



E. O. Lawrence Berkeley National Laboratory

Manual

for

10 CFR 851 Worker Safety & Health Program Noncompliance Screening & Reporting Process

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Approved: W. W. Wells
851 Program Manager

Date: 4/18/2007

Approved: Richard E. Albush
Occupational Safety Group Leader

Date: 4/18/07

Process Elements and Flow for Screening & Reporting Potential 10 CFR 851 Worker Safety & Health Program (851 Program) Noncompliances

I. Data Compilation and Categorization

A. Compilation

The 851 Program Manager for LBNL monitors Lab operations, accidents, incidents, internal assessments (independent, management, and self assessments), investigations, audits, external reviews, abnormal occurrences, operational trends and non-routine ES&H actions in order to identify all matters, events or issues that are potential 851 Program Noncompliances. In monitoring and compiling such data, the 851 Program Manager works closely with several Lab units: Occurrence Reporting and Processing System (ORPS) Program; Institutional Assurance (IA); Internal Audit Services; Laboratory Counsel; functional offices within the Environment, Safety and Health Division (ES&H); and the 10 CFR 851 Steering Committee. The Corrective Action Tracking System (CATS), Divisional Safety Coordinators, the ORPS Program, and the CATS NTS (Noncompliance Tracking System) Review Team provide critical contributions to the 851 Program Noncompliance screening and reporting efforts at LBNL.

B. Categorization

The 851 Program Manager, in conjunction with the CATS NTS Review Team, reviews the CATS database and other applicable ES&H data sources (see Section I.A) to screen issues or concerns with potential relevance to 851 Program compliance at LBNL. Those ES&H issues or concerns identified as 851 Program Noncompliances are then further evaluated (see Section II) to determine whether they meet the DOE Office of Enforcement (DOE-OE) threshold criteria for reporting into the Noncompliance Tracking System (NTS). For those 851 noncompliances that meet the reporting threshold criteria, the 851 Program Manager informs the DOE Berkeley Site Office (BSO) and other LBNL units of the review and its categorization as an NTS reportable noncompliance, and an NTS report is submitted. For those 851 noncompliances found not to be NTS reportable, no further DOE reporting is done, and follow up and closure of the noncompliance is managed through CATS.

II. Analysis and Noncompliance Tracking System (NTS) Reportability Determination

A. 851 Noncompliance Determination

For each potential 851 Program Noncompliance, the 851 Program Manager assembles pertinent information to assist in an analysis by the CATS NTS Review Team. Assembled information (documents, photographs and related data) is reviewed by the CATS NTS Review Team on a weekly basis. The outcome of this review is the determination of whether each potential 851 Program Noncompliance is a valid 851 Program Noncompliance or not. Each valid 851 Program Noncompliance is then

characterized sufficiently to fully assess its nature and impact in terms of the DOE-OE reporting policy for NTS submissions.

B. NTS Reportability Assessment

For each 851 Program Noncompliance, the CATS NTS Review Team (a BSO/LBNL partnership) analyzes all available characterization information (see Section II.A), compares it to the NTS reporting thresholds (see Attachment I), and makes an NTS reportability determination. When an NTS is the result of an Occurrence Report, the NTS will incorporate by reference the corrective actions listed in the linked ORPS report, which will serve as the tracking mechanism for those corrective actions. Additionally, assessment of prior CATS entries and related 851 Program Noncompliances is also routinely done by the 851 Program Manager, and those that are identified for possible NTS reporting as Programmatic or Repetitive deficiencies are brought to the CATS NTS Review Team for reportability assessment.

III. Non-NTS Reported 851 Noncompliances

A. Closure Actions

851 Program Noncompliance that are not NTS reportable are tracked to closure through the CATS process.

IV. NTS Reported Noncompliances

A. Report Initiation

Following DOE-OE guidelines for NTS reporting, the 851 Program Manager submits an NTS report after sufficient facts are known and the outcome of Section II.B above is positive.

B. NTS Noncompliance Monitoring and Documenting

As the factual characterization, analysis, investigation and causal conclusions pertaining to the 851 Program Noncompliance develops, the 851 Program Manager assures:

- BSO is informed and consulted on a regular basis
- The NTS report is updated as needed
- Progress is reviewed at every CATS NTS Review Team meeting
- Communications are factual, honest and without prejudice or bias
- Corrective actions fully address the findings and causes in the matter
- Lessons Learned, if any, are broadly communicated
- Appropriate documentation is archived

C. Documenting Corrective Action Completion:

As each corrective action is completed, the 851 Program Manager validates its completion, includes evidence for its closure in an archive file, and communicates completion to DOE via NTS.

D. Report Closure

After all corrective actions are validated as complete, the CATS NTS Review Team reassesses the overall case for a complete record and for comprehensive corrections. Once no further Laboratory efforts are warranted, LBNL completion is reported on NTS and to BSO.

BSO coordinates closure with DOE-HQ, confirms corrective actions, and informs LBNL of same.

V. CATS NTS Review Team Actions

A. Meetings

The CATS NTS Review Team is lead by the 851 Program Manager and meets weekly. The following are the minimum agenda items:

- Review of minutes and action plans from previous meetings.
- Review of new CATS entries since the last meeting to make 851 Program Noncompliance determinations.
- Comparison to NTS reporting thresholds to make NTS reportability determination.
- Review of status of prior NTS submissions and plans for completion.
- Exchange of information concerning DOE or Laboratory or other activities that may have an impact on LBNL's 851 Program.

In addition to the above standing agenda, other topics may be discussed, such as: Lessons Learned; information from DOE and/or EFCOG conferences; occurrences at other DOE Laboratories which may have ramifications for LBNL; and good practices which may be incorporated into LBNL processes. A monthly review meeting with DOE-BSO will be conducted to brief on the status of all NTS items.

VI. Oversight Information and Document Process Flow

Attachment #2 provides a graphic depiction of the flow processes used at LBNL for communicating, documenting and reporting potential 851 Program Noncompliances.

VII. References

- US DOE Office of Price-Anderson Enforcement, Enforcement Program Plan, August 2006
- 10 CFR Part 851 NTS Reporting Thresholds (revised 2/6/2007)

Attachment #1:

The procedure for reporting of DOE 851 Program Noncompliance conditions is described in the DOE Office of Price-Anderson Enforcement, Enforcement Program Plan of August 2006. Appendix B, Tables B-1 and B-2 from that Plan, reproduced below, provide the thresholds for reporting 10CFR851 noncompliance conditions to the DOE Noncompliance Tracking System, NTS. Notes to Tables B-1 and B-2 provide additional specific guidance and refer to additional resource documents. The information needed from those resource documents is also reproduced below.

Appendix B - Reporting Worker Safety and Health Noncompliances¹ into NTS

Table B-1 - Noncompliances Associated With [ORPS] Occurrences (DOE Manual 231.1-2)

Reporting Criteria Group	Subgroup	Occurrence Category and Summary Description ²
2. Personnel Safety and Health	A. Occupational Illnesses/Injuries	(1) Fatality/terminal illness (2) Inpatient hospitalization of > 3 personnel (3) > 3 personnel having DART cases (4) Personnel exposure > limits requiring medical treatment (5) Personnel exposure > limits (6) Serious occupational injury
	B. Fires/Explosions	(1) Unplanned fire/explosion within primary confinement/containment (2) Unplanned fire/explosion in a nuclear facility that activates a fire suppression system (3) Unplanned fire/explosion in a non-nuclear facility
	C. Hazardous Energy Control	(1) Process failure resulting in burn, shock (2) Process failure/discovery of uncontrolled energy source
10. Management Concerns/Issues	N/A	(3) Near miss

The simple occurrence of an event in any of the listed categories is not enough to warrant NTS reporting. Reportable noncompliances require the identification of a 10 CFR Part 851 noncompliance (e.g., 29 CFR Parts 1910 and 1926) in conjunction with the event. OE is interested only in those portions of the criteria with direct worker safety and health implications. Contractors identifying a significant worker safety and health noncompliance in association with an event type or category not listed on the table should evaluate the event for NTS reportability.

Table B-2 - Other NTS Reportable Conditions

Management Issues Noncompliances³
Repetitive Noncompliances
Programmatic Issue
Intentional Violation or Misrepresentation
Other Significant Conditions
Conditions meeting the criteria of Severity Level I (serious) violations and high relative risk ⁴

Notes to Tables B-1 and B-2

- 1 Noncompliances with 10 CFR Part 851.
- 2 These summary descriptions are a brief characterization of the related criteria. Use the full statement of the criteria contained in Manual 231.1-2 to establish NTS reportability of event-related occupational safety and health noncompliances. The summary descriptions contained in Manual 231.1-2 are reproduced in the tables following these Notes.
- 3 Refer to chapter IV for a description of these types of noncompliances.
- 4 Conditions of noncompliance identified by any method or means (e.g., contractor assessments, internal review processes, external assessments, employee concerns, event evaluation) that would not otherwise be reported into NTS as either a Management Issue or Occurrence, but that represent a condition of high relative risk. Conditions with an associated low or medium relative risk should not be reported. Guidance on risk assessment criteria can be found at <http://www.eh.doe.gov/health/rule851/851final.html> , clicking on the Implementation Guide link.

Note 2 References: ORPS Summary Descriptions Reproduced from Manual 231.1-2

Group 2 - Personnel Safety and Health		
Subgroup A Occupational Illnesses/Injuries		
(SC)	#	Reporting Criteria
*1	(1)	Any occurrence due to DOE operations resulting in a fatality or terminal injury/illness. For fatalities caused by overexposures, the intent of this criterion is to report those caused by acute rather than chronic effects.
	(2)	Any single occurrence requiring in-patient hospitalization of three or more personnel.
2	(3)	Any single occurrence resulting in three or more personnel having Days Away, Restricted or Transferred (DART) cases per 29 CFR Part 1904.7.
*2	(4)	Personnel exposure to chemical, biological or physical hazards above limits established by the Occupational Safety and Health Administration (refer to 29 CFR Part 1910) or American Conference of Governmental Industrial Hygienists, whichever is lower, and that requires the administration of medical treatment beyond simple first aid on the same day as the exposure. [29 CFR 1904.7(b)(5)(i) and (ii) define "medical treatment" and "first aid."]
3	(5)	Personnel exposure to chemical, biological or physical hazards above limits established by the Occupational Safety and Health Administration (refer to 29 CFR Part 1910) or American Conference of Governmental Industrial Hygienists.
3	(6)	Any single occurrence resulting in a serious occupational injury. A serious occupational injury is an occupational injury that:
	(a)	Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received;
	(b)	Results in a fracture of any bone (except simple fractures of fingers, toes, or nose, or a minor chipped tooth);
	(c)	Causes severe hemorrhages or severe damage to nerves, muscles, or tendons;
	(d)	Damages any internal organ; or
(e)	Causes second or third degree burns, affecting more than five percent of the body surface.	
Asterisks (*) next to the significance categories above denote those occurrences requiring prompt notification to the DOE HQ OC.		

Subgroup B Fires/Explosions		
(SC)	#	Reporting Criteria
*1	(1)	Any unplanned fire or explosion within primary confinement/containment boundaries for nuclear or hazardous material within a facility. Note: Facility specific documents need to define what constitutes the primary confinement/containment boundary.
*2	(2)	Any unplanned fire or explosion in a nuclear facility that activates a fire suppression system (e.g., halon discharge, sprinkler heads activating), is extinguished by a fire department, or disrupts normal facility operations. Note: The activation or degradation of Safety Class and Safety Significant fire suppression systems are addressed by Group 4 Criteria.
*3	(3)	Any unplanned fire or explosion in a non-nuclear facility that:
	(a)	Activates a fire suppression system,
	(b)	Takes longer than 10 minutes to extinguish following the arrival of fire protection personnel, or
	(c)	Disrupts normal operations in a high hazard facility.
Asterisks (*) next to the significance categories above denote those occurrences requiring prompt notification to the DOE HQ OC.		

Subgroup C Hazardous Energy Control		
(SC)	#	Reporting Criteria
1		None
2	(1)	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., live electrical power circuit, steam line, pressurized gas) resulting in a person contacting (burn, shock, etc.) hazardous energy.
3	(2)	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., live electrical power circuit, steam line, pressurized gas). This criterion does not include discoveries made by zero-energy checks and other precautionary investigations made before work is authorized to begin.

Group 10 - Management Concerns/Issues		
(SC)	#	Reporting Criteria
1 - 4	(3)	A near miss, where no barrier or only one barrier prevented an event from having a reportable consequence. One of the four significance categories should be assigned to the near miss, based on an evaluation of the potential risks and the corrective actions taken. Note: An SC 1 occurrence report requires Prompt Notification.

Note 3 References: Summary Descriptions of Programmatic, Repetitive or Intentional Noncompliances

Reporting a Programmatic or Repetitive Noncompliance

DOE also is interested in the reporting of programmatic or repetitive noncompliances, as noted in appendix A, table A-1 and appendix B, table B-1. A programmatic problem is typically discovered through a review of multiple events or conditions with a common cause, but may also be found through casual analysis of a single event. A programmatic problem generally involves

some weakness in administrative or management controls, or their implementation, to such a degree that a broader management or process control problem exists. When management determines that a problem or series of events or conditions dictate the need for broad corrective actions to improve management or process controls, management has concluded that the problem is programmatic. Repetitive problems involve generally two different events that involve substantially similar conditions, locations, equipment, or individuals. These generally are narrower in scope than a programmatic problem, and reasonably should have been prevented by a contractor's corrective actions for a previous noncompliance condition involving similar circumstances and root causes. The relative time frames in which the events occurred sometimes dictate a conclusion with regard to whether repetitive issues are involved. Consideration of programmatic or repetitive problems should not originate due to NTS reporting requirements. DOE expects that normal safety management and quality improvement processes would dictate that when a problem arises, consideration is given as to whether the problem is broader than or a repeat from a prior occurrence. Further, assessment and trending activities should be looking for potential programmatic and repetitive problems. Additionally, PAAA coordinator reviews may provide another avenue for identification of programmatic and repetitive noncompliance conditions through reviews of their noncompliance databases. Programmatic or repetitive deficiencies identified through such processes would normally be placed in a corrective action management process, and then go through the noncompliance screening process to identify any noncompliances. If the identified programmatic or repetitive deficiency involves a safety noncompliance, it should be reported conclusion regarding the safety significance of the particular noncompliance condition(s) on the part of the contractor making the report.

Reporting an Intentional Noncompliance or Misrepresentation

OE is also interested in the reporting into NTS of an intentional noncompliance with safety rules, as noted in appendix A, table A-2, and appendix B, table B-2. An intentional noncompliance may involve a case in which records are falsified intentionally, such as indicating that a work activity or inspection occurred in circumstances in which the worker knows that such an activity did not occur. In these cases, in addition to any other noncompliance issues that may be present, noncompliance with Part 820.11 regarding accuracy of information may also be involved. The determination of a false record, based on additional evidence that the work did not occur, provides the basis for classifying the condition as an Intentional Noncompliance or Misrepresentation, and, thus, should be reported into the NTS. That is because, irrespective of the significance of the activity involving a false record, the act of falsifying the record and providing inaccurate information is serious, and thus warrants DOE and contractor management attention, including the process of making an NTS report. An intentional noncompliance can also include a case in which a worker is warned by a co-worker that a certain contemplated action would violate requirements, and then the worker proceeds to take the action anyway. The co-worker's reporting of the incident becomes the evidence that the noncompliance was intentional. Such individual instances of intentional noncompliance should be reported into the NTS. OE must then determine whether the matter should result in an enforcement action. OE expects that, as in the above examples, where evidence is available that demonstrates that the noncompliance was intentional, the matter should be treated as an intentional noncompliance and reported into the NTS. On the other hand, care must be taken before a conclusion is reached that a noncompliance is intentional. For example, a situation in which a worker was trained to do a certain action and then subsequently failed to do so, may have been a lapse in recalling the training or, possibly, inadequate training, rather than an intentional disregard of the requirements. Without further evidence, there is no basis upon which to report the noncompliance as intentional.

Note 4 References: Noncompliances Associated with Other Significant Conditions, e.g., Severity Level I (serious) violations and high relative risk

Background:

This methodology is based on a hard copy document obtained from DOE-EH on 5/12/06, titled "Risk Assessment Methodology", which was adapted from DOD Instruction, Number 6055.1 "DoD Safety and Occupational Health (SOH) Program", Enclosure 7 "Deriving RACs". The DOD document is available from the DTIC Website at:

http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf.

The DOD-EH document has been adapted for use in conjunction with LBNL's hazard level determination process for CATS entries (PUB-5344 "ESH Self-Assessment Program" Section 10.3) as a risk assessment methodology for determining the relative risk of 851 noncompliances. PUB-5344 is available from the LBL website at: http://www.lbl.gov/ehs/oa/02prog_docs/PUB5344.pdf.

Methodology:

The relative risk (risk category) of an 851 noncompliance is expressed as "High", "Medium", or "Low", based on the Risk Assessment Code (RAC) assigned to the noncompliance. The RAC is a function of the potential severity of injury or illness that could result from the exposure to the noncompliance and the probability that such an injury or illness would occur.

Relative Risk Determination Process:

The LBNL relative risk determination process is as follows:

- Step 1: **Determine the Severity Code.** The severity code is associated with the most serious type of injury or illness that could potentially result from exposure to an 851 noncompliance. The following Severity Code Levels table provides a comparison of the terminology used to describe CATS Hazard Levels and 851 Severity Levels in order to provide a cross reference for determining DOE-EH Severity Codes.
- Step 2: **Determine the Probability Code.** The probability code expresses the likelihood that a noncompliance will result in an injury or illness, based on an assessment of applicable safety or health factors. All relevant factors that may influence the likelihood of injury or illness should be considered, including the following:
- Safety Factors:
- Number of employees potentially exposed, both concurrently and sequentially.
 - Frequency of exposure, including the full range of possible frequencies, from one-time, short duration exposures to continuous daily exposure.
 - Employee proximity to the hazard (e.g., from a location at the fringe of the danger zone up to the point of danger).
 - Working conditions that may cause employee stress (e.g., complexity of the operation, proximity to other ongoing activities or workplace hazards, extended work hours and fatigue, heat, cold, work place lighting or noise levels, etc.) and thereby increase the likelihood of an accident.
- Health Factors:
- Employee proximity to (frequency and duration) areas with potential hazardous agent exposures.
 - Documented exposures above established action levels.
 - Chemical or physical characteristics of hazardous materials (e.g., volatility).
 - Nature of operations (e.g., storage, materials transfer).
 - Reliability or redundancy of controls.
 - Number of employees potentially exposed to the hazardous agent.

Step 3: **Determine the Risk Category.** The Risk Category is a function of the Severity Code and Probability Code as determined in the Combined Relative Risk Determination Table below.

Severity Code Levels

CATS			DOE-EH			10CFR 851		
Term	Description	Hazard Level	Term	Description	Severity Code	Term	Description	Sev. Level
High Hazard	The deficiency has a high likelihood of causing loss of life or permanent disabling injuries to site personnel, visitors, or the public.	1	Catastrophic	Injuries/illnesses involving permanent total disability, chronic or irreversible illnesses, or death.	I-1	Serious	Exists in a place of employment if there is a potential that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in such place of employment.	I
			Critical	Injuries/illnesses resulting in permanent partial disability or temporary total disability in excess of 3 months.	I-2			
Moderate Hazard	The deficiency has the likelihood of resulting in excessive (above regulatory limits) exposure and/or occupational illness or injuries involving lost work time or restricted duty	2	Marginal	Injuries/illnesses resulting in hospitalization, or temporary, reversible illnesses with a variable but limited period of disability of less than 3 months.	I-3			
Low Hazard	The deficiency has the potential to result in injuries and occupational illnesses.	3	Minimal	Injuries/illnesses not resulting in hospitalization, or temporary, reversible illnesses requiring only minor supportive treatment.	II	Other-Than-Serious	Occurs where the most serious injury or illness that would potentially result from a hazardous condition cannot reasonably be predicted to cause death or serious physical harm to employees but does have a direct relationship to their safety and health.	II
						De minimis	Defined as a deviation from the requirement of a standard that has no direct or immediate relationship to safety or health.	

Probability Code for Safety Factors

Criteria	Description	Probability Code
Frequent	Likely to occur	A
Probable	Probably will occur in time	B
Occasional	Possible to occur in time	C
Remote	Unlikely to occur	D

Probability Code for Health Factors

Description	Probability Code
Monitoring (breathing zone, biological, noise, temperature, etc) results indicate an exposure above the DOE-prescribed exposure limits.	A
Where no overexposures have been documented, the probability code shall be assigned based on the likelihood that an overexposure will occur. Use Safety Factors to assign likelihood code.	A - D

Combined Relative Risk Determination Table

Severity			Risk Assessment Code					
Term	Description	Code						
Catastrophic	Injuries/illnesses involving permanent total disability, chronic or irreversible illnesses, or death.	I-1	3	2	1	1		
Critical	Injuries/illnesses resulting in permanent partial disability or temporary total disability in excess of 3 months.	I-2	4	3	2	1		
Marginal	Injuries/illnesses resulting in hospitalization, or temporary, reversible illnesses with a variable but limited period of disability of less than 3 months.	I-3	5	4	3	2		
Minimal	Injuries/illnesses not resulting in hospitalization, or temporary, reversible illnesses requiring only minor supportive treatment.	II	5	5	4	3		
			D	C	B	A	Code	
			Remote	Occasional	Probable	Frequent	Criteria	
			Unlikely to occur	Possible to occur in time	Probably will occur in time	Likely to occur	Description	
			Probability					

RAC 1 & 2 = NTS Reportable

Risk Assessment Code (RAC)

Severity	Probability			
	A	B	C	D
I-1	1	1	2	3
I-2	1	2	3	4
I-3	2	3	4	5
II	3	4	5	5

Risk Category

RAC	Risk Category
1 & 2	High Relative Risk
3 & 4	Medium Relative Risk
5	Low Relative Risk

Attachment #2:

**BERKELEY LAB
PROCESS FLOW FOR 851 PROGRAM INFORMATION ANALYSIS AND REPORTING**

Rev #1, 4/17/2007

