



Occurrence Reporting Activities



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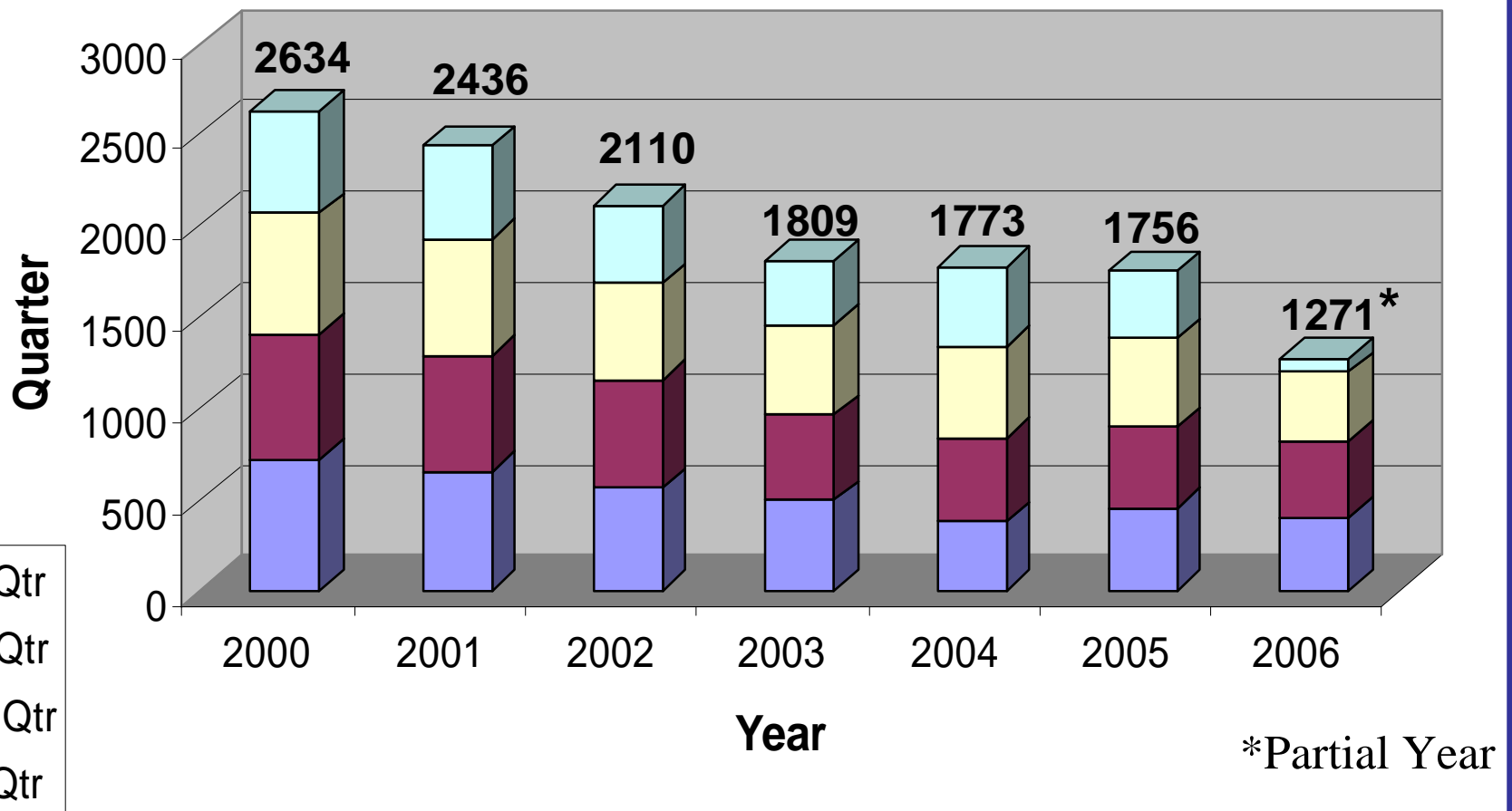
History of Occurrence Reporting



- § ORPS was implemented on April 1, 1991.
- § The latest Order/Manual changes were approved on 8/19/03, and the redesign was effective on 12/1/03.
- § On 10/1/05, there was a major change to the organizational codes in ORPS to reflect the current DOE reporting structure.
- § Revisions to the Manual and Guides have been drafted to update program requirements and reporting criteria due to lessons learned. However, additional HQ review and approval are necessary due to a reorganization and new priorities.
- § There are almost 53,000 occurrence reports containing almost 56,300 occurrences.



Number of Occurrences





Office of Health, Safety and Security



§ One of Secretary Bodman's first stated priorities was worker health and safety.

- Continually emphasized the need for the Department to have a safe and secure work environment for all Federal and contractor employees.
- Stressed the importance of clear roles and responsibilities and personal accountability.
- Determined that further strengthening of worker health, safety and security could be accomplished through the creation of a new office, the Office of Health, Safety and Security.



HSS Mission Statement

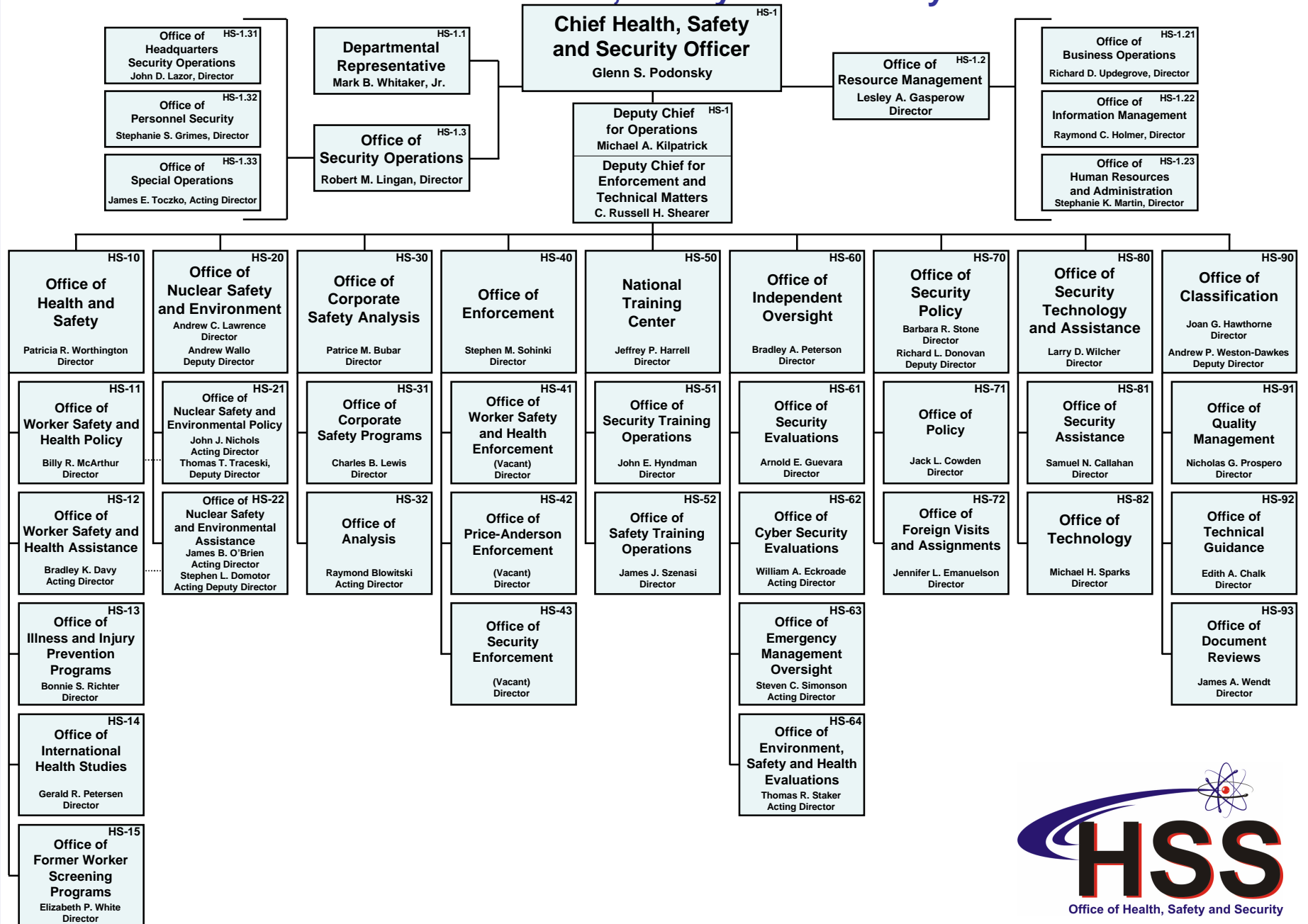


The Office of Health, Safety and Security works in partnership with the safety and security communities to better coordinate and integrate the roles of enforcement, independent oversight, security, worker health, safety and environmental programs within the Department to achieve a safer, healthier, more secure, and environmentally responsible work environment.

The Office of Health, Safety and Security provides the leadership and strategic vision necessary to manage the Department's major staff organizations responsible for providing DOE-wide health and safety, environment, and security policy development and technical assistance; worker health and safety programs; environmental protection; safety and security training; independent oversight; enforcement; and interface with the Defense Nuclear Facilities Safety Board.

Office of Health, Safety and Security

10-03-06





Update on Proposed OR Program Requirement Changes



During the Spring ORPS Task Group Meeting, Occurrence Reporting Program Requirement changes were discussed. Following are the proposed changes made as a result of that meeting. These proposed changes will need to be vetted through the new HSS management chain and additional changes may be added due to new initiatives and priorities.

- Add FR approval for Significance Category (SC) 3 events, in addition to currently required SC OE, 1, R, and 2 events.
- Add Root Cause Analysis for SC 2 events, in addition to SC OE, 1, and R events.
- Require Quarterly Performance Analysis Reports to be sent to HSS in addition to line management.
- Require additional specificity in SCI-DI reports.



Revision to Occurrence Reporting Model



Significance Category	Timelines ¹	Prompt Notification	Investigation	Causal Analysis	Report Approvals	Corrective Actions	Corrective Action Closures	Corrective Action Effectiveness	Lessons Learned ³
Operational Emergencies (defined by DOE O 151.1C)	Cat: ASAP PN: NLT 15 min if further classified; NLT 30 min if not further classified WN: COB next business day not to exceed 80 hrs UR: As needed FR: 45 days	DOE Facility Representative & DOE Headquarters Operations Center (OC)	Team with Trained Investigator. DOE Consider Accident Investigation.	Root Cause Analysis	DOE Facility Representative & DOE Program Manager Approval	Remedy Problem, Prevent Recurrence, & Preclude Similar Problems	Contractor Document & Independently Verify	Contractor Assess Effectiveness to Prevent Recurrence	Enter into DOE LL Database & Coverage in OE Summary
Significance Category 1 Reportable Occurrence	Cat: NLT 2 hrs PN: NLT 2 hrs WN: COB next business day not to exceed 80 hrs UR: As needed FR: 45 days	DOE Facility Representative & DOE Headquarters OC	Team with Trained Investigator. DOE Consider Accident Investigation.	Root Cause Analysis	DOE Facility Representative & DOE Program Manager Approval	Remedy Problem, Prevent Recurrence, & Preclude Similar Problems	Contractor Document & Independently Verify	Contractor Assess Effectiveness to Prevent Recurrence	Enter into DOE LL Database & Coverage in OE Summary.
Significance Category R. Includes Recurring Category 1, 2, 3, and/or 4 Reportable & Non-Reportable Occurrences	Cat: NLT 2 hrs WN: COB next business day UR: As needed FR: 45 days		Trained Investigator	Root Cause Analysis	DOE Facility Representative Approval	Remedy Problem, Prevent Recurrence, & Preclude Similar Problems	Contractor Document & Independently Verify	Contractor Assess Effectiveness to Prevent Recurrence	Enter into DOE LL Database & Optional Coverage in OE Summary
Significance Category 2 Reportable Occurrence	Cat: NLT 2 hrs PN: NLT 2 hrs WN: COB next business day UR: As needed FR: 45 days	DOE Facility Representative (DOE HQ OC at Field Office Discretion) ²	Trained Investigator	Root Cause Analysis	DOE Facility Representative Approval	Remedy Problem & Prevent Recurrence	Document & Verify by Sampling	Optional	Consider entering into DOE LL Database & Optional Coverage in OE Summary
Significance Category 3 Reportable Occurrence	Cat: NLT 2 hrs PN: NLT 2 hrs WN: NLT 2 business days UR: As needed FR: 45 days	DOE Facility Representative (DOE HQ OC) ²	Critique/ Fact Finding	Apparent Cause Analysis	DOE Facility Representative Approval	Remedy Problem	Document (Verification Optional)	Optional	Per Site Specific Process
Significance Category 4 Reportable Occurrence Cat: NLT 2 hrs	PN: NLT 2 hrs (as required) Short Form Report: NLT 2 business days	(DOE Facility Representative & DOE HQ OC)	No reporting of causal analysis or lessons learned in ORPS. The reporting of corrective actions is optional. Reportable and non-reportable occurrences are managed per contractor-specific corrective action programs.						



Changes to OR Program Requirements (cont'd.)



§ Addition of a field to code identified weaknesses in the QA Program. These data will be used to trend to QA Management Systems and to focus assessments to improve operations.

- A. Program**
- B. Training and Qualification**
- C. Quality Improvement**
- D. Documents and Records**
- E. Work Process**
- F. Design**
- G. Procurement**
- H. Inspection**
- I. Management Assessment**
- J. Independent Assessment**
- K. Software QA**
- L. None**

A through J refer to the ten QA criteria in QA Order 414.1C and Rule 10 CFR 830.



Reporting Criteria Changes



It was also decided to change the Significance Category from SC 4 to SC 3 for the following Reporting Criteria to permit FR approval:

- 3A4 - An event consisting solely of a surveillance test performed after the prescribed surveillance period, and in which the equipment was found to be capable of performing its specified safety function.
- 4B5 - A facility operational event caused by deviating from a written procedure or using an inadequate procedure resulting in an adverse effect on safety, such as: an inadvertent facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes), facility or operations shutdown due to alarm response procedures, inadvertent process liquid transfer, or inadvertent release of hazardous material from its engineered containment.
- 4B6 - A facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes) directed by management or a DOE employee (other than a Field Element Manager or Contracting Officer) for safety reasons.



Reporting Criteria Changes **(cont'd.)**



- 5A3 - Any release (onsite or offsite) of a hazardous substance, material, waste, or radionuclide from a DOE facility that exceeds 50 percent of the reportable quantities specified in 40 CFR 302 or 40 CFR 355, unless the release is allowed under an applicable permit.
- 6D3 - Any onsite contamination of personnel or clothing (excluding provided by the site for radiological protection clothing) that exceeds 10 times the values for total contamination identified in 10 CFR Part 835, Appendix D. The contamination level must be based on direct measurement and not averaged over any area. This criterion does not apply to tritium contamination.
- 8(3) - Any onsite transport of hazardous material, including radioactive material, whose quantity or nature (e.g., physical or chemical composition) is different than intended, such that the receiving organization's operations were impacted/disrupted or the transport resulted in the initiation of corrective actions by the originating organization.



Reporting Criteria Changes (cont'd.)



§ New Injury Criterion – Group 2A (new #3), SC 2

- Any single occurrence resulting in an occupational injury that requires inpatient hospitalization for 5 days or more, commencing within 7 days from the date the injury was received.

Note: This criterion is similar to one of the thresholds for initiating a Type B accident investigation. If such an investigation is begun, the event should be reported under Criterion 10(1), as well as under this criterion if the injury so warrants.

§ New Injury Sub-Criterion – Group 2A (currently #6) [new (e)], SC 3

- Causes (1) a concussion or (2) a loss of consciousness due to an impact to the head.



Reporting Criteria Changes (cont'd.)



§ Revised Fire Criteria – Group 2B

- (1) *1 Any unplanned fire or explosion within primary confinement/containment boundaries of a nuclear facility, except a small fire that self-extinguishes in 10 minutes or less.
- (2) *2 Any unplanned fire or explosion in a nuclear facility that:
 - a) Activates a fixed fire suppression system (e.g., Halon[®] or sprinkler heads), or
 - b) Is extinguished manually using fire protection equipment, or
 - c) Disrupts normal operations in the facility, or
 - d) Is a small fire within primary confinement/containment that self-extinguishes in 10 minutes or less.



Reporting Criteria Changes (cont'd.)



§ New Hazardous **Electrical** Energy Control Criteria –
Group 2, Subgroup C (still subject to change based on
ESIP feedback)

- (1) 2 Failure to follow a prescribed hazardous **electrical** energy control process (e.g., lockout/tagout) or disturbance of a previously unknown or mislocated hazardous **electrical** energy source resulting in a person contacting (burn, shock, etc.) hazardous **electrical** energy.
- (2) 3 Failure to follow a prescribed hazardous **electrical** energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous **electrical** energy source. This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.



Reporting Criteria Changes (cont'd.)



- § New Hazardous Energy Control (**Other**) Criteria – Group 2, Subgroup D (still subject to change based on ESIP feedback)
- (1) 2 Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or disturbance of a previously unknown or mislocated hazardous energy source (e.g., electrically powered mechanical hazards, steam, pressurized gas) resulting in a person contacting (burn, injury, etc.) hazardous energy.
 - (2) 3 Failure to follow a prescribed hazardous energy control process (e.g., lockout/tagout) or a site condition that results in the unexpected discovery of an uncontrolled hazardous energy source (e.g., electrically powered mechanical hazards, steam, pressurized gas, etc.). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.



Reporting Criteria Changes (cont'd.)



§ Revised PISA Criterion – Group 3B (2) SC 3

- Added a Note, as follows:

[Note: When a potential inadequacy of a documented safety analysis is found, this would be initially reported under Criterion 3B(2). If further analysis results in a positive USQ determination, then the occurrence should be updated to recategorize it under Criterion 3B(1). If there is a negative USQ determination, then the report should be cancelled.]



Reporting Criteria Changes (cont'd.)



§ Revised Stop Work/Shutdown Criterion – Group 4B (1) SC *2

- An unplanned facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes) directed by a DOE Field Element Manager or Contracting Officer for safety reasons.

§ Revised Evacuation Criterion – Group 4B (4) SC 3

- A facility evacuation other than a precautionary evacuation or an evacuation due to false alarms or spurious alarms (e.g., due to electronic noise, radon/thoron decay). If the event fell under another reporting criterion, then evacuation should be reported as well by noting multiple reporting criteria for the single occurrence.



Reporting Criteria Changes (cont'd.)



§ Revised Shutdown Criterion – Group 4B (6) SC *3

- A facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes) directed by management or a DOE employee (other than a Field Element Manager or Contracting Officer) for safety reasons.



Reporting Criteria Changes (cont'd.)



§ Revised Environmental Release Criterion – Group 5A (4) SC 4

- Any release (onsite or offsite) of a hazardous substance, material, waste, or radionuclide from a DOE facility that must be reported to outside agencies in a format other than routine periodic reports. (However, oil or ethylene glycol antifreeze solution spills of less than 10 gallons and with negligible environmental impact need not be reported in ORPS. For operations involving oilfield crude or condensate, any discharge not exceeding 100 barrels need not be reported under this criterion.)



Reporting Criteria Changes (cont'd.)



§ Revised RadCon criteria – Group 6B (2, 3, and 4) SC 2, 3, and 4

- Added an additional exclusion area in each criteria:
 - (2) 2 Identification of onsite radioactive contamination greater than 100 times the total contamination values in 10 CFR 835 Appendix D and that is found outside of the following locations: Contamination Areas, High Contamination Areas, Airborne Radioactivity Areas, Radiological Buffer Areas, areas controlled in accordance with 10 CFR 835.1102(c), **and any non-posted area that is under the continual observation and control of an individual empowered to implement access and exposure control measures.** For tritium, the reporting threshold is 100 times the removable contamination values in 10 CFR Part 835, Appendix D.



Reporting Criteria Changes (cont'd.)



§ Revised RadCon criteria – Group 6B (2 and 3) SC 2 and 3

- Added an additional note in each criterion:

(d) This does not apply to items and containers handled and stored onsite that meet DOT limits specified in 49 CFR 173.443.

§ Modified Radiation Exposure criterion – Group 6C (2) SC 2

- An exposure **estimated to exceed** the values for providing personnel dosimeters and bioassays as stated in 10 CFR 835.402(a) or 10 CFR 835.402(c) **and the failure to provide the monitoring addressed by those requirements.**



Reporting Criteria Changes (cont'd.)



§ Revised Management Concern criterion – Group 10 (2) SC 1-4 †

- An event, condition, or series of events that do not meet any of the other reporting criteria, but is determined by the Facility Manager or DOE/contractor line management to be a safety concern for that facility or other facilities or activities in the DOE complex. The significance category assigned to the management concern should be based on an evaluation of the potential risks and associated corrective actions.

[† Note: Follow the Prompt Notification requirements identified in the Occurrence Reporting Model (Section 11).]



Reporting Criteria Changes (cont'd.)



§ Revised Near Miss criterion – Group 10 (3) SC 1-3 †

- An event that does not meet any other ORPS reporting criterion where something physically happened that wasn't supposed to and significant consequences were avoided only by luck (i.e., no controls or protective equipment were in place to prevent a worse case scenario, or the controls or protective equipment were ineffective). The significance category assigned to the near miss should be based on an evaluation of the potential risks and associated corrective actions.

[† Note: Follow the Prompt Notification requirements identified in the Occurrence Reporting Model (Section 11).]



Reporting Criteria Changes (cont'd.)



§ New OSHA reporting criterion – Group 10 (6) SC 1-3[†]

- A noted noncompliance with worker safety and health requirements that, if not corrected immediately, could result in serious injury (e.g., working at heights without proper fall protection; failure to use proper PPE for electrical work; employee working in improperly shored/sloped trench or excavation). The significance category assigned to the noncompliance should be based on an evaluation of the potential risks and associated corrective actions.

[[†] Note: Follow the Prompt Notification requirements identified in the Occurrence Reporting Model (Section 11).]



Corporate Performance Indicators



One of HS-3's new initiatives is Corporate Performance Indicators. While the process is still under development, the Corporate PIs have been identified as follows:

- Significant Offsite Loss of Control of Radiological or Contaminated Material
- Significant Offsite Environmental or Public Impact (non-radiological)
- Inadvertent Criticality
- Deaths/Serious Injuries
- Serious Radiation or Industrial Hygiene Exposure to Workers
- Serious Unplanned Fire or Explosion



Precursors (Leading Indicators)



Precursors (Leading Indicators) for “Significant Offsite Loss of Control of Radiological and Contaminated Material”

- § Offsite Loss of Control of Radioactive Materials or Spread of Contamination
- § Transportation Incidents involving Radiological and Contaminated Material
- § Events Related to Excessed Equipment
- § Onsite Loss of Control of Radioactive Materials or Spread of Contamination
- § Personnel Radiation Exposure and/or Contamination



Precursors (Leading Indicators)



Precursors (Leading Indicators) for “Significant Offsite Environmental or Public Impact (non-radiological)”

§ OSHA Reportable Exposures

§ Transportation Incidents involving Hazardous Material (Non-Rad)

§ Noncompliance Notification

§ Onsite or Offsite Reportable Environmental Release



Precursors (Leading Indicators)



Precursors (Leading Indicators) for “Inadvertent Criticality”

- § Loss of Criticality Control Events
- § TSR Violations Related to Criticality
- § Inadvertent Transfer



Precursors Leading Indicators



Precursors (Leading Indicators) for “Deaths/Serious Injuries”

- § Deaths due to DOE Operations
- § Serious Injuries or Exposures (Individuals & Multiple Persons)
- § Violations of Hazardous Energy Control Process (electrical and/or mechanical) and Electrical Safety
- § Near Misses
- § TRC & DART (with Filter)



Precursors (Leading Indicators)



Precursors (Leading Indicators) for “Serious Radiation or IH Exposure”

§ OSHA Reportable Exposures

§ Personnel Radiation Exposure and/or Contamination

§ Ventilation System Equipment Failures



Precursors (Leading Indicators)



Precursors (Leading Indicators) for “Fire or Explosion”

- § Explosion
- § Onsite Fires
- § Offsite Fires



Quality of Occurrence Reports



§ Occurrence reports provide a large part of the operating experience data across the DOE complex.

- Significant use of ORPS data is made for high-level DOE briefings
- Program and Field Offices perform periodic and routine analyses.
- Contractors analyze the data quarterly to identify trends and recurring events.
- Contractors look for precursor events at other sites.



Quality of Occurrence Reports (cont'd.)



- Since the occurrence reporting data are used for many purposes, the quality of occurrence reports needs to be consistently high.
 - Make sure that the Reporting Criteria are correct.
 - When the SC level can be selected, make sure that it is at the appropriate level.
 - The report should enable the general reader to understand the basic “what, who, when, where, and how” of the event, the safety issues involved, and the actions taken.
 - The Subject/Title and the first paragraph of the Occurrence Description should relay the essential nature of the event (i.e., a summary of the occurrence in newspaper style). All information should be clear and succinct.



Quality of Occurrence Reports (cont'd.)



- For suspect/counterfeit and defective items or material, also provide:
 - ∅ the manufacturer/supplier/vendor (including a contact, phone number, and web site),
 - ∅ the model and part numbers,
 - ∅ the quantity found,
 - ∅ why the item/material is suspect/counterfeit or defective,
 - ∅ how the item/material is being used
 - ∅ the method of detection (i.e., receipt inspection, craft inspection prior to installation, in-service inspection, or failure).
 - ∅ Finally, identify any resulting consequences and provide any photos via hyperlink, as appropriate.



Path Forward



- § Coordinate proposed changes with HSS line management
- § Add any additional changes due to HSS new initiatives
- § Finalize revisions to documents (Manual and two Guides)
- § Post on RevCom
- § Make necessary software changes
- § Get approval of revised documents
- § Incorporate Manual into contracts



QUESTIONS?