



Department of Energy  
Washington DC 20585  
October 20, 1999

MEMORANDUM FOR: DOE and Contractor PAAA Coordinators

FROM: R. Keith Christopher  
Director  
Office of Enforcement and Investigation

A handwritten signature in cursive script that reads "R. Keith Christopher".

SUBJECT: Enforcement Guidance Supplement 99-03:  
Limitation of 10 CFR Part 830 to Equipment Referenced in the  
Safety Analysis Report

Recently this Office received a reply to a Preliminary Notice of Violation (PNOV), although not denying any facts or conclusions in the PNOV and agreeing to pay the full imposed Civil Penalty, included arguments that some of the equipment cited in the PNOV was not, in their view, subject to the requirements of Part 830. The contractor argued that only equipment referenced in the Safety Analysis Report (SAR), Technical Safety Requirements (TSR) or Technical Specifications should come under the requirements of Part 830. The attached is DOE's response to denying that argument. Since this argument has from time to time been put forth by certain contractors, and routinely denied by DOE, I am forwarding the attached reply for your information so that all DOE Coordinators and contractors implementing PAAA requirements are clear on the applicability of Part 830.

The attached response is consistent with the application of quality assurance (QA) requirements across the complex and has been applied in prior enforcement actions. In general, most of DOE's enforcement actions have involved the following: equipment/safety degradation, improper modification, maintenance, operation of safety system or features, cases of significant or potential exposure, and uptake of radiological materials. However, several cases have also involved situations in which work not involving safety systems or features still had a potential nuclear safety implication, due to the location or nature of the work, or potential affects of some adverse event. To further illustrate how Part 830 is to be implemented and to explain the safety problems that could occur if Part 830 is not applied as intended, I am providing the following summary of particular cases that DOE has evaluated in the past few years.

#### LANL Electrical Shock Incident

On December 18, 1996, DOE transmitted by letter to LANL a PNOV that related to tritium monitor noncompliances but also addressed in the letter various work control noncompliances with Part 830 for work involving installation of drain sumps in the TSFF

facility. The sumps were being installed to contain any fluid spills and to preclude releases that might violate environmental restrictions. The sumps were not a nuclear safety feature, but were being installed in an area that contained switchgear, cabling and power feeds for TSFF safety features. Further, the sump installation was not contained within the boundaries of the nuclear facility. Several problems and noncompliances were involved in this work: (1) the work was performed without a procedure or work instruction, (2) workers were verbally told approximately where on the concrete floor to cut holes for sump installation, (3) no safety review was performed on what was located below the floor or of the potential safety impacts for work in the area, and (4), workers were verbally told to connect to a convenient power source, which could have resulted in an unreviewed connection to a safety related source and possible unauthorized interruption of a safety-related power supply. Although the immediate occurrence was a severe electrical shock to one of the workers and mild shock of the work supervisor, the occurrence also had nuclear safety implications. With power feeds for safety equipment in the area, the potential existed for this work to cause loss of safety features intended to mitigate an accident or release.

The enforcement action noted these noncompliances with Part 830 QA requirements, and warned of the need to correct such weaknesses in work planning and control. It also indicated that no enforcement action was being taken at the time on this matter, partly due to the limited experience at that time in implementing the QA rule in the complex. This letter was intended also to alert other contractors that they should not take such a narrow approach in applying the requirements of Part 830. Proper work controls are required prior to any work in a nuclear facility to ensure the work is conducted safely. The graded approach allows grading of these controls commensurate with the hazard and risks to workers and the public, as well as other factors.

### PRF Tank Explosion

The PRF chemical tank explosion in May 1997 involved a non-safety-related tank containing a chemical liquid mixture, but no nuclear material. Changing composition of the tank contents due to evaporation led to reaching a combustible concentration. The explosion led to severe damage to the facility, including blowing a hole in the building roof, which serves as the confinement structure to contain any potential release of radioactive material. No radiological material was released; however, adjacent rooms contained nuclear material and could have been impacted in such an explosion. Additionally, various mitigating features and equipment not referenced in the SAR potentially resulted in degraded performance of the emergency response function. These features included the following: (1) failure to perform required surveillance of emergency breathing apparatus devices; (2) failures to make proper emergency response notifications; (3) failures to perform proper radiological surveys of workers potentially exposed to a release; and (4) failure of workers to take cover when such an alert had been announced. These failures illustrate the need to apply nuclear safety QA controls to work involving non-nuclear materials in a nuclear facility, due to the potential to impact nuclear material and to damage safety features. Additionally, these problems

highlight the need to ensure the quality of the emergency response program and supporting equipment.

## CMR Fire and Explosion

The case of the fire and explosion at CMR on November 14, 1996, is another example in which work involving non-nuclear material and not involving safety-related components identified in the SAR or TSRs can also impact nuclear safety. In that event workers left a canister containing organic material unattended in an oven. Inadequacies related to (1) improper labeling on the canister, (2) lack of a procedure to control the work activity, and (3) informal communications on the work, hazards involved and canister contents, contributed to this event. Fortunately, at the time of the incident, no nuclear material was present in the area. DOE's Enforcement Letter to LANL of July 7, 1997, noted the numerous Part 830.120 work control noncompliances that occurred, leading to this event. This example also illustrates the need to control such work activities so they do not present a potential for release of nuclear material.

## Idaho Waste Calciner Worker Uptake

On February 27, 1999, DOE issued a Severity Level II PNOV with a civil penalty to LMITCO for unplanned but preventable radiological uptakes by five workers. These workers were erecting scaffolding in support electrical conduit cutting activities. At the same time and in the same area, another job involving a pipe cutting and removal activity was occurring. The pipe cutting operation was being performed under a particular work procedure and radiological work permit (RWP) that included requirements for use of respiratory protection, personnel monitoring, and area monitoring. The work planning and work controls for the scaffolding set-up had no such controls, and, consequently, the workers performing this activity received radiological uptakes. Although below DOE limits, the uptakes were unplanned and preventable, and they had the potential of being greater. The contractor was cited for violations in work planning and control, including against 830.120. The scaffolding work did not involve nuclear material safety systems, or features referenced in the SAR. However, the work, performed in a nuclear facility, had the potential for introducing workers to radiological harm. Proper planning and control of such work is important to prevent radiological harm to workers for work in a nuclear facility. In this case, radiological work controls, individual monitoring and area sampling violations of Part 835 were also cited. All of these violations were collectively treated as a Severity Level II problem with a civil penalty.

## Work Involving Radiological Material

The argument that Part 830 only applies to safety equipment or systems specifically referenced in the SAR, TSR or Technical Specifications for a facility ignores the large body of work that is performed across the complex that involves radiological material. Such work includes waste handling, site remediation, and decontamination work. Proper work controls to ensure the quality of these activities is also paramount to ensuring the safety of workers, the public and the environment. Several enforcement actions have dealt with breakdowns in these activities leading to potentially serious conditions of unplanned exposures to workers or releases of radiological material, even

though such activities did not specifically involve breakdowns in safety systems or safety features governing such work activities.

The above are but a few examples of nuclear safety issues that have surfaced due to inadequate controls being applied to work that may not have directly involved nuclear material or work on safety systems referenced in the SAR or TSR's. They illustrate the need to apply proper QA controls to work in a nuclear facility or in support of a nuclear facility, beyond the focus on work involving equipment referenced in the SAR or TSR's. The extent of safety controls should be graded as outlined in Part 830.3. The above approach is based on a straightforward application of Part 830 and is consistent with the enforcement actions that have been taken to date and is in accordance with Enforcement Guidance Supplement Document 9901, issued on July 1, 1999, regarding the clarification of the scope of 10 CFR 830.120.

Attachment: DOE's Response

cc: EH-10 Staff



However, with respect to the events that are described in items II.1.A, II.1.C, and II.1.D, LMITCO maintains that the equipment involved is not related to nuclear safety and, therefore, these items are not covered by the Price-Anderson Amendments Act. LMITCO has performed an extensive review of the associated Safety Analysis Reports (SAR), Technical Specifications/Standards (TS/S) and Technical Safety Requirements (TSR) for the associated facilities. None of these facility safety documents identify the involved life safety systems as limiting conditions for operation nor rely on their operability for nuclear safety. The operability of the systems does not affect nuclear related evacuation alarm functions nor do any of the systems affect the operability of the Criticality Alarm Systems (CAS).

## DOE Response

DOE does not agree with the basis for denial. DOE's nuclear safety rule requirements apply broadly at nuclear facilities in a graded manner. The applicability and enforcement of these requirements are not limited to systems or activities identified in the facility SARs, TS/Ss, or TSRs. While these documents are important considerations in the determination of actual or potential safety significance of violations, the nuclear safety rules and specifically, the Quality Assurance Rule (10 CFR 830.120) apply broadly to activities in which the potential for radiological harm exists, including processes and programs such as training and emergency response.

Violation II.1.A addresses deficiencies in the operability of the Emergency Communication System, and Violations II.1.C and D address deficiencies in the operability of the Fire Alarm System. The Emergency Communication System and the Fire Alarm System at nuclear facilities are necessary systems (1) to mitigate a potential nonnuclear incident (fire) that has the potential to affect other systems, activities or personnel in a manner that can result in personnel exposures or spread of radioactive material, and (2) to provide necessary information to workers in response to potential adverse conditions.

DOE's position on this issue has been consistent since the promulgation of the 10 CFR 830 in 1994. The Price-Anderson Amendments Act of 1954, as amended, in Section 161(i) authorized the Department to prescribe such regulations as it deems necessary to govern any activity authorized pursuant to the AEA, specifically including standards for the protection of health and minimization of danger to life and property.

In the preamble response to comments published with the 10 CFR 830 final rule, DOE addressed similar comments. Item B.8 states: "Several comments stated that the definition of "hazard" should be limited only to potential radiological releases because the Price-Anderson Amendments Act ... relates only to nuclear safety issues. Response: DOE disagrees with this comment because nonradiological hazards may have nuclear safety implications. For example, nonradiological hazardous materials may contribute to the release of or contamination by radioactivity, such as initiating accidents, or worsening the consequence of accidents." Additionally, in the response to item B.16, it was suggested that (in the case of a reactor nuclear facility) the rule should apply to "only the reactor, containment, and critical support systems" and not to ancillary

support facilities. DOE disagreed with this comment and indicated that all the operations connected with a reactor nuclear facility should be included since experience has shown that failures in ancillary support facilities can propagate and cause failures to safety related systems. This premise extends to all nuclear activities having the potential to cause radiological harm.

In the Supplementary Information, Procedural Comments section of 10 CFR Part 820, DOE state the following:

For the most part, the commenters have narrowly construed “nuclear safety” to require a direct nexus between the regulated activity and public health and safety such that a violation of the requirements would be the immediate cause of a health or safety impact. As we have explained, the nexus does not need to be so direct or the definition so narrow. Indeed, the nexus might be as broad as the requirement to implement a quality assurance plan that relates to nuclear activities. A violation of an information or quality assurance requirement may not result in a direct or potential immediate threat to health or safety, but it could be an important link in a sequence of activities that could lead to a nuclear incident or radiological exposure.

Therefore, DOE does not accept the basis for denial of Violations in your response to EA-1999-07. Part 830 applies broadly to the quality of items, services and processes (definition of quality) associated with a nuclear facility. It provides for flexibility in the level of controls based importance to safety and other factors, through the use of the graded approach as defined in Part 830.3

I am issuing this letter as the Final Notice of Violation for the PNOV II.1.A, C and D as stated in EA-1999-07. Since you have elected to pay the civil penalty associated with these violations and have taken no issue with the facts as stated, no further reply to this action is required. The Office of Enforcement and Investigation will continue to review the implementation of corrective actions in coordination with the DOE Idaho Operations Office

Sincerely,



R. Keith Christopher  
Director  
Office of Enforcement and Investigation

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