The Office of Environment, Safety and Health and its Office of Nuclear and Facility Safety (NFS) publishes the Operating Experience Weekly Summary to promote safety throughout the Department of Energy (DOE) complex by encouraging feedback of operating experience and encouraging the exchange of information among DOE nuclear facilities.

The Weekly Summary should be processed as an external source of lessons-learned information as described in DOE-STD-7501-96, *Development of DOE Lessons Learned Programs*.

To issue the Weekly Summary in a timely manner, the Office of Operating Experience Analysis and Feedback (OEAF) relies on preliminary information such as daily operations reports, notification reports, and, time permitting, conversations with cognizant facility or DOE field office staff. If you have additional pertinent information or identify inaccurate statements in the summary, please bring this to the attention of Dick Trevillian, 301-903-3074, or Internet address dick.trevillian@hq.doe.gov, so we may issue a correction.

Readers are cautioned that review of the Weekly Summary should not be a substitute for a thorough review of the interim and final occurrence reports.

Operating Experience Weekly Summary 97-12

March 14 through March 20, 1997

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EVENTS

1. RADIONUCLIDES FOUND IN ABANDONED FACILITY SUMP

On March 13, 1997, Brookhaven National Laboratory personnel reported that an abandoned sump located in a roadway near the Brookhaven Graphite Research Reactor contained standing water contaminated with 5,760 pCi/l gross beta, 340,000 pCi/l tritium, and 2,270 pCi/l strontium-90 (Sr-90). Facility personnel determined the sump was contaminated on March 7, when they received the results from samples taken in December. The sump is part of the Graphite Research Reactor Complex, which was shut down in 1968. The sump collects water from floor drains located in the base of the High Flux Beam Reactor stack, a hot-lab vent-duct drain, and the Graphite Reactor fan house. Laboratory personnel sampled the sump in 1991 and detected Sr-90, but failed to recognize the hazards associated with sample results. Failure to properly identify and control legacy contamination may result in unidentified hazards and risks to personnel and the environment. (ORPS Report CH-BH-BNL-BNL-1997-0012)

In the fall of 1996, Brookhaven Office of Environmental Restoration (OER) personnel initiated a review of potential environmental release sites located near the Brookhaven Graphite Research Reactor to prepare for decontamination and decommissioning. They determined the sump was installed in the late 1940s during construction of the Graphite Research Reactor Complex. The original system design permitted transfer of the sump contents to tanks located within the complex, but there have been no known discharges from the sump in recent years. Investigators also determined that when the reactor was shut down no one assumed responsibility or accountability for the sump and its contents. Brookhaven OER personnel determined that Laboratory workers knew little about the function of the sump and have not monitored the water for several years.

After Brookhaven OER personnel reviewed the March 7 sample results, they re-sampled the sump water on March 12, and detected 260,000 pCi/l tritium. After obtaining the sample results, Brookhaven OER personnel pumped the sump contents into an approved container. They also collected a sample of the sludge in the bottom of the sump to determine radioactive content and put a water-tight seal over the sump's manhole to minimize additional infiltration of water. Brookhaven OER personnel plan to install five geoprobes, 5 feet apart, approximately 45 feet from the sump to determine if sump leakage caused any ground-water contamination.

Brookhaven management assembled a review team of personnel from the Safety and Environmental Protection Division and the Reactor Division to better define the history of the sump and its associated piping.

NFS reported on facilities that were not sufficiently evaluated for contamination when they were shut down or when their mission changed in Weekly Summaries 97-10 and 95-13.

- Weekly Summary 97-10 reported on February 19, 1997, at Hanford, environmental restoration surveillance and maintenance workers observed indications of pressurization of an inactive facility and a potential release of airborne radiological material. Investigators determined the facility had no authorization basis and was scheduled for decontamination and decommissioning. (ORPS Report RL--BHI-DND-1997-0004)

- Weekly Summary 95-13 reported on March 27, 1995, at the Los Alamos National Laboratory, personnel discovered contamination in a radiological buffer area when they installed a new portal monitor. They found the contamination embedded in a crevice surrounding a pipe penetration at floor level. (ORPS Report ALO-LA-LANL-SHOPSFAC-1994-0001)

DOE/EH-0256T, *Radiological Control Manual*, section 452, discusses the evaluation of radioactive drains to ensure verification of the existing radioactive drain piping configuration and recommends using plugs to prevent non-radioactive input. Section 551 defines the requirements for radiological monitoring of radiation exposure levels and contamination areas to characterize workplace conditions. The manual also states that any equipment or system component removed from a process that may have had contact with radioactive material should be considered contaminated until shown to be free of contamination. DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*, discusses the facility's stage in its life cycle and states that all safety analysis reports should furnish information about subsequent stages of the facility life cycle, including end-of-life decontamination and decommissioning. Facility managers should review their facility status to ensure they address subsequent states of the facility life cycle and appropriate systems. Facility personnel should also be aware of the potential for legacy contamination and ensure that procedural requirements for sampling and surveying systems, components, and areas not in use are adequately applied.

DOE 5400.5, *Radiation Protection of the Public and the Environment,* provides standards and requirements for operation of DOE facilities with respect to protection of the public and the environment against undue risk from radiation. The Order states that property shall be considered potentially contaminated if it has been used or stored in radiation areas that contain unconfined radioactive material or that are exposed to beams or particles capable of causing activation. The Order gives the derived concentration value for ingested water containing tritium as 0.002 µCi/ml.

KEYWORDS: contamination, decontamination and decommissioning

FUNCTIONAL AREAS: decontamination and decommissioning, environmental restoration

2. FUEL HANDLING PROCEDURE ERRORS AT THE BROOKHAVEN MEDICAL RESEARCH REACTOR

On March 3, 1997, at the Brookhaven National Laboratory Medical Research Reactor, a fuel handler completed and signed written fuel-handling procedure steps without noticing they contained errors. The fuel handler completed the fuel handling operation correctly without following the procedure. The DOE facility representative found the procedure errors during a restart review. The Reactor Division Manager suspended fuel-handling operations. Investigators determined the fuel-handling procedure also contained other errors. There was no impact on the safety of the reactor, the safety and health of the public, or the environment as a result of this occurrence. However, failure to validate and verify procedures prior to authorization for use and failure to follow them creates the potential for injury, equipment damage, and unanalyzed events. (ORPS Report CH-BH-BNL-BMRR-1997-0001)

Investigators determined the fuel handler replaced fuel element I-101 in core position C6 with a graphite filler piece as intended, but the written procedure stated: "Remove I-101 from core position C6 . . ." and "install a graphite filler piece in core position D6." Core position "D6" should have been identified as position "C6." Other steps in the procedure contained similar errors: the core position was identified as "D6" instead of "C6," and/or "I-101" was identified as "I-116." Investigators also determined that only one position was vacant during the operation. Therefore, it was not physically possible to install the graphite element in an incorrect position.

The Reactor Division manager convened a critique to review this event. Critique members determined both the direct and root causes of the event were personnel error, inattention to detail. Members expressed concern regarding the amount of time given personnel to review procedures. Members also reviewed recent quality assurance audits and surveillances. These audits and surveillances indicated a need for better control of procedures and documentation. The Reactor Division manager directed the following corrective actions.

- The Reactor Division manager will stress the importance of adequate verification and validation of written procedures. He will also stress that each member of the reactor group is responsible for voicing concerns if adequate time is not allotted for reviews.

- Reactor Division personnel will revise the fuel-handling procedure to incorporate sign-offs for each significant step and will specify distinct steps to identify the correct fuel element and graphite insert movements when performing fuel-handling operations.

- The Reactor Division manager will review, assess, and modify Reactor Division procedure development controls.

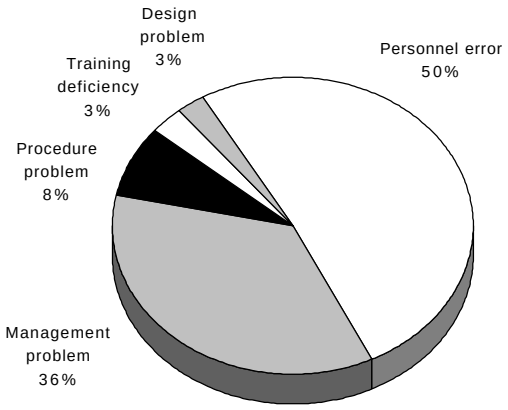
NFS reported procedure issues during fuel-handling events in Weekly Summaries 96-50, 94-42, and 94-38.

- Weekly Summary 96-50 reported that on November 30, 1996, at Argonne National Laboratory—West, an operations technician and a trainee were dismantling an irradiated fuel subassembly when two fuel pins fell off the positioning grid. The technician did not refer to a reference-only procedure before starting the disassembly. (ORPS Report CH-AA-ANLW-HFEF-1996-0009)

- Weekly Summary 94-42 reported that on October 10, 1994, operations personnel at the Savannah River Site Receiving Basin for Off-Site Fuel modified a fuel-handling tool without receiving approval from design engineering, violating facility procedures. (ORPS Report SR--WSRC-RBOF-1994-0012)

- Weekly Summary 94-38 reported that on September 14, 1994, at the Brookhaven National Laboratory High Flux Beam Reactor, a shift supervisor and an operator dropped a spent fuel element into the reactor vessel during fuel-handling activities. Investigators indicated that the operator, although experienced, was unfamiliar with portions of the procedure and performed work that was not in accordance with normal practices or the procedure. (ORPS Report CH-BH-BNL-HFBR-1994-0011)

Operating Experience Analysis and Feedback (OEAF) engineers reviewed the Occurrence Reporting and Processing System (ORPS) database for procedure violations across the DOE complex and found 487 final occurrence reports for the last 12 months. Figure 2-1 shows that facility managers reported personnel errors as the root cause for 50 percent of the occurrences. They also reported that management problems accounted for 36 percent of the violations. Further review shows that 43 percent of the personnel errors were reported as inattention to detail and 43 percent were reported as procedure not used or used incorrectly.



Personnel Error	Percent
Inattention to detail	43
Procedure not used or used incorrectly	43
Communication problem	7
Other human error	7

Figure 2-1. Distribution of Root Causes for Procedure Violations[1]

This event underscores the importance of verifying and validating procedures, using procedures, and following them step-by-step. Workers must assume responsibility for their work, pay attention to detail, and adhere to procedures and instructions. DOE 5480.19, *Conduct of Operations Requirements for DOE Facilities*, chapter XVI, "Operations Procedures," states that operations procedures provide direction to ensure that the facility is operated safely and within its design basis. Procedures are also a key factor affecting operator performance. Attention should be given to writing, reviewing, and monitoring operations procedures to ensure the content is technically correct and the wording and format are clear. As stated in the Order, "Procedures should be developed for all anticipated operations, evolutions . . . and . . . should provide administrative and technical direction to conduct the intent of the procedure effectively. Sequence of procedure steps should conform to the normal or expected operational sequence."

DOE-STD 1029-92, *Writers Guide For Technical Procedures*, provides guidance to assist procedure writers across the DOE complex in producing accurate, complete, and usable procedures that promote safe and efficient operations. Inputs to procedures should be obtained from operators and training personnel. Section 2.3, "Facility Configuration," requires walk-downs, simulations, modeling, or desk-top reviews to ensure procedures are technically accurate and adequate.

KEYWORDS: fuel handling, operating procedures

FUNCTIONAL AREAS: procedures, training and qualification

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[1] OEAF engineers reviewed the ORPS database for Nature of Occurrence "1F@" (procedure not used or used incorrectly) and found 487 final occurrence reports for the period 3/1/96 through 3/1/97.

3. FAILURE TO REMOVE RELAY BLOCKING DEVICE AFFECTS CIRCUIT BREAKER OPERATION

On March 12, 1997, at the Savannah River Site, power operators discovered that electricians had not removed a blocking device on an under-voltage relay for a circuit breaker, preventing it from tripping. The power operators were conducting a load test of a diesel generator as part of the preventive maintenance for an emergency circuit breaker. Operators simulated an under-voltage condition to trip the normal circuit breaker. The breaker is one of three that can provide a start signal to the diesel and close the emergency breaker. When the breaker failed to trip, the power support manager terminated the load test. The device blocked the relay in the closed position, preventing the breaker from tripping. Failure to remove and control the status of blocking devices or overrides can render protective features inoperable, causing equipment damage or affecting facility operation. (ORPS Report SR--WSRC-HCAN-1997-0012)

Seven days before the diesel generator load test, electricians in the site breaker shop performed preventive maintenance on the normal circuit breaker. They blocked the under-voltage relay in the closed position for testing. However, they failed to remove the blocking device before returning the breaker to service. The power support manager conducted a satisfactory diesel generator load test after electricians removed the blocking device.

Investigators determined breaker shop personnel have specific procedures for checking that blocking devices are removed. The procedures require one person to remove the blocking device and a second person to verify that it has been removed. Although the electricians failed to remove the device, they had signed the procedure to indicate the device was removed. Investigators also determined a post-maintenance or surveillance test was not required to verify operability of the normal breaker; that level of testing is performed only on safety class breakers.

The power support manager is evaluating corrective actions that include (1) having quality assurance personnel verify removal of blocking devices, (2) using electrical signals rather than physical devices to maintain relays in the desired position for testing, and (3) requiring post-maintenance or surveillance testing of normal breakers following preventive maintenance.

NFS reported other events involving overridden or blocked control or safety features in Weekly Summaries 94-45, 94-35, and 93-04.

- Weekly Summary 94-45 reported that on October 19, 1994, at the New Brunswick Laboratory, 50 gallons of water overflowed from a storage tank onto the floor of two storage vaults containing nuclear material. Investigators determined a maintenance worker forgot to remove an override on an automatic control system that provided a continuous flow of distilled water make-up to the storage tank. (ORPS Report CH--GOCH-NBL-1994-0005)

- Weekly Summary 94-35 reported that on August 25, 1994, at the Experimental Breeder Reactor II, operators were moving a fuel-unloading machine when they noticed the movement of a still-connected exhaust line. Motion of the fuel-unloading machine should have been prevented by a limit

switch actuated when the exhaust line is connected. Investigators determined the interlock to prevent movement was inoperable because someone left the carriage clutch in the manual override position following preventive maintenance. (ORPS Report CH-AA-ANLW-EBR-1994-0007)

- Weekly Summary 93-04 reported that on January 21, 1993, at the Lawrence Berkeley Laboratory, technicians left a temporary jumper installed following the use of a surveillance procedure for checking operability of interlocks that prevent personnel entry into a vault during cyclotron operation. Investigators determined technicians failed to remove all the jumpers and failed to verify they were removed. (ORPS Report SAN--LBL-NSD-1993-0001)

These events illustrate the importance of ensuring that jumpers, overrides, and blocking devices have been removed before returning the equipment to service. Temporary changes should always be properly documented, installed, removed, and independently verified to ensure configuration control of safety systems. Temporary changes required for maintenance or testing require strict controls and attention to ensure that they do not defeat the intended safety functions of a system.

DOE 5480.19, *Conduct of Operations Requirements for DOE Facilities*, chapter VIII, “Control Of Equipment and System Status,” states that DOE facilities are required to establish administrative control programs to handle configuration changes resulting from maintenance, modifications, and testing. "Temporary Modifications," paragraph C.9, specifies that administrative control systems should be established for installation of electrical jumpers, lifted leads, pulled circuit boards, disabled annunciators/alarms, mechanical jumpers/bypasses, temporary setpoint changes, installed or removed filters or strainers, plugged floor drains, and temporary pipe supports. DOE-STD-1039-93, *Guide to Good Practices for Control of Equipment and System Status*, states that special administrative controls are required when equipment is operated with temporary modifications (e.g., jumpers, blocks, bypasses).

NFS issued DOE/EH-0502, Safety Notice 95-02, “Independent Verification and Self-Checking,” in September 1995 and DOE/EH-0513, Safety Notice 95-04, “Post-Maintenance Test Programs,” in December 1995. These notices provide guidance and good practices for performing independent verification and guidance for establishing effective post-maintenance test programs. Safety Notice 95-02 and 95-04 can be obtained by contacting the Info Center, (301) 903-0449, or by writing to ES&H Information Center, U.S. Department of Energy, EH-74, Suite 100, Century XXI, Third Floor, Germantown, MD 20874.

KEYWORDS: breaker, relay, surveillance, electrical maintenance, independent verification

FUNCTIONAL AREAS: electrical maintenance, surveillance

4. WELDER IDENTIFIES NON-CONFORMING WELD ON TANK

On March 5, 1997, at the Savannah River Site, a construction welder identified a weld attaching a nozzle to a tank that did not appear to comply with design drawings. The welder was preparing to weld a flange to the nozzle to connect piping to the newly installed tank. Engineers and a welding inspector also inspected the weld and confirmed the weld did not appear to be full penetration as required by the design drawings. They filed a non-

conformance report to document this condition. Investigators determined that neither the tank manufacturer's quality assurance programs nor the code inspector's review identified the welding deficiency. These deficiencies were not identified upon receipt because weld inspections were not specified for the receipt inspectors. Failure to perform adequate inspections of new equipment can result in equipment that may not perform as specified or may fail prematurely, resulting in damage to facility property. (ORPS Report SR--WSRC-CMD-1997-0004)

Westinghouse Savannah River Company purchased this tank and 27 other tanks certified to American Society of Mechanical Engineers (ASME) codes in July and August 1996, as part of a project for tritium processing. Construction personnel installed all 28 tanks and were connecting the piping systems.

Site non-destructive examination personnel used a boroscope to evaluate the tank nozzle welds, one of the girth welds, and a nozzle weld on another tank. They discovered a lack of penetration at the weld root ranging from 10 to 40 percent of the linear length of the weld on all seven tank nozzles. A 4- to 5-inch section of the girth weld root on the same tank was under-filled as compared to the base material. The examiners also observed a lack of penetration on 25 percent of the nozzle weld on the second tank. Non-destructive examination personnel report suggested reviewing the manufacturer's supplied radiographs for acceptability of the girth weld in their report. Examiners reviewed the radiographs for six tanks and identified unacceptable weld penetration on three of them. They will review the radiographs for the remaining 22 tanks supplied by this manufacturer.

Investigators determined the manufacturer originally accepted the girth weld on these tanks using radiography per ASME Code, section VIII requirements and did not perform a visual examine of the weld root. The manufacturer's ASME inspectors performed a random sample of 28 tanks for compliance with the purchaser's specification and certification with ASME codes.

NFS reported a similar event involving inadequate welds in Weekly Summary 92-32. On August 12, 1992, the Nuclear Regulatory Commission issued an information notice on welding defects in the fabrication of uranium hexafluoride cylinders when a licensee discovered attached welds on cylinder valve and plug couplings rather than full-penetration welds as required by the purchase order specification. Ultrasonic testing showed that 11 out of 15 cylinders had coupling welds that lacked full penetration. (NRC Information Notice 92-58, Uranium Hexafluoride Cylinders - Deviations in Coupling Weld)

On January 28, 1994, at the Morgantown Energy Technology Center, a technician performing a receipt inspection on a high-temperature water boiler discovered a sub-standard weld. Radiographic inspections of the boiler revealed gross deficiencies and code violations. Investigators determined that the boiler could have failed in service releasing high-temperature steam. Lessons learned by the purchasing organization were to inspect and certify vendors, to implement quality assurance programs, and to train inspectors to identify sub-standard conditions. (ORPS Report HQ--GOME-METC-1994-0004)

These events underscore the importance for prudent inspections of equipment upon receipt from the manufacturer. In all three events, vessels were manufactured and delivered that did not meet the purchaser's specifications or design requirements. Procurement organizations should not rely totally on the manufacturer's quality assurance program, unless they audit the program or participate in the manufacturer's inspection process. Also, the necessary code stamp on a piece of equipment does not always ensure its acceptability. Design and procurement specifications should specify what level of receipt inspection is prudent and take into account the extent to which potential suppliers

have been qualified as “evaluated suppliers.” Receipt inspectors may find it necessary to have subject matter experts, such as welding inspectors, assist them with the examination of equipment.

DOE 5700.6C, *Quality Assurance*, specifies the criterion for procurement and the criterion for inspection and acceptance testing. These criteria discuss controls for selection, determination of suitability, evaluation, and receipt of purchased items and evaluation of prospective suppliers. The Order specifies periodic monitoring of suppliers and sub-tier suppliers, if applicable, to ensure that acceptable items and services continue to be supplied. The inspection and acceptance testing criterion states that a process should be established and implemented to specify when to inspect procured items and what type of inspection is required. Other guidelines for receipt inspections can be found in DOE-STD-1070-93, *Guidelines to Good Practices for Procurement of Parts, Materials, and Services at DOE Nuclear Facilities*, and DOE-STD-1071-94, *Guidelines to Good Practices for Material Receipt, Inspection, Handling, Storage, Retrieval, and Issuance at DOE Nuclear Facilities*.

KEYWORDS: procurement, inspection, certification

FUNCTIONAL AREAS: procurement

PRICE-ANDERSON AMENDMENTS ACT (PAAA) INFORMATOIN

1. PRELIMINARY NOTICE OF VIOLATION AND PROPOSED $25,000 CIVIL PENALTY

On February 27, 1997, the DOE Office of Enforcement and Investigation issued a Preliminary Notice of Violation and Proposed Imposition of Civil Penalty to Lockheed Martin Idaho Technologies Company (LMITCO) under the Price-Anderson Amendments Act for multiple failures to adhere to and implement the necessary administrative controls and procedure requirements to maintain radiation exposures as low as reasonably achievable. LMITCO is the prime contractor for the Idaho National Engineering and Environmental Laboratory. On July 22, 1996, these failures resulted in five construction workers receiving radiation doses ranging from 652 mrem to 678 mrem and a sixth worker receiving minor skin contamination. The proposed violations constitute a severity level II problem and a proposed civil penalty of $25,000. (ORPS Report ID--LITC-PHASEOUT-1996-0001, NTS Report NTS-ID-LITC-PHASEOUT-1996-0001; letter, DOE [T. O’Toole] to LMITCO [W. John Denson], 02/27/97)

On July 22 1996, craft workers at the Idaho Chemical Processing Plant were preparing a facility for decommissioning and Resource Conservation and Recovery Act closure. Three pipefitters were cutting and capping process lines in an enclosed contaminated work area. Three carpenters were erecting scaffolding in the room, and two laborers were moving the cut pipes into another area. The pipefitters wore airline respirators to protect against nitric acid fumes. The carpenters and laborers, working 10 to 15 feet away, wore anti-contamination clothing but did not wear respirators. The air in the room became contaminated when the pipefitters cut an internally contaminated pipe with a positive air flow. Because the airborne contamination in the room was not monitored, the carpenters and laborers worked unprotected in the area for up to 40 minutes. The problem was discovered when a laborer left the room, performed a self-survey, and detected contamination.

A LMITCO independent investigation team reviewed the event and concluded that planners initially recognized the appropriate potential hazards. However, ambiguous information in the work package and work permits, poor communication during implementation, and less-than-adequate oversight of activities resulted in the failure of the workers to recognize the radiological hazards.

LMITCO management proposed the following corrective actions: (1) ensure work packages and associated documents include generic hazards but highlight specific hazards; (2) strengthen the role of radiation work permits in defining hazards and associated engineering controls and personnel protective equipment; (3) improve communication among departments to ensure roles and responsibilities of personnel are clearly defined and expectations are correctly understood; and (4) ensure plan-of-the-day meetings or pre-job briefings maintain focus on all hazards relative to the significance of the hazard.

DOE management considered the LMITCO investigation and analysis of the event to be comprehensive and contemplated partial mitigation of the base civil penalty of $25,000. However, DOE still has concerns about the implementation of the corrective actions to prevent recurrence. An example of these concerns cited in the Preliminary Notice of Violation is the January 13, 1997, event at Idaho National Engineering and Environmental Laboratory, where a radiation control technician and facility operator received unplanned whole body radiation doses. DOE management considers this event was also caused by failure to adhere to radiation protection procedures and inadequate work planning. (OEWS 97-04, ORPS Report ID--LITC-WASTEMNGT-1997-0001, and NTS Report NTS-ID-LITC-WASTEMNGT-1997-0001)

NFS reported assessments of civil penalties for radiation protection violations under the Price-Anderson Amendments Act in Weekly Summaries 96-30 and 96-43. On July 18, 1996, DOE assessed the Westinghouse Hanford Company of Richland, Washington, $37,500 because a pipefitter at the Hanford Tank Farms received a 13 rem radiation dose to his hands while removing a highly contaminated thermocouple from a high-level radioactive waste storage tank. (ORPS Report RL--WHC-TANKFARM-1996-0017) On October 7, 1996, DOE assessed both Kaiser-Hill Company, the integrating contractor at Rocky Flats, and Safe Sites of Colorado Company, a subcontractor to Kaiser-Hill, $37,500 because radiological operations were performed contrary to radiation work permit requirements. These operations resulted in a release of radioactive material exceeding 1 million dpm/100 cm^2 and an uptake that was 8 percent of the DOE annual dose limit. (ORPS Reports RFO--KHLL-SOLIDWASTE-1996-0022 and RFO--KHLL-771OPS-1996-0063)

The Price-Anderson Amendments Act subjects DOE contractors to civil penalties for violations of DOE rules, regulations, and compliance orders relating to nuclear safety requirements. The Office of Enforcement and Investigation may reduce a base civil penalty by up to 100 percent when a DOE contractor promptly identifies a violation, reports it to DOE, and undertakes timely corrective action. Additionally, the enforcement policy allows DOE discretion to choose not to issue a notice of violation in certain cases. The Noncompliance Tracking System (Weekly Summaries 95-17, 95-20) provides a means for contractors to promptly report potential non-compliances and take advantage of provisions in the enforcement policy. Since the Noncompliance Tracking System was instituted in December 1995, DOE Office of Enforcement and Investigation personnel have initiated investigation of 121 non-compliances reported by contractors and researched 200 other events for potential enforcement action. Since the beginning of 1996, the Office of Enforcement and Investigation has issued three Notices of Violations without penalties and five with penalties.

KEYWORDS: Price-Anderson Act, ALARA, radiation protection

FUNCTIONAL AREAS: radiation protection, work planning

OEAF FOLLOW UP ACTIVITY

1. REQUEST FOR INFORMATION ON SAFETY

In the 4 years that NFS has published the "Operating Experience Weekly Summary," we have produced articles on all aspects of safety at DOE. When we evaluate data and prepare articles, we ask a critical question: "Is the DOE getting safer?" Specific elements related to this question include determination of the baseline of safety at DOE, whether impacts and risks related to DOE activities are increasing or decreasing, and the effect of recent mission changes.

Pursuant to the safety question, we reviewed the Occurrence Reporting and Processing System database for events related to Unreviewed Safety Questions (USQ) and found 400 reports were submitted between the beginning of 1991 and the end of 1996. We determined the trend of USQ-related events across DOE has increased since the beginning of 1991, as shown on Figure 1-1.

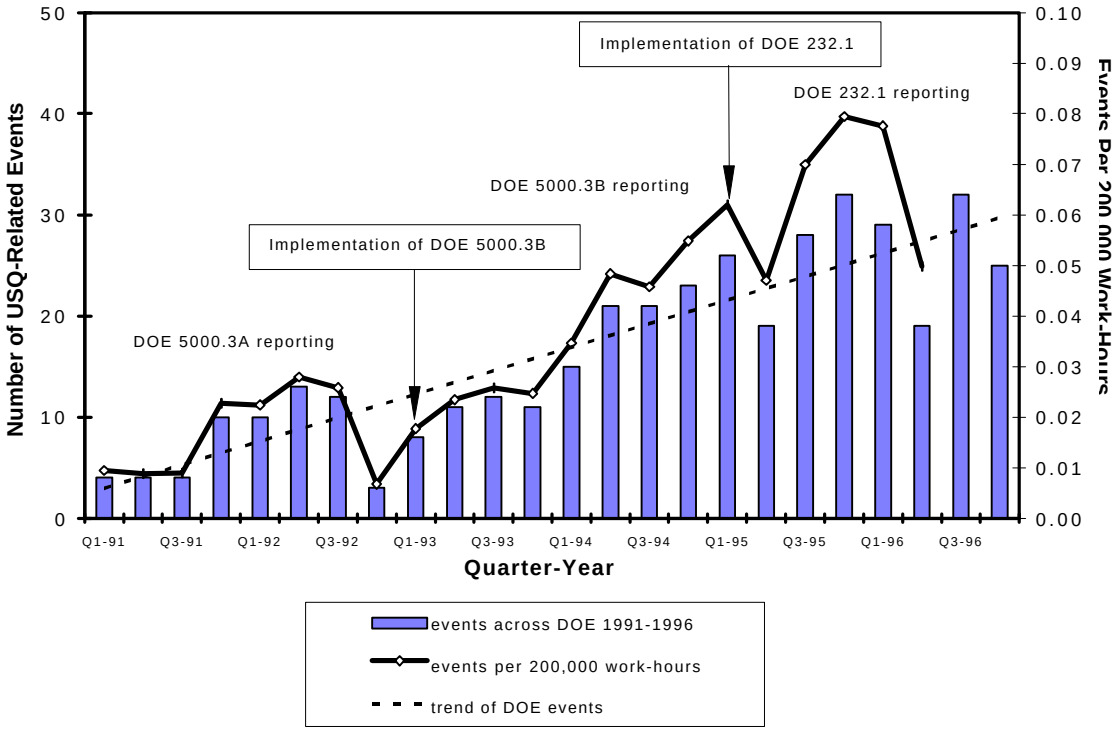

Figure 1-1. USQ-Related Events Across DOE 1991-1996[1]

The results of our study prompted us to ask readers of the OE Weekly Summary several questions about safety at DOE. We intend to compile this information and publish an article in a future Weekly Summary. We would appreciate your views on the following questions.

- In your opinion, is DOE becoming safer from a nuclear safety and industrial safety perspective? What is the basis for this opinion?
- What is the reason for the increasing trend of USQ-related events?
- Does the curve accurately reflect the state of safety at DOE? Is it indicative of an improved ability on the part of DOE personnel to find and report problems? Can a relationship be established between the USQ incidence rate and safety at DOE?
- What are the best ways to measure safety at DOE? Should safety be limited to the probabilities and consequences of design basis accidents or should safety also include issues related to worker safety and equipment damage?
- What are the best ways to measure risk? Can risk be quantified?
- What are the best ways to measure the effectiveness of corrective actions?

The NFS Operating Experience Group is committed to customer satisfaction through continuous improvement of its products and services, including the Operating Experience Weekly Summary, and through reports to environment, safety and health managers. We are also committed to taking a more proactive approach to the safety issues facing the DOE complex. Our request for information on safety is a step in this proactive approach. We plan to take this approach in the future with other safety issues, such as lockout/tagouts, configuration control, and fall protection.

Individuals wishing to respond to this request may contact Richard Trevillian, (301) 903-3074, fax (301) 903-7358, or e-mail dick.trevillian@hq.doe.gov; or Clifford Wallen, (301) 540-2396, fax (301) 540-2499, or e-mail cwallen@dewey.tis.eh.doe.gov.

KEYWORDS: safety, unreviewed safety question

FUNCTIONAL AREAS: nuclear/criticality safety, industrial safety

[1]OEAF engineers screened the ORPS database for the narrative "Unreviewed Safety Question" and the years 1991 to 1996 and found 400 reports describing 403 occurrences. Based on a random sample of 30 reports, OEAF engineers determined that each column is accurate within ± 3.9 percent.