



Department of Energy
Washington, DC 20585

September 12, 2000

MEMORANDUM FOR DOE PAAA COORDINATORS
CONTRACTOR PAAA COORDINATORS

FROM: R. KEITH CHRISTOPHER
DIRECTOR *R. Keith Christopher*
OFFICE OF ENFORCEMENT AND INVESTIGATION

SUBJECT: Enforcement Guidance Supplement 00-03:
Specific Issues on Applicability of 10 CFR 830

Section 1.3 of the Operational Procedure entitled *Enforcement of DOE Nuclear Safety Requirements under Price-Anderson Amendments Act of 1988*, published in June 1998, provides the opportunity for the Office of Enforcement and Investigation (EH-Enforcement) to issue clarifying guidance in a timely manner with respect to the processes used in enforcement activities. This enforcement guidance focuses on several issues related to applicability of 10 CFR 830 that have been observed in enforcement and investigation activities.

I. Relationship of SARs or TSRs to Applicability of 10 CFR 830

Certain contractors have attempted to limit the application of 10 CFR 830 based on the content of Safety Analysis Reports (SARs), Technical Safety Requirements (TSRs), and Technical Specifications. Specifically, this guidance reaffirms that quality assurance (QA) controls required by 10 CFR 830 are not in any way limited by language contained in SARs, TSRs or technical specifications documents. This is consistent with the application of QA requirements across the complex and it has been applied in prior enforcement actions. DOE's enforcement actions have included issues of (1) equipment/safety degradation, (2) improper modification, (3) maintenance failures, (4) operation of safety systems or features, (5) cases of significant or potential radiological exposure, and (6) uptake of radiological materials. But several cases have also involved situations in which work not directly related to safety systems or features had nuclear safety implications, due to the nature of the work or its location. The following are illustrative examples of PAAA noncompliances in situations that do not directly involve safety systems or structures. They support the conclusion that all work in nuclear facilities may have the potential to affect nuclear related work in a nuclear facility.

- a. In a December 18, 1996, Preliminary Notice of Violation (PNOV) issued to Los Alamos National Laboratory (LANL) concerning violations associated with modifications to tritium monitors, DOE's transmittal letter also addressed work control noncompliances involving the installation of drain sumps in the Tritium Science and Fabrication Facility (TSFF). The sumps were being installed to contain any fluid spills and to preclude releases that might violate environmental requirements. The sumps were not considered to be a nuclear safety feature, but were being installed in an area that contained switchgear, cabling and power feed for TSFF safety features. Further, the sump installation was not contained within the boundaries of what LANL considered to be 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 a mild shock to the work supervisor, the occurrence clearly had nuclear safety implications. With power feeds for safety equipment in the area, this work could have caused a loss of safety features intended to mitigate an accident or release.

The enforcement action noted these noncompliances with 10 CFR 830 QA requirements, and indicated 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 the matter, partly due to the limited experience in 1996 in implementing the QA rule in the DOE complex. It was also our intention to use the enforcement package to alert other contractors that they should not take a narrow, over-simplified approach in applying the requirements of 10 CFR 830. Proper work controls are required prior to any work being performed in a nuclear facility to ensure the work is conducted safely for the facility as a whole. The graded approach allows for controls commensurate with the hazard and risks to workers and the public.

- b. The Plutonium Reclamation Facility (PRF) at the Hanford Reservation had a chemical tank explosion in May 1997. The explosion occurred in a non-safety-related tank containing a chemical liquid mixture, but no nuclear material. A combustible concentration of chemicals resulted from evaporation, which changed the composition of the tank contents. The explosion severely damaged the facility, and a hole was blown in the facility roof, which served as a confinement structure to contain potential releases of radioactive materials from other parts of the facility. While no radioactive material was in fact released, adjacent rooms contained such material and they could have been compromised in such an explosion. In addition, the SAR failed to address features that would be necessary for an appropriate emergency response to such an event, all of

which compromised the nuclear safety envelope of the facility. The enforcement action cited the contractor for a number of failures to comply with their own procedures. They included (1) the failure to perform required surveillance of emergency breathing apparatus devices; (2) the failure to make proper emergency response notifications; (3) the failure to perform proper radiological surveys on workers potentially exposed to a release; and (4) the failure of workers to take cover when an emergency alert was sounded.

These failures illustrate the need to apply nuclear safety QA controls to work involving non-nuclear materials in a nuclear facility. Clearly, there is a direct impact on nuclear safety features when such controls are not applied to all work in the facility. Further, these problems highlight the need to ensure the quality of the facility emergency response program. A PNOV with civil penalty was issued in this case.

- c. The Chemistry and Metallurgy Research Facility (CMR) at Los Alamos National Laboratory suffered a fire and explosion on November 14, 1996. This is another example of the interrelationship between nuclear safety and work involving non-nuclear material and components that are not safety related as identified in the SAR or TSR for a facility. In this event, workers left a canister containing organic material unattended in an oven leading to an explosion and fire. Improper canister labeling, a lack of a procedure to control work activity and the reliance on informal communications contributed to the event. Since there could have been nuclear materials present in this area, which was within a nuclear facility, DOE issued an Enforcement Letter in response to this event, citing work control noncompliances.
- d. On February 27, 1997, DOE issued a PNOV with civil penalty for unplanned but preventable radiological uptakes at the Idaho Waste Calciner Facility. The five workers involved were erecting scaffolding in support of electrical conduit cutting activities. At the same time and in the same area, another job involving pipe fitting and removal activity was taking place. The pipe cutting operation was being performed with a specific work procedure and radiological work permit (RWP) that included requirements for respiratory protection, personnel monitoring, and area monitoring. The scaffolding work assignment had no such procedures and controls and consequently, the workers performing this activity received radiological uptakes. Among other things, the enforcement action noted the failure to comply with 10 CFR 830.120 work process requirements.

The argument that 10 CFR 830 only applies to safety equipment or systems specifically referenced in the SAR, TSR or Technical Specifications has no basis in the text of the Rule. Additionally, this argument ignores the vast amount of data supporting the conclusion that all work conducted in a nuclear facility requires the discipline identified in the Rule, applied in an appropriately graded manner. In the context of work such as waste handling, site remediation and decontamination, for example, appropriate work controls are essential to protect the health and safety of workers, the public and the

environment. The enforcement actions set forth above are good examples of these interrelationships. They illustrate how work that does not specifically involve safety systems or features can potentially lead to serious conditions, releases of radiological materials and worker uptakes. While the health and safety actions can be tailored to the specific risks involved, as described in 10 CFR 830.3, they must be considered and appropriately applied.

II. Attempts to Limit 10 CFR 830 to Work Involving a Physical Activity

In its reviews, EH-Enforcement has found certain contractors who considered 10 CFR 830.120 to only apply to work activities that involved a physical activity (i.e., turning a valve, modifying equipment, etc.). They did not consider examinations, diagnostic evaluations, planning or surveillance (and other such activities) to be work, and thus did not apply 10 CFR 830.120. No work planning, hazard evaluation, procedural controls, etc., were applied to such activities not considered to be work. In some of these cases such “non-work” activities involved instances where unexpected conditions occurred, and workers received radiological exposures and intakes.

10 CFR 830.120 has no such limitation that work must involve physical activity or hardware. 10 CFR 830 defines quality as “...the condition achieved when an item, service or process meets or exceeds user’s requirements or expectations.” Service is defined in Part 830 as “...the performance of work, such as design, construction, fabrication, inspection, nondestructive /testing, environmental qualification, equipment qualification, repair, installation or the like.” The *DOE Quality Management System Guide* (DOE G414.1-2) also notes that work activities include not only physical activities of construction, modification, and operation, but also the management and oversight functions applied to these activities. Further, requirements set forth in the Rule regarding record keeping, training, procurement, self-assessment, and independent assessment clearly do not require the presence of radioactive materials or “work” involving a physical activity.

Individuals who evaluate conditions, assess operations, inspect materials or equipment, evaluate problems, perform assessment activities, or other like activities are performing work. Such work falls under the requirements of 10 CFR 830 if it pertains to a nuclear facility where a hazard potentially exists to employees or the general public. Since the Rule applies to design, manufacture and assembly of items for use with radioactive materials and/or fissionable materials, it is clear that the Rule applies to such activities even if no nuclear inventory is present.

III. Limiting 10 CFR 830 to Work Directly Handling Radiological Material

Certain contractors have been found by EH-Enforcement, in the course of performing PAAA Program reviews, to believe that 10 CFR 830.120 applied only to work that directly involved handling of radiological material. Some implementation documents had language that said work in the nuclear facility had to have the

immediate potential for radiological harm to a worker for 10 CFR 830.120 to apply. As noted in Items I and II above, 10 CFR 830 contains no such limiting applicability of the Rule for work that pertains to the nuclear facility.

10 CFR 830 does allow the requirements of 10 CFR 830 to be applied in a Graded Approach, such that work that poses a more significant hazard shall have a greater level of control. It does not stipulate that work posing a lesser hazard does not require any controls. The examples noted in Item I above did not involve handling of radiological materials, but in the end had the potential for causing radiological consequences to workers or the public. An appropriate level of work controls (planning, procedural controls, etc.), training and assessment, for example, should be applied to ensure the activity is performed in a quality manner and does not affect nuclear safety or materials.

IV. When 10 CFR 830 Begins to Apply to a Radiological Facility

One contractor recently attempted to apply the “logic” that although 10 CFR 830 applied to a Radiological Facility, 10 CFR 830 would not apply until the facility contained an inventory of radiological material. This was based on the premise that a facility was not designated as a Radiological Facility until it contained radiological materials that could pose a risk to workers.

The concept of when a facility becomes a Radiological Facility is important in terms of establishing application of 10 CFR 835. With respect to 10 CFR 830.120, the phrase “radiological facility” versus “nuclear facility” has no relevance. 10 CFR 830 applies to nuclear facilities, and for the reasons noted in EGS 99-01, use of a threshold such as Category III of DOE-STD-1027 is not applicable to a threshold for application of 10 CFR 830. In General Counsel’s Ruling 1995-1 (61 FR 4209, February 5, 1996), the Office of General Counsel noted that “Part 830 covers activities where no nuclear material is present, such as facilities that prepare non-nuclear components of nuclear weapons, but which could cause radiological damage at a later date.” See 61 FR 4210. 10 CFR 830 also relates to facilities that could pose a hazard to the public or the environment.

10 CFR 830.3 unambiguously states that it applies to activities or operations that “[D]esign, manufacture or assemble items for use with radiological materials....” Further the definitions for 10 CFR 830 define quality as “...the condition achieved when an item, service or process meets or exceeds the user’s requirements and expectations” It defines a service as including “...design, construction, fabrication, inspection, nondestructive examination/testing, environmental qualification, equipment qualification, repair, installation, or the like.” Such activities clearly fall under the requirements of the Rule. Thus, in contrast to DOE-STD-1027, the requirements of 10 CFR 830 can apply to facilities and activities where no nuclear inventory is present.

The above enforcement guidance will be incorporated into the Office of Enforcement and Investigation *Operational Procedures for Enforcement* and will be made available on the Office of Enforcement and Investigation web page (<http://tis-nt.eh.doe.gov/enforce/>). If you have any questions regarding this enforcement guidance, please contact me or Howard Wilchins of my staff at (301) 903-0100.