describe the impacts of the occurrence on the environment and the safety and health of workers or the public.

‣ Provide assessment of environmental, safety, and health consequences.

‣ You may base this response on existing conditions.

‣ Fully assess the safety consequences and safety margins.

‣ Include amounts of hazardous or radioactive materials released and levels of contamination, exposures of people, and known or projected health impacts.

(27) Impact on Environment, Safety, and Health

▸ For contamination events, include the information described in Sections 10.3.1.c and 10.3.2.c.

▸ For an occurrence related to nuclear safety, an assessment of the occurrence under alternative conditions must also be included if the occurrence could have been more severe under reasonable and credible alternative conditions such as power level or operating mode.

(27) Impact on Environment, Safety, and Health

Example:

It is estimated that less than 20,000 gallons of water were discharged. Analysis of the water samples indicated only three parameters in which the discharge exceeded the UPDES standards. The parameters, UPDES standards, and the discharge concentrations were as follows:

Parameter UPDES Standard Discharge Concentration

Total Aluminum 0.08(mg/L) 0.5220(mg/L)

Gross Alpha 15(pCi/L) 53.6(pCi/L)

Total Dissolved Solids 1200(mg/L) 1920(mg/L)

It should be noted that the concentration of aluminum in the creek was higher than the concentration of aluminum in the discharge; therefore, the release did not further degrade water quality in the creek. No adverse environmental impacts.

(28) Programmatic Impact

▶ Describe the impacts of the occurrence on the affected program or project (loss of data or plant availability, additional costs, schedule delays, or other measurable consequences of the occurrence).

▶ Required only for Final Reports.

▶ Examples:

  ☞ There were no increased programmatic costs as a result of this occurrence

  ☞ The three month delay in the ability to continue the Portsmouth Treatability Studies translated into an estimated cost of $40,000 and a loss of 1/4 of the allotted time to perform the study. Because treatabiity studies are allotted only one year for their duration, the loss of productivity had a much more serious impact than did the cost. In addition, at the end of the study, any untreated residues were to be returned to Portsmouth. However, Portsmouth, as the customer, originally wanted little or none of the residue samples returned. As a result of the delay, more time will be spent trying to determine and negotiate a method for disposal of the residues that could not be treated. This in turn will further impact productivity. In the long run, the impact of this occurrence could be very devastating as the organization's ability to do work for others in a safe and efficient manner will likely be questioned.

(29) Impact upon Codes and Standards

‣ If the occurrence affects the requirements of national codes and standards, program standards, or DOE orders, include a statement of the adequacy of the codes or standards, along with any recommended changes.

‣ Required only for Final Reports.

‣ Examples:

There were no impacts on national codes and standards, program standards, or DOE orders based on this event. However, the fire protection standard for this type of facility is under revision and will provide a list of acceptable fire detection systems.

The results of the Lightning Protection Project Team's efforts may result in revisions to the DOE Explosive Safety Manual and NFPA Standard 780.

(30) Lessons Learned

‣ Include any lessons learned from the occurrence that could be of importance to other facility operators or that should be addressed in personnel training or facility procedures.

‣ Required on for the Final Report.

(30) Lessons Learned
Example

Personnel need to maintain attention to detail when performing evolutions in accordance with procedures designated as step-by-step. In this occurrence, the procedure was not performed as written, resulting in the failure to identify and respond to a loss of vacuum alarm condition.

Good communications during turnover and the performance of activities is an essential element to identify and respond to abnormal conditions. In this occurrence, personnel failed to communicate alarm status and activities in progress as part of turnover. This resulted in the failure to identify and respond to an alarm condition.

(31) Similar Occurrence Report Numbers

▶ Indicate similar occurrence(s) for this or other facilities by appropriate report number(s).

▶ Identify any known commercial reactor licensee event reports (LERs) or other related documents describing similar occurrences.

▶ Identify occurrences that might suggest a generic problem.

▶ List one report number per line.

▶ Example:
  1) RL--WHC-PUREX-1991-2220
  2) AT--SRO-NUCLEAR-1990-0001

(32) User-Defined Field #1

▸ Enter responsible organization number as: 7210

(33) User-Defined Field #2

‣ This optional field can be used by the facility manager to store additional facility-specific information.

(34) DOE Facility Representative Input

▸ The DOE facility representative/designee should use this field to do the following:

✎ Provide evaluation of the occurrence, including evaluation of initial and proposed corrective actions and all follow-up by the contractor

✎ Describe any other actions DOE has taken since the occurrence

✎ Supplement the information in the update or final report

▸ This field is optional for accepted reports. It is required for comments on rejected reports.

(35) Program Manager Input

▸ The DOE program manager/designee should use this field to do the following:

☞ Provide evaluation of initial and proposed corrective actions and all follow-up

☞ Describe any other actions DOE has taken since the occurrence

☞ Supplement information with subsequent entries, if desired

☞ Provide reasons for any reports that are rejected

▸ This field is required for comments on rejected reports.

(36) Signatures

‣ Hard copy (classified reports) - 3 signatures required

‣ Facility manager

‣ Facility representative

‣ Program manager

‣ Name must be typed below each signature

‣ ORPS provides electronic signatures