



Department of Energy
National Nuclear Security Administration
Washington, DC 20585

April 10, 2003

Vice Admiral George P. Nanos
[]
Los Alamos National Laboratory
P.O. Box 1663
Los Alamos, NM 87545

EA-2003-02

Subject: Preliminary Notice of Violation and Proposed Civil Penalty \$385,000
(Waived by Statute)

Dear Admiral Nanos:

This letter refers to the recent investigation by the Department of Energy's Office of Enforcement (OE) of the March 13, 2002, [] contamination event, the September 26, 2002, [] radiography event and safety basis (SB) issues at [], [], and [].

An Investigation Summary Report describing the results of that review was issued to you on January 30, 2003. An Enforcement Conference was held on March 4-5, 2003, in Germantown, Maryland, with you and members of your staff to discuss these findings. A Conference Summary Report is enclosed.

Based on our evaluation of these issues and information presented by the Laboratory during the Enforcement Conference, NNSA has concluded that violations of the Quality Assurance Rule (10 CFR 830.122) and Occupational Radiation Protection Rule (10 CFR 835) have occurred. The violations are described in the enclosed Preliminary Notice of Violation (PNOV).

Section I of the PNOV describes numerous work process and radiological control violations associated with a radiological worker cutting [] contaminated copper lines on March 13, 2002, without appropriate hazards analysis, work planning, work authorization or radiological controls. Additionally, Section I describes performance deficiencies associated with the February 2002 glovebox decommissioning and decontamination work, which contributed to the March 13 [] contamination event. As a result of this event, seven workers received uptakes of [], and significant [] contamination was spread throughout the room. Although

the actual uptakes of radioactive material for the workers were minimal, these uptakes were limited by fortuitous circumstances and not by effective work controls.

Section II of the PNOV describes radiological control violations associated with the September 26, 2002, unauthorized access by two crafts personnel of the [] roof during radiography operations. This event involved failures in radiological surveys and posting, work control, communications, and procedural compliance.

Section III addresses Safety Basis (SB) violations at the [] and [] facilities. These violations represent a failure by LANL to operate and maintain the identified nuclear facilities in accordance with the safety requirements developed by LANL and approved by NNSA. These violations include the operation of a critical assembly with a missing engineered safety feature and multiple noncompliances with Technical Safety Requirements. Although none of these events resulted in harm to employees or the public, they are of concern because they placed these facilities outside the facility safety boundaries established by NNSA. Section IV describes quality improvement violations involving continuing deficiencies in work controls of radiological operations and SB issues.

In accordance with the General Statement of Enforcement Policy, 10 CFR 820, Appendix A, the violations described in the sections of the PNOV have been classified according to severity level. The violations in Section I of the PNOV have been classified as Severity Level II based on the numerous failures to follow nuclear safety requirements and the repetitive nature of the work and radiological control deficiencies. The violations in Section II have been classified as Severity Levels III and II. The failure to survey and adequately post the rooftop represents a fundamental weakness in radiological control program implementation; however, due to the routine operating constraints on the x-ray devices, the radiation hazards on the [] rooftop would be minimal. Consequently, the survey/posting violation has been assigned a Severity Level III. The investigation also identified a long-standing noncompliance with multiple elements of the [] access control procedure, based in part on a lack of recognition by the operating staff of the requirements and their applicability. Due to the long-standing nature of this violation, it has been assessed as a Severity Level II.

Section III includes three Severity Level II violations for the SB issues. The SB violations occurred at more than one facility across the site and have been the subject of repeated enforcement actions by NNSA. Section IV of the PNOV identifies a Severity Level II violation for quality improvement issues, since LANL's previous corrective actions have not been effective in preventing the recurrence of the radiological and safety basis violations.

NNSA would have issued a Proposed Imposition of Civil Penalty in the amount of \$385,000 in this case; however, this civil penalty is currently waived by statute for LANL. NNSA has determined that no mitigation is warranted for timely self-identification and

reporting or effective corrective actions, given that several issues were self-disclosing events and due to the recurring nature of the violations.

NNSA considered escalating the quality improvement violation to a Severity Level I based on the long-standing weaknesses of LANL management to recognize and address nuclear safety deficiencies at the institutional level. However, LANL's presentation at the Enforcement Conference included significant commitments to strengthen senior laboratory management and to implement site-wide actions to improve quality processes. Based on the commitments made in the conference, NNSA has decided not to escalate the quality improvement violation and to issue the violation at a Severity Level II. NNSA will continue to monitor progress in implementation of these programmatic remedies.

During the enforcement conference, LANL management requested that NNSA issue a Special Report Order (SRO) in lieu of a PNOV requiring LANL to provide periodic briefings to NNSA of LANL's progress in implementing corrective actions. SROs are issued to require any person involved in a nuclear activity to file a report providing information relating to nuclear safety requirements. In this regard, SROs are generally employed in situations in which the contractor has been recalcitrant in providing requested information related to potential noncompliance with nuclear safety regulations. In this case, NNSA evaluated LANL's request and determined that an SRO was not appropriate based on LANL's willingness to periodically update NNSA of LANL's progress on a voluntary basis. To that end, I am directing you or your senior management to provide monthly briefings to the Manager, Los Alamos Site Operations and quarterly written reports to NNSA headquarters, with copies to the Office of Price-Anderson Enforcement. The first briefing will take place during the week of April 21, 2003, and you should be prepared to address the following initiative commitments presented during the March 4-5, 2003, Enforcement Conference:

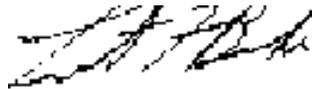
1. Document Cross-walk/Issue Noncompliance Tracking System Report
2. Document 10 CFR 830, Subpart A
3. Cross-walk Facility Issues to Institutional Issues
4. Laboratory Assessment Program of Laboratory Implementing Requirements
5. Issues Management/Causal Analysis
6. Corrective Action Improvement
7. Safety Basis/Unreviewed Safety Question Process Initiatives
8. Work Control Process
9. Quality Improvement Initiatives
10. Price-Anderson Amendments Act Program Improvements

My expectations are that LANL will demonstrate measurable and significant progress in correcting the nuclear safety deficiencies at the institutional level within a short time period. The NNSA recognizes that senior LANL management commitment towards nuclear safety improvement, as displayed during the conference, represents a significant and positive improvement over prior interactions with LANL management. Continued improvement in safety performance will require constant attention and

support from senior LANL management. In this regard, recent occurrences involving work on the steam condensate pipe at [] on February 22, 2003, and the offsite transport of a LANL employee's radioactively contaminated badge on March 4, 2003, raise continuing questions as to the effectiveness of LANL's corrective actions and use of lessons-learned. The February 22 steam pipe work resulted in the radiological contamination and possible uptakes of radioactive material to the involved workers. The March 4 event resulted in the loss of control of contaminated material, Curium-244, when the employee's contaminated badge was taken offsite to a residential area. NNSA will consider further action if notable progress is not achieved.

You are required to respond to this letter and to follow the instructions specified in the enclosed PNOV when preparing your response. Your response should document any additional specific actions taken to date. Corrective actions will be tracked in the Noncompliance Tracking System (NTS). You should enter into the NTS (1) any additional corrective actions you plan to take to prevent recurrence and (2) the anticipated completion dates of such actions. After reviewing your response to the PNOV, including your proposed corrective actions entered into NTS, NNSA will determine whether further enforcement action is necessary to ensure compliance with DOE nuclear safety requirements.

Sincerely,



Linton F. Brooks
Acting Administrator
National Nuclear Security Administration

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Enclosures:
Preliminary Notice of Violation
Enforcement Conference Summary
List of Attendees

cc: E. Beckner, NNSA
J. Mangeno, NNSA
D. Minnema, NNSA PAAA Coordinator
J. Roberson, NNSA
X. Ascanio, NNSA
B. Eichorst, NNSA-AL PAAA Coordinator
R. Erickson, NNSA-LASO
G. Schlapper, NNSA-LASO PAAA Coordinator
A. Elliott, LANL PAAA Coordinator
J. Koonce, UC

H. Hatayama, UC
R. Azzaro, DNFSB
B. Cook, EH-1
M. Zacchero, EH-1
S. Sohinki, OE
S. Adamovitz, OE
T. Weadock, OE
P. Rodrik, OE
Docket Clerk, OE

PRELIMINARY NOTICE OF VIOLATION

University of California
Los Alamos National Laboratory (LANL)
[]

EA 2003-02

As a result of the DOE Office of Enforcement evaluation of the March 2002 contamination event and [] uptakes at [], the September 2002 radiography event at [], and multiple Safety Basis issues at [], [] and [], several violations of DOE nuclear safety requirements were identified. In accordance with 10 CFR 820, Appendix A, "General Statement of Enforcement Policy," the violations are listed below.

I. Violations Identified During the Investigation of [] Activities

A. Work Control Deficiencies

10 CFR 830.122 (e), *Criterion 5 – Performance/Work Processes* requires that the Laboratory "(1) Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means."

10 CFR 835.104 requires that... "Written procedures shall be developed and implemented as necessary to ensure compliance with this part, commensurate with the radiological hazard created by the activity and consistent with the education, training, and skills of the individuals exposed to those hazards."

Contrary to the above, work performed in conjunction with the February 2002 decontamination and decommissioning (D&D) work on glovebox (GB) 326 and with the March 13, 2002, cutting of [] contaminated copper lines in [] building [] [] [] for size reduction and removal of solder joints was not performed consistent with administrative controls including written procedures in that:

1. Laboratory Implementation Requirement (LIR) 402-700-01.0, *Occupational Radiation Protection Requirements*, Section 1121, issued December 22, 2000,

requires that a description of the work be included in the Radiological Work Permit (RWP). However, the RWP used by the worker for cutting the piping pieces on March 13 did not cover that task. Two different RWPs 02-55300All-06 and 02-55-[]-7 were identified by worker as the RWP in use. The scope of work in RWP 02-55300All-06 described preventive maintenance of equipment belonging or pertaining to NMT-5. The scope of work in RWP 02-55-[]-7 described the removal of GB-326 and GB-382 and associated mechanical and electrical utilities. Neither RWP covered the size reduction of copper piping and removal of solder joints for waste management.

2. LIR 402-700-01.1, *Occupational Radiation Protection Requirements*, Section 1112, issued December 22, 2000, requires that radiological workers follow the requirements of work control documents. However, the radiological worker did not follow the requirements of the RWPs. RWP 02-55-300All-06 required the Radiological Control Technician (RCT) to identify the needed personal protective equipment (PPE), the type of respiratory protection, and the type of RCT coverage. However, prior to the worker cutting the piping, the level of PPE, respiratory protection, and RCT coverage were not identified and implemented for the job. RWP 02-55-[]-7 identified radiological protection requirements of Level II protective clothing, full-face respirator and continuous RCT coverage. None of these requirements were implemented during the March 13, 2002, pipe cutting activities.
3. NMT-AP-007, R4, *Hazard Control Plans*, Section 3.7, effective May 23, 2001, requires that "no activity may deviate from the controls defined in an approved Hazard Control Plan (HCP)." However, the HCP, NMT5-HCP-010, R0, *NMT-5 Non-Glove Box Maintenance*, used for cutting the piping pieces on March 13, 2002, did not cover the task. The HCP described the preventative maintenance, troubleshooting and repairing of equipment and did not include size reduction of contaminated piping and removal of joints for waste management.
4. NMT-AP-007, R4, *Hazard Controls Plans*, Section 2.4, effective May 23, 2001, requires that management ensure activities are performed within a safe operating envelope defined by the HCPs and that the work associated hazards and hazard controls be sufficiently understood before authorizing the work. However, management authorization and approval had not been obtained for the March 13, 2002, pipe-cutting activities, and the worker did not sufficiently understand the associated work hazards.
5. []-RD-555, R1, [] *Radiation Protection Requirements*, effective October 31, 2001, Section 4.11.4 states that formal As Low As Reasonably Achievable (ALARA) reviews are required for jobs involving work area removable contamination levels of [] disintegrations per minute (dpm) alpha contamination for non-routine work. The RWP 02-55-[]-7 used for the glovebox decommissioning identified (suspect) contamination on

inaccessible surfaces including the interior of piping and glovebox as greater than []. However, an ALARA review was not conducted as required for the March 13, 2002, pipe-cutting activities.

6. []-RD-555, R1, [] *Radiation Protection Requirements*, effective October 31, 2001, Section 4.11.5 states that “unknown materials must be fully assessed for radiological and other hazards, and control must be established through an approved work control document before work with the materials (for example, supplemental engineered controls, PPE, RCT coverage, monitoring requirements, etc.) If unknown materials are encountered during the course of work, workers must *stop and recover*, ensuring hazard assessment and implementation of appropriate controls before work proceeds.” However, for the March 13, 2002, pipe-cutting activities, the worker did not stop and recover when he encountered the Health Physics Radioactive Materials Survey (HPRMS) tags attached to the bagged copper piping that identified “potential internal contamination.” The worker proceeded to cut the contaminated copper piping. Additionally, the piping was not fully assessed for radiological hazards in that radiological contamination surveys were not performed on the piping, and controls were not established through an approved work control document.
7. The Waste Profile Worksheet (WPW) (Work Request #01101032) used for removal of GB-382 and GB-326 from [] [] required that the bare interior and exterior surfaces of copper piping be smeared for transuranic (TRU)/Low-Level Waste (LLW) determination and managed accordingly. The WPW further stated that items removed from the gloveboxes and the zone ventilation system were to be managed as TRU waste. However, the copper piping was not handled and labeled according to the requirements of the WPW in that the copper piping was removed, direct surveyed only on the outside surface, and labeled as Low Level Waste.
8. ESH-1-03-06, Rev 0, *HPR and HPRMS Tag*, dated June 19, 1998, required that an “E” be entered on the HPRMS tag when estimating dose rates or contamination levels. However, HPRMS tag #B052770 for the cut copper piping was not completed by the RCTs as required in that the contamination level of [] entered on the tag was not followed by an “E”. These contamination levels were estimated by the RCTs based on workplace indicators during the February 24, 2002, pipe-cutting activities (i.e., no contamination spread, no continuous air monitor alarms, or no contamination on the workers’ hands) and not based on process knowledge or specific smear surveys of the interior and exterior of the piping.
9. NMT7-W13-[]-HCP-DP-02L, R2, *Certification and Disposal of Low-Level Waste*, effective April 17, 2001, defined LLW as having alpha activity less than or equal to 50,000 counts per minute. RWP 02-55-[]-7 used for the GB decommissioning identified (suspect) contamination on inaccessible

surfaces including the interior of piping and glovebox as greater than []. Despite this notation on the RWP, the copper piping was labeled LLW by the RCT in the absence of specific contamination survey measurements as noted in paragraph 7 above.

Collectively, these violations constitute a Severity Level II problem.
Civil Penalty - \$55, 000 (waived)

B. Radiological Control Deficiencies

1. 10 CFR 835.1102(a) requires that “appropriate controls shall be maintained and verified which prevent the inadvertent transfer of removable contamination to locations outside of radiological areas under normal operating conditions.”

Contrary to the above, appropriate controls were not maintained on March 13, 2002, in [] [] during pipe cutting activities in that the hazards for cutting [] contaminated piping had not been analyzed, and containment, radiological monitoring or procedural controls to prevent contamination spread were not implemented. As a result, [] contamination was spread throughout the [] with alpha contamination levels up to [] identified.

2. 10 CFR 835.1001(a) requires that “Measures shall be taken to maintain radiation exposure in controlled areas As Low As Reasonably Achievable (ALARA) through physical design features and administrative control. The primary methods used shall be physical design features (e.g., confinement, ventilation, remote handling, and shielding). Administrative controls shall be employed only as supplemental methods to control radiation exposure.”

Contrary to the above, measures were not taken to maintain radiation exposures ALARA through the effective use of physical design features or administrative controls for the March 13, 2002, pipe cutting activities in room []. The radiological hazards were not analyzed for the pipe cutting, and effective physical design or administrative controls were not in place or not followed to prevent [] from becoming airborne, [] contamination spread throughout the room, and [] uptakes for seven workers.

Collectively, these violations constitute a Severity Level II problem.
Civil Penalty - \$55, 000 (waived)

II. Violations Identified During the Investigation of [] Activities

- A. 10 CFR 835.401(a) requires that monitoring of areas shall be performed to, in part, “...identify and control potential sources of individual exposure to radiation

and/or radioactive material.” 10 CFR 835.2 defines *monitoring* as “...the measurement of radiation levels, radioactive contamination levels, quantities of radioactive material, or individual doses and the use of the results of these measurements to evaluate radiological hazards...”

10 CFR 835.603 requires that each access point to radiological areas (as defined in 835.2) shall be posted with conspicuous signs bearing specific wording. 10 CFR 835.603(a) specifies that radiation areas be posted with the words “Caution, Radiation Area.” 10 CFR 835.2 defines a *radiation area* as any area accessible to individuals in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.005 rem (5 millirem) in 1 hour at 30 centimeters from the source or from any surface that the radiation penetrates.

Contrary to the above requirements, no radiological surveys or monitoring of the [] rooftop had been performed to identify potential radiological hazards arising from radiography operations prior to September 26, 2002. As a result, access points to radiation areas on the rooftop were not conspicuously posted. LANL follow-up surveys performed after the incident during typical radiography operating conditions identified radiation dose rate conditions that could result in an individual receiving 5.5 millirem in an hour.

Collectively, these violations constitute a Severity Level III problem.

- B. 10 CFR 835.104 requires that... “Written procedures shall be developed and implemented as necessary to ensure compliance with this part, commensurate with the radiological hazard created by the activity and consistent with the education, training, and skills of the individuals exposed to those hazards.”

LANL procedure MT-SOP-ND03-R02, *Access to Radiation Generating Device Radiological Areas* (21 June 2001), establishes access controls to Radiological Areas “...such as bays, fenced yards, and roofs...” defined by radiation generating devices. The procedure notes these areas only become Radiological Areas when the device is operating. The procedure includes the following requirements for posting and access control of radiation generating device defined Radiological Areas:

1. Such areas required to be posted as “Controlled Areas” (section I.A)
2. Personnel accessing or granting access to such areas must be trained in the subject procedure (section III. A.2)
3. During access to such areas, authorized personnel shall make a sweep of the area using a calibrated survey meter to ensure no hazards exist (section III.C.1.a.vii).
4. Personnel entering such areas shall carry a calibrated meter or an alarming dosimeter (section III.C.1.a.ii).

Contrary to procedural requirements, none of the above procedural controls were implemented during [] roof accesses made on September 25 and 26, 2002, in support of the lightning protection project. Discussion with Engineering Sciences and Applications, Applied Engineering Technologies personnel indicated that the above procedural controls were not recognized as applicable to roof accesses, and consequently had not been implemented over the past several years for any of the approximate six routine annual accesses made to the [] roof for minor maintenance activities.

This violation constitutes a Severity Level II problem.
Civil Penalty - \$55, 000 (waived)

III. Violations Identified During the Investigation of LANL Safety Basis Deficiencies

A. [] Flattop Critical Assembly Work Control Deficiencies

10 CFR 830.122 (e), *Criterion 5 – Performance/Work Processes* requires that the Laboratory “(1) Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means.”

LANL Procedure, NIS-18ADM-QAP-98.64 Rev 1, requires the performance of an unreviewed safety question determination (USQD) upon identification of a potential inadequacy with an existing safety analyses (PISA) and placement of the affected facility in a safe condition until the USQD is completed. If the USQD is positive, NNSA notification and approval is required concerning the laboratory’s proposed resolution of the positive USQD.

Contrary to the above, LANL failed to establish and maintain the Flattop critical assembly in a safe condition until completion of USQD U-2001-491 (initially USQD U-2001-410) concerning an identified PISA involving a missing (i.e., uninstalled) interlock described in the [] Safety Analysis Report, Section 4.1.9.

In February of 2000, it was discovered that a safety interlock described in the [] Facility Safety Analysis Report Section 4.1.9 was not installed in the Flattop critical assembly nor was it accounted for in the safety analysis section of the SAR. Upon identification of this and other discrepant as found conditions, LANL initiated USQD U-2001-410. Subsequent to the above, LANL operated Flattop on August 23, 2000, to conduct a special test. LANL was authorized to conduct this special test based upon information provided by LANL, including the statement “the operation of Flattop for this test has not changed from the operation of Flattop described in the SAR...” LANL did not include in the Test Plan submitted to DOE the fact that a safety interlock was missing and under review in an open and separate USQD. The missing interlock USQD was later determined to be positive

and was not completed and submitted for NNSA approval until approximately a year following the special test operation of Flattop.

This violation constitutes a Severity Level II problem.
Civil Penalty - \$55, 000 (waived)

B. [] Planet Critical Assembly and Fire Protection Work Control Deficiencies

10 CFR 830.122 (e), *Criterion 5 – Performance/Work Processes* requires that the Laboratory “(1) Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means.”

Contrary to the above, LANL failed to adequately develop and implement administrative controls including written procedures and requirements in that–

1. After a failure of the Platen encoder/controller, the Planet Critical Assembly was placed in the **STANDBY** mode on November 27, 2001, for maintenance and testing. From November 27, 2001, to January 9, 2002, a series of intermittent failures of the Platen encoder/controller occurred. After each failure, the Planet log identified the system was restored to an “operable status” with a corresponding log entry and stamp. It is unclear from the log entries whether or not the system failures were resolved and if any restrictions existed on future operations (mode change). On January 8, 2002, a criticality safety training class was conducted using the Planet assembly. The Log entry for January 8, 2002, identified that pre-operational and operations checks had been completed but included no documented Mode change. LANL review of the logs for other critical assemblies identified similar weaknesses in clearly identifying Mode changes between **STANDBY** and Operational Modes.

A LANL Independent Assessment of TSR implementation issued on June 15, 2001, identified the following site-wide deficiency. OI-4 – Multiple facilities had not developed and implemented procedures and/or processes for controlling and executing operating mode changes to ensure that limiting conditions for operation (LCO) were met prior to a mode change.

Although this problem was clearly identified in June 2001, this problem was still occurring at []. The failure to have adequate administrative controls governing mode changes resulted in the above operational status ambiguities and potential operation of the assembly in violation of the [] safety basis.

2. The TSR for the Los Alamos Critical Experiments Facility (LA-CP-95-11), Section 1.3.2, Modes of Operation, establishes the following for the Standby Mode of operation: “to be in Standby Mode, the assembly or reactor is subcritical, but with fuel in place, and capable of operation. Power may be applied to the Control System for the purpose of testing and maintenance.” However, on January 8, 2002, LANL personnel applied power to the Planet Control System while in a Standby Mode to conduct a Criticality Safety Training class. During this class, the Planet assembly was operated subcritical with fuel in place. During the class, Planet experienced failure of the Platen Vernier Control system, which was known to be experiencing intermittent failures from November 27, 2001 through January 7, 2002.

3. [] Safety Analysis Report, Section 9.6 requires annual functional testing of the fire alarm actuation devices including heat and smoke detectors. However, [] management discovered they failed to comply with this SAR requirement between 1999 until June 2002. In 1999, while a new software scheduling system was being implemented, [] management discovered they failed to transfer the annual surveillance requirement into this new system and the required surveillance had not been performed.

Collectively, these violations constitute a Severity Level II problem.
Civil Penalty - \$55, 000 (waived)

C. Work Control and Training Deficiencies related to [] Perchlorate Fuming Operations

1. 10 CFR 830.122 (e), *Criterion 5 – Performance/Work Processes* requires that the Laboratory “(1) Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means.”

Contrary to the above, the [] Justification for Continuing Operation (JCO) for the resumption of perchlorate fuming operations requires wash down of the fume hood and duct following perchlorate fuming operations. This requirement was established as a TSR level control by NNSA. During the period from May through July 2002, LANL failed to comply with this requirement on three occasions. All of these occasions involved the failure to perform a wash down of the duct following a perchlorate fuming operation.

2. 10 CFR 830.120 (b) *Criterion 2, Training and Qualification* requires that the Laboratory “(1) Train and qualify personnel to be capable of performing their assigned work.”

Contrary to the above, between May and July 2002, a Facility Coordinator was assigned to [] and was responsible for performing TSR required wash downs of duct following perchlorate operations. LANL determined this Facility Coordinator had not completed the [] specific qualifications for the Facility Coordinator functions.

Collectively, these violations constitute a Severity Level II problem.
Civil Penalty - \$55, 000 (waived)

IV. Quality Improvement Violation

10 CFR 830.1220 (c) *Criterion 3 – Management/Quality Improvement* requires that the Laboratory "(1) Establish and implement processes to detect and prevent quality problems; (2) Identify, control, and correct items, services, and processes that do not meet established requirements; and (3) Identify the causes of problems and work to prevent recurrence as a part of correcting the problem."

Contrary to the above, LANL processes to identify causes and correct quality problems were not effectively implemented as noted in the following examples:

A. Identification and Cause Determination Deficiencies

1. LANL Procedure PAAA Admin-6, *Investigating, Critiquing, and Causal Analysis of PAAA Noncompliances*, requires a formal documented causal analysis to be conducted for PAAA noncompliances that are reported in the NTS. Contrary to the above, LANL failed to complete, by the time of OE's onsite investigation in November of 2002, a documented causal analysis for NTS-ALO-LA-LANL-LANL-2001-0010 dated November of 2001. The subject NTS report documented PAAA noncompliances that were similar to the more recent work control violations cited in Section III (Safety Basis).
2. The LANL investigation into the [] radiography event failed to identify the longstanding facility noncompliance with rooftop radiography access controls contained in LANL procedure MT-SOP-NDO3-RO2. Consequently, potential corrective actions to address this longstanding deficiency were not considered nor developed.

B. Corrective Action and Recurrence Prevention Deficiencies

1. LANL failed to ensure that previously identified work control deficiencies were effectively controlled and corrected. Specifically, site work control processes were modified as part of corrective actions following the March 2000 [] PF-4 contamination event and in response to Enforcement Action EA-2000-13. The corrective actions required all work to be planned and conducted in accordance with site procedures containing specific requirements for identifying and controlling activity hazards. The more recent [] pipe cutting

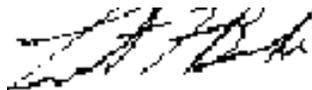
contamination event (See PNOV Section I) involved failures to adequately implement some of these work control corrective actions that were intended to prevent recurrence of this type of event.

2. Enforcement Action EA-2000-13 also cited violations involving [] safety basis issues similar to those documented in Section III of this PNOV. Corrective actions following the inappropriate operation of the Flattop critical assembly with an inoperable vernier-control device (intermittent failure) in early 2000 were not effective in preventing in early 2001 the deficiencies discussed in Section III of this PNOV with the Planet critical assembly. The corrective actions for the failure to disposition an identified safety issue with the solution high energy burst assembly (SHEBA), per the LANL USQ process were not effective in preventing the more recent violations involving the failure to formally assess Discrepant As-Found Conditions involving Flattop and Godiva.
3. LANL safety basis implementation assessments completed in June of 2001 and in March of 2000 identified common weaknesses concerning inadequate management control and oversight of safety basis implementation and lack of safety basis program self-assessments. Corrective actions from these assessments were not effective in preventing the [] and [] safety basis noncompliances discussed in section III. NNSA personnel in lieu of laboratory management oversight or self-assessment processes discovered these later noncompliances. The [] issue was longstanding (1999 to 2002), and in both events, there was a lack of management mechanisms for detection and correction of the quality problems.
4. DOE has cited LANL for inadequate Quality Improvement process implementation five separate times prior to this enforcement action. These violations have occurred from 1996 until the present and represent a continuing failure by LANL to adequately address and correct this problem. The prior enforcement actions with a quality improvement violation include the following:
 1. EA-1996-07 issued December 18, 1996
 2. EA-1998-10 issued September 21, 1998
 3. EA-1999-08 issued September 3, 1999
 4. EA-2000-13 issued January 19, 2001
 5. EA-2002-05 issued December 17, 2002

Overall, the above examples highlight significant weaknesses with LANL's quality improvement processes. NNSA has concluded that the majority of the violations and associated deficiencies cited in this PNOV could have been prevented if LANL management had adequately identified causes and corrected deficiencies from similar events or previously identified deficiencies.

Collectively, these violations constitute a Severity Level II problem.
Civil Penalty - \$ 55,000 (waived)

Pursuant to the provisions of 10 CFR 820.24, Los Alamos National Laboratory is hereby required within 30 days of the date of this Preliminary Notice of Violation (PNOV), to submit a written statement or explanation to the Director, Office of Price-Anderson Enforcement, Attention: Office of the Docketing Clerk, EH-10, 270 Corporate Square Building, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, D.C. 20585-0270 if sent by US Postal Service. If sent by overnight carrier, the response should be addressed to the Director, Office of Price-Anderson Enforcement, Attention: Office of the Docketing Clerk, EH-10, 270 Corporate Square Building, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-12190. Copies should also be sent to the Manager, Los Alamos Site Office as well as my office. This reply should be clearly marked as a "Reply to a Preliminary Notice of Violation" and should include the following for each violation: (1) admission or denial of the alleged violations; (2) any facts set forth which are not correct; and (3) the reasons for the violations if admitted, or if denied, the basis for the denial. Corrective actions that have been or will be taken to avoid further violations will be delineated with target and completion dates in the Noncompliance Tracking System. In the event the violations set forth in this PNOV are admitted, this Notice will constitute a Final Notice of Violation in compliance with the requirements of 10 CFR 820.24.



Linton F. Brooks
Acting Administrator
National Nuclear Security Administration

Dated at Washington, DC,
This 10th day of April 2003

ENFORCEMENT CONFERENCE SUMMARY

[] CONTAMINATION EVENT, [] RADIOGRAPHY EVENT, AND SAFETY BASIS ISSUES AT THE LOS ALAMOS NATIONAL LABORATORY

On March 4th and 5th, 2003, representatives with the Department of Energy's (DOE) Office of Enforcement (OE) and the National Nuclear Security Administration (NNSA) held an informal enforcement conference with representatives from the University of California (UC) and Los Alamos National Laboratory (LANL). This conference was held to discuss potential noncompliances identified in the OE Investigation Summary Report provided to LANL on January 30, 2003. Specific events reviewed as part of the OE investigation and discussed in the Investigation Summary Report included a worker contamination event at [], an unauthorized access/radiography event at [], and multiple events involving safety basis compliance at [], [], [], and []. A list of the conference attendees is attached.

The conference was opened by Mr. Stephen Sohinki, OE Director, who provided introductions and an overview of the conference's purpose and objectives.

LANL presentations were opened by Admiral George P. Nanos, LANL Interim Director, who provided introductory remarks and a high-level overview of recent LANL actions to improve nuclear safety performance. Mr. James Angelo, Performance Surety Division Director, then provided additional detail on LANL institutional vulnerabilities and ongoing and planned improvement initiatives. Mr. Angelo also responded to facility and event-specific questions related to issues identified in the OE Investigation Summary Report.

Mr. J. F. Koonce, representing the UC Office of the President, discussed the University's participation in and oversight of LANL's nuclear safety activities. Mr. Al Elliott, the LANL PAAA Program Coordinator, discussed ongoing improvements in the LANL PAAA Program and presented LANL's opinions regarding potential mitigating factors associated with the subject events.

Collectively, LANL's presentations acknowledged a long-standing weakness in addressing nuclear safety deficiencies at the institutional level. A recent LANL review of significant events and prior OE Enforcement Actions identified a number of common institutional "elements" or weaknesses that are the focus of ongoing or planned improvement initiatives. These weaknesses include an insufficient formality in the work control process, deficiencies in safety basis adequacy and implementation, deficiencies

in performance assurance processes (including assessments, issues management, and causal analysis), and a non-compliant quality program.

The LANL representatives described a number of significant initiatives and corrective actions to address the above weaknesses. A Senior Nuclear Executive Board, chaired by the LANL Director, has been established to elevate nuclear safety incidents and trends to a senior management level. A project has been initiated to integrate separate LANL work control processes and procedures into one Integrated Facility Management Program. Additional initiatives included establishment of a single database to track institutional issues, upgrades to the laboratory assessment program, establishment of a Nuclear Safety Functional Manager, upgrades to the Unreviewed Safety Question process, and additional staffing for the LANL PAAA Program Office. During the conference LANL management offered to provide periodic briefings to NNSA and OE on the status of the improvement initiatives.

With respect to the factual accuracy of the OE Investigation Summary Report, LANL management indicated they had no substantive disagreement with the overall tone and conclusions of the report. LANL did disagree with OE's conclusions regarding the operational mode (and operator cognizance of the operational mode) of the Planet Critical Assembly when experiencing failures of the Platen Encoder/Controller system. During the conference, LANL committed to submitting their documented position on this matter by March 14, 2003. LANL staff indicated they also had identified a few non-substantive clarifications for other sections of the report, and that these clarifications would be provided as part of the above submission. The LANL submission will be placed in the docket file.

During his closing remarks, Admiral Nanos reiterated LANL senior management's commitment to improving nuclear safety performance at LANL. He requested that OE consider a Special Report Order as an appropriate enforcement vehicle for closure of the above issues.

Mr. Sohinki concluded the conference by indicating that DOE and NNSA would consider the information and recommendations presented by LANL in their enforcement deliberations. In his remarks, Mr. Sohinki acknowledged that the level of senior LANL management acknowledgement and commitment towards nuclear safety improvement displayed during the conference represented a significant and positive improvement over prior interactions with LANL management.

Los Alamos National Laboratory
[] Contamination Event & [] Radiography Event
Safety Basis Issues at [], [], & []

Enforcement Conference List of Attendees
March 4 & 5, 2003

Office of Price-Anderson Enforcement

Stephen M. Sohinki, Director
Howard M. Wilchins, Senior Litigator
Susan Adamovitz, Senior Enforcement Officer
Peter Rodrik, Enforcement Officer
Anthony Weadock, Enforcement Officer
Steven B. Hosford, Technical Advisor

National Nuclear Security Administration

James Mangeno, Advisor for ES&H
Xavier Ascanio, Director Operations & Construction
Doug Minnema, NNSA PAAA Coordinator
Dale Dunsworth, LANL Site Lead
Jeff Roberson, NNSA Technical Support

Los Alamos Site Office

Gerald Schlapper, NNSA/LASO PAAA Coordinator

Los Alamos National Laboratory

George P. Nanos, Interim Director
James Angelo, Director, Performance Surety Division
Phil Wardwell, Laboratory Counsel
Frank Dickson, Chief Legal Counsel
Deidra Yearwood, PAAA Coordinator
Alverton Elliott, PAAA Coordinator

University of California

J.F. Koonce, Executive Director Operations
John Ahlquist, Deputy Director, ES&H