Department of Energy

Washington, DC 20585

March 7, 2006

Dr. Robert Rosner
Director
Argonne National Laboratory
Argonne, IL 60439-4832

EA-2006-02

Subject: Preliminary Notice of Violation and Proposed Civil Penalty–$550,000
(waived by statute)

Dear Dr. Rosner:

This letter refers to the Department of Energy's (DOE) Office of Price-Anderson Enforcement's (OE) investigation of the nuclear safety program deficiencies that were identified in 2005 by several DOE organizations who performed routine assessments of Argonne National Laboratory's (ANL) Price-Anderson Amendments Act (PAAA) and environment, safety, and health programs. An investigation summary report was issued to you on December 21, 2005. An enforcement conference was held on January 25, 2006, in Germantown, Maryland, with you, members of your staff, and senior representatives of the University of Chicago (UC) to discuss the findings in OE's investigation report. An enforcement conference summary is enclosed.

Based upon our evaluation of these findings and the information provided by you and others during the enforcement conference, I have concluded that violations of DOE's nuclear safety rules, 10 CFR Part 830, "Nuclear Safety Management," and 10 CFR Part 835, "Occupational Radiation Protection," have occurred. The violations are described in the enclosed Preliminary Notice of Violation (PNOV).

At the outset, it is important that you, and the officers of UC, understand the factors that influenced the enforcement outcome in this case. First, we recognize that, since you have served as laboratory director for only about a year, you personally bear no responsibility for any of the significant historic deficiencies described in this PNOV. Indeed, in that respect, the PNOV is a reflection of the lack of proper stewardship of laboratory safety programs for many years by the UC and your predecessors. It is truly fortuitous that no one has been seriously injured as a result of the deficiencies addressed in prior reviews of ANL activities, for which no adequate corrective actions have been taken until now. This is especially true given the breadth of the failures to comply with nuclear safety requirements, covering as they do nearly all aspects of the radiation protection and quality assurance programs, and the longstanding nature of these problems. These deficiencies were discussed in OE reviews in 1999 and 2005, in

2002 by the DOE Office of Independent Oversight and Performance Assurance (OA), and in the October 2003 review by the DOE Argonne Site Office. The 2005 OA inspection confirmed that many of the deficiencies discussed in the prior reviews had not been adequately addressed. The failure to address these issues indicates a lack of any serious emphasis by the UC and ANL managements until now on compliance with nuclear safety requirements.

Given the factors described above, this case ordinarily would have been a candidate for many more citations of regulatory violations, and therefore a much higher civil penalty figure. In addition, as you are aware, the statutory authority of OE, reflected in the DOE enforcement policy, 10 CFR 820, Appendix A, permits the Director to issue civil penalties of up to $110,000 per violation per day for continuing violations. There is precedent for the use of this "per day" authority, and given the breadth and longevity of the nuclear safety noncompliances involved here, this case would ordinarily have caused the issuance of such per day penalties. Further, it is not the customary practice of OE to reduce an otherwise appropriate civil penalty simply because a contractor organization has finally appointed a new senior manager in belated recognition of the scope of the serious issues that have gone unaddressed for so long.

However, my staff and I have been extremely impressed and encouraged by the aggressive and proactive actions you have taken to date and plan to take to address the longstanding problems with implementation of nuclear safety programs at ANL. It is obvious that you have taken the time to personally understand the underlying causes for the prior problems, and that the actions you have taken and plan to take reflect a real (as opposed to rhetorical) commitment on your part to assuring that each issue is properly addressed, and that your safety programs will achieve "best in class" status. In this regard, we are relying on your commitment to assure that the corrective actions continue to be implemented and their effectiveness verified, and that the new way of doing business is institutionalized at ANL. We were also impressed with the caliber of the new team of managers you selected to assist you in addressing the safety issues and reaching a standard of excellence in safety performance. The presentations by your senior managers at the enforcement conference regarding the reconfiguration of the radiation protection and quality assurance programs reflected their understanding of the challenges they face and the actions necessary to address those challenge as well, and provides us with cautious optimism that the chronic issues that have beset these programs at ANL for many years will be resolved successfully.

In recognition of the above factors, DOE has decided to exercise its enforcement discretion by citing only the most egregious violations, and by refraining from utilizing the authority to cite the multiple continuing violations on a per day basis. We recognize the risk inherent in this decision and intend to continue to closely monitor both specific corrective actions and the overall strength of ANL's nuclear safety program. An explanation of the violations and their severity levels is provided below.

Sections I and II concern, respectively, the significant weaknesses in the radiation protection program that UC allowed to exist and the absence of an effective quality

improvement process. The site radiation safety officer was limited in effectiveness in that this individual only served an advisory role. Thus, there was no central authority for the management of the radiation protection program. Further evidence of this was management's failure to successfully renew ANL's external dosimetry program accreditation, an unprecedented occurrence in the DOE complex to date. It is reasonable to assume that the ineffective quality improvement processes in place at ANL allowed this situation, as well as those that led to the other violations, to exist for as long as they have. In accordance with DOE's enforcement policy, each set of documented violations in these areas is cited as a Severity Level I problem due to their long-standing nature, prior notice by DOE, and ANL's senior management involvement in them. Once again, with regard to potential safety significance, it is simply fortuitous that these violations have not resulted in harm to anyone.

Section III describes work process deficiencies of such breadth that it was clear this issue was systemic. The examples provided in the PNOV range from poor conduct of operations, to inadequate radiation surveys, to insufficient requirements for specifying personal protective equipment. The wide-spread and long-term nature of the violations in this area is again indicative of previous senior management's lack of commitment—both at ANL and at UC—to having a compliant and quality-oriented nuclear safety program. DOE has decided, for the same reasons given for violations in Sections I and II, to cite the work process violations as a Severity Level I problem. The potential safety significance of these extensive work control violations is a significant concern.

Section IV addresses the management and independent assessment program deficiencies. Neither program was used effectively nor were personnel who conducted either of these types of assessments properly trained. Both programs exhibited systemic and long-term deficiencies. DOE decided, given the similarity of issues in both programs, to categorize these collectively as a single violation. For the same reasons and considerations regarding potential safety significance stated above, these violations have been cited as a Severity Level I problem.

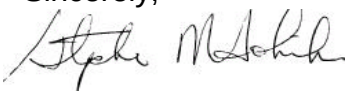
Sections V and VI concern, respectively, the application of a graded approach to "low consequence" activities and the unreviewed safety question (USQ) process. Most notably, the examples of controls for low consequence activities provided in Section V had, as a practical matter, graded to zero the application of quality management controls in contravention of well-established safety principles and the requirements of Part 830. This was yet another indication of senior management's lack of commitment to ANL's nuclear safety program. The USQ deficiencies further exemplify insufficient training on and experience with this process despite its application to conditions involving a hazard category 2 nuclear facility. DOE's assessment of the potential safety significance of these two violations resulted in each being categorized as a Severity Level II problem.

No mitigation for self-identification was granted since each of the above areas of violation was identified by DOE through various inspections and safety reviews, as well as by prior Notices of Violation. Additionally, DOE did not apply any mitigation for timely

corrective action due to the long-standing nature of these problems and the lack of timely corrective action.

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

Sincerely,



Stephen M. Sohinki
Director
Office of Price-Anderson Enforcement

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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

cc: J. Shaw, EH-1
R. Shearer, EH-1
A. Patterson, EH-1
A. Rankin, EH-1
L. Young, EH-1
S. Zobel, EH-6
H. Wilchins, EH-6
Docket Clerk, EH-6
R. Loesch, EH-31
R. Lagdon, S-3
R. Orbach, SC-1
B. Parks, SC PAAA Coordinator
R. Wunderlich, ASO
P. Neeson, ASO PAAA Coordinator
T. Rosenbaum, UC VP for ANL
R. McCook, ANL EQO, PAAA Coordinator
A. Karalius, ANL ESH
G. Zeman, ANL RSO

Preliminary Notice of Violation
and
Proposed Imposition of Civil Penalty

University of Chicago
Argonne National Laboratory

EA-2006-02

As a result of the Department of Energy's (DOE) Office of Price-Anderson Enforcement investigation of nuclear safety program deficiencies at Argonne National Laboratory (ANL) in 2005, multiple violations of DOE nuclear safety requirements were identified. In accordance with 10 CFR Part 820, Appendix A, "General Statement of Enforcement Policy," the violations are listed below. Citations specifically citing the quality assurance criteria of 10 CFR Part 830.122 represent a violation of Part 830.121(a), which requires compliance with those criteria.

I. Radiation Protection Program

A. Part 830.122(a)(1) states that a contractor shall "[e]stablish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work."

Contrary to the above, an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work were not established in that, prior to the DOE Office of Independent Oversight and Peformance Assurance's 2005 inspection of the site's environment, safety, and health programs (OA-2005), ANL's Radiation Protection Program (RPP) functioned with a radiation safety officer who did not have authority over the implementation of the RPP. Based on OE interviews with ANL management and the ANL acting radiation safety officer, as well as documentary evidence, radiation protection staff reported to line management organizations and not to the radiation safety officer. Hence, the radiation safety officer primarily had only an advisory role.

B. Part 835.103 states that "[i]ndividuals responsible for developing and implementing measures necessary for ensuring compliance with the requirements [of Part 835] shall have the appropriate education, training, and skills to discharge these responsibilities.

Contrary to the above, individuals responsible for developing and implementing measures necessary for ensuring compliance with the requirements of Part 835 did

not have the appropriate education, training and skills to discharge these responsibilities in that the ANL institutional radiological control technician (RCT) training program had several notable deficiencies. For example, no job performance measures had been developed for the RCT position. Further, the determination of adequate knowledge of a radiation safety topic was based on the discretion of the evaluator since no grading criteria were established on which to base whether the trainee was or was not successful in learning the subject material.

C. Part 835.104 requires that "[w]ritten procedures be developed and implemented as necessary to ensure compliance with [Part 835 requirements]…."

   Contrary to the above, written procedures were not developed and implemented as necessary to ensure compliance with Part 835 requirements in that the OA-2005 inspection determined that no institutional-level governing procedures were established by the contractor to ensure effective performance and compliance with applicable regulations in the following areas: radiation and contamination surveys, air sampling, operation of radiation measuring equipment, the preparation and use of radiation work permits, development and maintenance of records, area postings, and entry control.

D. Part 835.402(b)(1) states that "[e]xternal dose monitoring programs implemented to demonstrate compliance with Part 835.402(a) shall be…[a]ccredited…in accordance with the DOE Laboratory Accreditation Program for Personnel Dosimetry" (DOELAP).

   Contrary to the above, ANL's external dose monitoring program implemented to demonstrate compliance with Part 835.402(a) was not accredited by DOELAP in that the contractor failed to maintain DOELAP accreditation. The external dosimetry program had twice failed a significant part of the dosimeter performance testing portion of the accreditation process subsequent to initiation of accreditation renewal in mid-2003, and the early 2005 onsite assessment by DOELAP assessors identified three programmatic deficiencies that ANL, subsequent to the onsite assessment, had not adequately addressed. The combination of the performance testing failures and the program deficiencies resulted in the expiration of ANL's DOELAP external dosimetry accreditation on May 18, 2005.

E. Part 835.701(a) states that "[r]ecords shall be maintained to demonstrate compliance with [Part 835] and radiation protection programs required by Part 835.101."

   Contrary to the above, records were not maintained to demonstrate compliance with Part 835 and radiation protection programs required by Part 835.101 in that a review by OA in April and May 2005 of documentation for a sampling of work activities in the Waste Management Organization (WMO) identified a number of noncompliances with documentation and records requirements for radiological surveys, as follows:

1. Contamination surveys did not contain all of the information required to adequately interpret results, including counting efficiency, counting time, correction factors, and minimum detectable activity.

2. Data reporting was not in accordance with Health Physics Procedure HPP-100, "Documentation for Radiological Surveys," in that not all required information was recorded.

3. Maps being used to record radiological data did not include the reason for the survey, as required by the form in which the map was incorporated.

4. Quantitative swipes were being incorrectly averaged over more than 1 square meter of surface area rather than over 100 square centimeters as required by HPP-100.

5. Smear locations were not shown as required by HPP-100.

6. Survey forms were missing either the surveyor's signature, the reviewer's signature, or both.

F. Part 835.603 states that "[e]ach access point to radiological areas and radioactive material areas…shall be posted with conspicuous signs bearing the wording provided in this section."

Part 835.605 states that "[e]xcept as provided, each item or container of radioactive material shall bear a durable, clearly visible label [as prescribed]. The label shall also provide sufficient information to permit individuals handling, using, or working in the vicinity of the items or containers to take precautions to avoid or control exposures."

Contrary to the above, a review by OA in April and May 2005 found that radiological posting and labeling requirements specified by Parts 835.603 and 835.605 were not being met within Building 306 in that:

1. One of two entryways to a contamination area and airborne radioactivity area in room D033 had no visible radiological posting as required by Health Physics Technical Note HPTN-103, "ANL-E Radiological Posting Manual."

2. The rope and stanchion entryway to a radiation area in the West High Bay was incorrectly left in the down position while workers were in the area.

3. There were no "Radioactive Material Area" postings at the entrances to the downstairs tank farm area of building 306 as required by HPTN-103.

4. Several evaporators adjacent to room D033 were not properly labeled to indicate their status as ionizing radiation sources as required by HPP-121, "Posting Surveys."

5. The sizes of posted radiation areas were not as small as was practical, and therefore did not adequately convey the locations where higher dose rates existed as required by chapter 5.25, "Posting of Controlled Areas," of the ANL Environment, Safety and Health (ES&H) Manual.

Collectively, these violations constitute a Severity Level I problem.
Civil Penalty - $110,000 (waived)

II. Quality Improvement

Part 830.122(c) requires that a contractor "[e]stablish and implement processes to detect and prevent quality problems; identify, control, and correct items, services, and processes that do not meet established requirements; identify the causes of problems and work to prevent recurrence as a part of correcting the problem; and review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement."

Contrary to the above, the establishment and implementation of processes to detect and prevent quality problems; the identity, control, and correction of items, services, and processes that do not meet established requirements; the identity of causes of problems and working to prevent recurrence as a part of correcting the problem; and the review of item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement did not occur in that no effective quality improvement process existed at ANL. Examples illustrative of this deficiency are as follows:

A. The 2005 OA inspection found that many of the issues identified in the 2002 OA inspection had continued, and thus demonstrated that insufficient corrective actions were taken in 2002 to prevent recurrence. Deficient areas not corrected included the radiation protection program, assessment program, unreviewed safety questions (USQ), and compliance with work controls.

B. The contractor could provide no documented causal analysis or extent of condition reviews for the specific issues noted in OA's 2002 inspection report.

C. OE concluded that the University of Chicago (UC) failed to resolve the RPP deficiencies noted in a 2003 assessment by DOE's Argonne Site Office (ASO), since the many broad, programmatic issues identified by ASO were also found during the 2005 OA inspection.

D. The 2005 OA inspection found that UC lacked a documented, cohesive, and comprehensive corrective action/quality problem resolution process.

E. The 2005 OA inspection found that there was no trending or analysis of results from the various facility condition inspections to identify repetitive deficiencies, poor performers and repeat offenders, or controls to prevent deficiency recurrence. Similarly, there was no trending for division-level safety deficiencies or institutional-level issues that were tracked by the Environment, Safety and Health and Quality Assurance Office (EQO).

Collectively, these violations constitute a Severity Level I problem.
Civil Penalty - $110,000 (waived)

III. Work Processes

Part 835.104 requires that "[w]ritten procedures be developed and implemented as necessary to ensure compliance with [Part 835 requirements]…."

Part 830.122(e)(1) requires that a contractor "[p]erform 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, written procedures were not developed and implemented as necessary to ensure compliance with Part 835 requirements, nor was work performed 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 in that a review of work processes identified many noncompliances that represented inadequate work controls and failures to comply with existing work controls. The breadth of these noncompliance examples indicated a systemic deficiency in ANL work control processes. Examples of these deficiencies are as follows:

A. The 2005 OA inspection found there was no formal review process governing changes to work clearance forms and job safety assessments. The WMO Conduct of Operations Manual had not established any specific change control requirements for the work clearance permit process. In practice, "pen and ink" changes to approved documents were allowed without a requirement for additional formal review and approval. This lack of formal change control requirements for work documents limited the ability of subject matter experts to ensure the accuracy of controls and could have resulted in a scenario in which several different versions of approved work authorization documents existed.

B. Inadequate work controls were identified in the Advanced Photon Source facility (APS). The 2005 OA inspection found that some technical procedures generically referred workers to the ES&H Manual for the selection of hazards controls (e.g.,

personnel protective equipment). However, the ES&H Manual identified many potentially applicable requirements necessary to comply with nuclear safety rules. Thus, this reference was not sufficiently specific to ensure that proper controls were applied.

C. The 2005 OA inspection found that work controls were not clearly defined or effectively implemented in WMO, as follows:

1. WMO had not developed and documented its routine radiation survey plans as required by HPP-100. Radiation surveys were performed. However, neither the survey frequencies, the types of surveys performed, nor their associated records were found to be adequate to demonstrate compliance with 10 CFR Parts 835.401 and 835.703.

2. A waste sorting operation in room A160 involving tritium had inadequate work controls for tritium in that swipes for tritium were taken at some steps in the operation and not others, work controls did not specify where to take tritium smears, and the radiation work permit (RWP) specified bioassay sampling but had not indicated if tritium sampling was required despite it being a predominate radioisotope in the waste material.

3. RWP-020 required job-specific and retrospective air sampling. However, no job-specific air samples were taken for sorting waste in room A160 prior to compacting in room A161.

4. RWPs 013 and 020 required retrospective air sampling. However, RCTs had not verified proper function of the surrounding retrospective air samplers for jobs in the decontamination shop and tank farms. During one job in room A160, a retrospective air sampler was found to be inoperable.

5. No procedures, instructions, or precautions were established for passing waste into a posted contamination and airborne radiation area.

6. Workers did not always wear leather gloves while handling drums as required by the RWP for waste compacting and sorting.

7. Work area radiological surveys were not performed as required by RWP 013.

8. First count factors to evaluate beta to alpha activity were not consistently performed or documented as required by procedure HPTN-109.

9. The WMO Conduct of Operations Manual required compliance with procedures, yet the above examples indicated that this requirement was not being met for WMO activities. This reflected a lack of worker attention to governing procedures and requirements, including expectations to be familiar with and follow governing procedures or to identify and correct deficient procedures before continuing work.

D. The 2005 OA inspection found that for a sample of work activities performed by the Plant Facilities and Services (PFS) organization, work controls for hazards analysis were not clearly defined or effectively implemented, as follows:

1. The Building Maintenance group used an internally developed, informal card checklist system to address task-level hazards analysis rather than the process described in the Supervisors Handbook. However, no administrative controls were established to govern this informal card checklist process.

2. The PFS Construction Crafts group used a task evaluation form for hazards analysis. However, all the evaluations reviewed by OA were inadequate. These evaluations listed only one phase of the work to be performed and not the entire job, and also only listed generic hazards for the craft involved and not the hazards specific to the job.

E. The 2005 OA inspection found several deficiencies in the surveillance, testing, maintenance and operating procedures for the Alpha Gamma Hot Cell Facility (AGHCF), as follows:

1. The backup power supply technical safety requirement (TSR) surveillance procedure AGHCF-SR-201, revision 0, contained pre-testing steps which invalidated the intent of the surveillance. The intent was to test the power supply's availability in response to an inadvertent power outage.

2. No procedures were established for the calibration of AGHCF safety-related instrumentation.

3. No surveillance procedures were established to exercise the nitrogen supply manifold valves to demonstrate that they may be repositioned to the backup nitrogen tank as described in the SAR.

4. The TSR surveillance procedure AGHCF-SR-106 for zeroing and spanning the cell pressure sensors was inadequate to assure their accuracy and reliability. Deficiencies included failure to record as-found readings, instrument checks that only validated half of the operating range, not checking normal operating range data points, and procedure directions and terminology that were unclear and ambiguous when compared to the diagram.

Collectively, these violations constitute a Severity Level I problem.
Civil Penalty - $110,000 (waived)

IV. Management and Independent Assessments

A. Part 830.122(i) requires that a contractor "[e]nsure managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives."

Contrary to the above, UC did not ensure that managers assessed their management processes and identified and corrected problems that hindered the organization from achieving its objectives in that the management assessment process was reviewed and found to be weak in its implementation. Systemic deficiencies in the management assessment program were identified. Examples of these deficiencies are as follows:

1. ANL institutional and line policies and procedures did not sufficiently define the roles, responsibilities, authorities, and overall requirements for an effective management assessment program.

2. Self-assessments lacked sufficient focus on observing work activities.

3. Self-assessments lacked sufficient rigor to effectively evaluate processes and performance.

4. There were no self-assessments at the AGHCF of the USQ process.

5. No schedule of self-assessments was established by EQO for calendar years 2004 or 2005.

6. The 2003 schedule of EQO self-assessments was not maintained as 8 of 24 scheduled assessments were not performed.

7. From OE's interviews during its investigation, it was learned that many self-assessments by organizations (i.e., management assessments) were not formally planned, controlled, and documented.

8. OE's investigation found that self-assessments of the RPP identified certain programmatic issues, but they were not effective in identifying the full extent of the problems noted in OA-2005.

9. Additionally, UC's management assessment process was not adequate to identify the various other examples of work controls and USQ noncompliance noted in this report.

B. Part 830.122(j) requires that a contractor "[p]lan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement; establish sufficient authority, and

freedom from line management, for the group performing independent assessments; and ensure persons who perform independent assessments are technically qualified and knowledgeable in the areas assessed."

Contrary to the above, UC did not plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement; did not establish sufficient authority, and freedom from line management, for the group performing independent assessments; and did not ensure persons who perform independent assessments are technically qualified and knowledgeable in the areas assessed in that the site independent assessment process was found to have been weak in its implementation. Examples of systemic weaknesses in the program are as follows:

1. ANL's Quality Assurance Program Plan (QAPP) defined independent assessment as one in which the reviewer was independent of those directly responsible for the work. This would have allowed an individual from within the same line organization who was not involved in the work being assessed to conduct the so-called independent assessment. Additionally, QAPP procedure 3.2, "Independent Assessment," dated June 10, 2002, indicated that the procedure applied to line managers in their conduct of independent assessments. These provisions did not comply with the Part 830.122(j)(2) requirements that the group performing an independent assessment have freedom from line management.

2. OE reviewed the set of ANL independent assessments that had been conducted over the prior two years. Most ANL so-called independent assessments were investigations of incidents or verification of completion of corrective actions for NTS or other initiatives. Few independent assessments were identified based on internal determination of a need for independent review. OE found that sufficient independent assessments were not being performed to meet the Part 830.122(j)(1) requirement for measuring the adequacy of work performance and to promote improvement.

3. Procedure 3.2 of the QAPP, section 3.2.3, required the Director of EQO to "[o]versee the independent assessment program status and evaluate the effectiveness." UC could provide no evidence that such evaluations of independent assessment program effectiveness were being or had been conducted.

4. UC had conducted no independent assessments of the RPP in the two years prior to the OE onsite investigation.

5. UC's independent assessment program was ineffective in verifying corrective action effectiveness to prevent recurrence of the numerous deficiencies noted in the 2002 OA inspection.

6. UC's independent assessment program was ineffective in identifying the broad nuclear safety programmatic issues found by OA in its 2005 inspection and noted elsewhere in this Notice of Violation. The breadth of these noncompliances indicated systemic deficiencies in the independent assessment program.

Collectively, these violations constitute a Severity Level I problem.
Civil Penalty - $110,000 (waived)

V. Graded Approach

Part 830.7 requires that "[w]here appropriate, a contractor must use a graded approach to implement the requirements of [Part 830]…."

Contrary to the above, UC did not use a graded approach to implement the requirements of Part 830 in that for so-called "Low Consequences" activities, which could include events with the potential for a minor, routine radiation exposure, the ANL QAPP allowed:

A. Orientation or awareness training rather than job-specific training.

B. Informal or verbal procedures.

C. Informal tracking of deficiencies.

D. No documents or records.

E. No specific procurement controls (use of off-the-shelf components; no specific QA controls).

F. Assessments that were less formal than required.

These provisions effectively graded to zero UC's compliance with various regulations governing certain activities that may have a radiological consequence, which are applicable without regard to potential radiation exposure. These provisions of the QAPP did not comply with 10 CFR Part 830.7, which requires compliance with all applicable regulations but allows the means of compliance to be commensurate with the type and degree of hazards associated with an activity.

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

VI. Unreviewed Safety Question Process

Part 830.203(a) requires that a "…contractor responsible for a hazard category 1, 2, or 3 DOE nuclear facility must establish, implement, and take actions consistent with a USQ process that meets the requirements of [Part 830]."

Contrary to the above, UC did not establish, implement, and take actions consistent with a USQ process that meets the requirements of Part 830 in that the 2005 OA inspection included a review of the AGHCF configuration management program, of which a part was a sampling of USQ screenings and determinations (USQDs); the AGHCF is a hazard category 2 nuclear facility. Three of the USQDs reviewed incorrectly concluded that the proposed change or discovery did not involve a USQ. The incorrect answers to USQD questions represented noncompliances with the AGHCF USQ procedure HFS Policy 619, "Unreviewed Safety Questions," revision 1, dated December 4, 2002. The deficient USQDs were as follows:

A. USQD AGHCF-USQD-2002-2 involved the discovery of an allowable fire protection system water supply pressure in a TSR surveillance that was well below the as-designed operability pressure for the system. The system provides automatic sprinkler coverage of AGHCF areas outside of the hot cell and is considered a safety system in the AGHCF Documented Safety Analysis (DSA). The USQD determined that this condition was not a USQ. The 2005 OA inspection concluded that incorrect "no" answers were provided to three of the seven USQ questions in that USQD, namely whether the change increased accident consequences, whether the change increased the probability of malfunction of equipment important to safety, and whether the change created the possibility of malfunction of a different type than previously evaluated.

B. USQD AGHCF-USQD-2003-5 involved the discovery that modifications made to the AGHCF sprinkler system had not met design specifications and caused the system to be unable to meet the flow requirements under all conditions. The USQD determined this was not a USQ. The 2005 OA inspection concluded that incorrect "no" answers were provided to three of the seven USQ questions in that USQD, namely whether the change increased accident consequences, whether the change increased the probability of malfunction of equipment important to safety, and whether the change created the possibility of malfunction of a different type than previously evaluated.

C. USQD AGHCF-USQD-2002-3 involved an issue raised by OA in its 2002 inspection that concerned the SAR assumption that the AGHCF walls were not physically connected to seismically unqualified walls of the adjacent Building 212. At that time, OA found that the walls were connected, and this USQD was performed to evaluate that condition. The USQD concluded that this condition was not a USQ. The 2005 OA inspection concluded that an incorrect "no" answer was provided to one of the USQ questions in that USQD, namely whether the change increased the probability of malfunction of equipment important to safety. OA noted that the condition could affect the integrity of the cell walls, which were considered as safety-significant structures in the DSA accident analyses.

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

Pursuant to the provisions of 10 CFR Part 820.24, the University of Chicago is hereby required, within 30 days of the date of this Preliminary Notice of Violation (PNOV), to submit a written reply to the PNOV by express delivery to:

Office of Price-Anderson Enforcement
Attn: Office of the Docketing Clerk
EH-6/GTN/270CC
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874-1290

Copies should also be sent to the Manager, Argonne Site Office, and to the Director, Office of Science. 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 should be delineated with target and completion dates in DOE's Noncompliance Tracking System. In the event the violations set forth on this PNOV are admitted, this PNOV will constitute a Final Order in compliance with the requirements of 10 CFR Part 820.24.

Stephen M. Sohinki
Director
Office of Price-Anderson Enforcement

Dated at Washington, DC
this 7th day of March 2006

University of Chicago
Nuclear Safety Program Deficiencies

Enforcement Conference Summary

January 25, 2006

On January 25, 2006, the Department of Energy's Office of Price-Anderson Enforcement (OE) held an enforcement conference in Germantown, Maryland, with representatives of the University of Chicago (UC), the management and operating contractor for Argonne National Laboratory (ANL). Representatives from DOE's Argonne Site Office; Office of Science; Office of Environment, Safety and Health; and the Oak Ridge Operations Office were also in attendance. This conference was held to discuss the apparent violations identified in OE's investigation summary report that was provided to UC on December 21, 2005. The scope of this investigation concerned the systemic, chronic deficiencies in ANL's nuclear safety program. The conference was opened by Mr. Stephen Sohinki, Director, OE, who provided instructions and an overview of the conference's purpose and objectives. Mr. Sohinki also asked the assembled group whether any factual inaccuracies were contained in the investigation summary report. The UC representative stated the contractor's concurrence with all material facts set forth therein.

Dr. Don Randel, president of UC, provided the opening remarks that included it was the intent of UC to restructure the nuclear safety program at ANL. Dr. Thomas Rosenbaum, UC vice president for ANL, spoke next and provided an overview of the conditions that led to the breakdowns in ANL's nuclear safety program. He then explained how UC will better manage its oversight of ANL, e.g., through the creation of an oversight council, as well as lend some of the University's expertise to help institute a necessary culture change to support ANL's nuclear safety program revision.

Dr. Robert Rosner, ANL Director, provided a more detailed explanation of the root causes—cultural, organizational, and funding issues—of ANL's problems. This was followed by an overview of the immediate corrective actions put into effect to halt any activities that might have an inordinate safety risk; one of these actions was to halt all experimental work in the Alpha Gamma Hot Cell Facility. Dr. Rosner then briefly discussed the redesigning of ANL's nuclear safety program and how it would address the earlier-identified root causes. The revised program will basically have operations personnel "own and operate" all facilities and the research staff will "rent" the use of these facilities and services. He then introduced Mr. Robert McCook, Director for

Performance Assurance (PA), and Mr. Gary Zeman, Radiation Safety Officer, each of whom would explain in detail their responsibilities in the revised safety program.

Mr. McCook explained that he will be responsible for all safety-related programs at ANL and will report directly to Dr. Rosner. Mr. McCook stated that the PA organization has been empowered to address all aspects of safety and work processes, and to perform aggressive oversight and mentoring. He then discussed in greater detail the framework of and immediate tasks for PA.

Mr. Zeman began by stating that all radiation safety personnel will be reorganized into a single radiation safety organization, yet it will be cognizant of the concerns of various research groups that have helped develop specialized skills in several radiation protection staff members who have been previously assigned to the groups. Mr. Zeman then outlined the functions, responsibilities, and training opportunities for the revised radiation protection program.

Dr. Rosner provided the concluding remarks and made recommendations to OE concerning the relative safety significance of ANL's nuclear safety deficiencies and the application of DOE's enforcement policy.

Mr. Sohinki concluded the conference by stating that DOE would consider the information presented during its enforcement deliberations. The conference was then adjourned.

University of Chicago
Nuclear Safety Program Deficiencies

Enforcement Conference List of Attendees
January 25, 2006

DOE – Office of Price-Anderson Enforcement

Stephen Sohinki, Director
Howard Wilchins, Senior Litigator
Steven Zobel, Enforcement Specialist
Philip Wilhelm, Enforcement Specialist
Hank George, Technical Advisor

DOE – Office of Environment, Safety and Health

Patty Bubar, Director-Performance Assurance

DOE – Office of the Undersecretary

Chip Lagdon, Chief-Nuclear Safety

DOE – Office of Science

Don Erbschloe, Chief Operating Officer
Van Nguyen, Director-ESH
Ken Rivera, Manager-BES
Barry Parks, PAAA Coordinator
Michael Teresinski, Engineer

DOE – Argonne Site Office

Robert Wunderlich, Director
Paul Neeson, PAAA Coordinator

DOE – Oak Ridge Operations Office

Wendell Mansel, Director-Performance Assessment

Argonne National Laboratory

Robert Rosner, Laboratory Director
Kelly Mannsfeld, Deputy to the Director
Phillip Finck, Associate Director-Applied Science and Technology
Robert McCook, Director-Performance Assurance
Audra Karalius, Director-ESH and QA Oversight
Gary Zeman, Radiation Safety Officer

University of Chicago

Don Randel, President
Thomas Rosenbaum, Vice President-Research and ANL
Beth Harris, General Counsel
Daryl Shapiro, Outside Counsel
Jim Clark, Technical Advisor
Hugh Thompson, Technical Advisor