

April 16, 2010

Dr. Said Abdel-Khalik, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20055

SUBJECT: RESPONSE TO ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
LETTER DATED FEBRUARY 22, 2010, ON THE DRAFT FINAL
NUREG-1520, REVISION 1, "STANDARD REVIEW PLAN FOR THE REVIEW OF
A LICENSE APPLICATION FOR A FUEL CYCLE FACILITY"

Dear Dr. Abdel-Khalik:

I am responding to your letter dated February 22, 2010, regarding the Advisory Committee on Reactor Safeguards (ACRS) meeting on February 4, 2010.

During the full committee meeting, the ACRS recommended issuing Revision 1 of NUREG-1520, "Standard Review Plan (SRP) for the Review of a License Application," after consideration of ACRS comments. We appreciate the committee's thoughtful and thorough review of the draft SRP, as well as the constructive recommendations.

The following addresses each of the committee's recommendations:

1. Use of analytic techniques and terminology consistent with other agency applications.

The comments from the committee indicated the staff should continue to move in the direction of risk-informed regulations using analytic techniques and terminology consistent with other agency applications. To risk-inform the review process, the staff has taken the following actions: (1) the staff has developed and applied an Integrated Safety Analysis (ISA) to systematically identify potential accident sequences, and (2) the staff has classified these potential accident sequences by likelihood and consequence. The staff considers its current approach for assessing risk to be integrated and systematic. An applicant seeking a license to possess and process more than a critical mass of special nuclear material under Title 10 of the *Code of the Federal Regulations* (10 CFR 70) Part 70, "Domestic Licensing of Special Nuclear Material," needs to perform a process hazard analysis (PHA) in order to develop their safety program. The PHA is a systematic approach to identification of accidents that could lead to unacceptable consequences to workers or the public. Most licensees use structured PHA methods such as the hazard and operability method (HAZOP), fault trees, and event trees. The methodology selected by the applicant must provide an integrated risk perspective. In this context, "integrated" means integration of chemical, criticality, fire, and radiological safety into one analysis.

As recognized by the committee, fuel cycle facilities are very different from nuclear reactors. Therefore the terminology used for analysis is also somewhat different from

nuclear reactor applications. Fuel manufacturing plants have a wide spectrum of unit processes (e.g., UF_6 hydrolysis to uranyl fluoride, calcining to UO_2 , ball milling, etc.). Because of this wide spectrum, it is almost impossible to develop prescriptive procedures to fit all the fuel cycle facilities and all the unit processes for each facility. For example, for nuclear reactors the accident sequences of interest are usually those that result in core damage and containment failure. On the other hand, common accident sequences in fuel cycle facilities include those that result in inadvertent criticality and unsafe interactions of chemicals that could result in release of material that is hazardous to the workers or the public. Also, as a result of all the differences among fuel cycle facilities and their differences from nuclear reactors mentioned previously, the terminology used to risk inform reviews of fuel cycle facilities requires a certain level of distinction from other agency applications.

The staff concludes that the techniques and terminology used in the SRP are consistent with the structure of subpart H to 10 CFR Part 70. Introducing different techniques and terminology in the SRP would likely create confusion among licensees and the staff. Therefore, the staff does not plan to revise the terminology to conform to non fuel cycle applications absent commission direction to conduct rulemaking.

2. Fire-induced hot shorts

ACRS recommended that fire-induced hot shorts and their potential to place systems in conditions other than a fail-safe condition should be considered in the SRP. Staff will evaluate the potential for fuel cycle events related to hot shorts; if the staff determines that it is a common event or has significant risk for fuel cycle facilities, the staff will develop guidance utilizing the results of ongoing research on the topic.

3. Assessment of chemical hazards, including accident sequences that may result in injuries as well as fatalities

Another recommendation from the committee is that chemical accident sequences that may result in injuries as well as fatalities should be assessed in the ISA. Regulations in 10 CFR Part 70 require applicants and licensees to consider these events that could result in high or intermediate consequences to an individual. To meet this requirement, the applicant or licensee is obligated to assess and control chemical exposures that could endanger the life of a worker or lead to irreversible or other serious long-lasting health effects to a worker. In addition, the applicant or licensee is obligated to assess and control chemical exposures that could cause mild transient health effects to a member of the public. Therefore, the NRC not only considers chemical events that could result in worker fatalities, the NRC also considers injuries that could endanger the life or cause long-lasting injurious effects to the worker.

4. Safety-security interface

The ACRS also recommends that the staff consider the interface between safety and security in the review of license applications and ISA Summaries to be consistent with other ongoing regulatory initiatives.

The regulations of 10 CFR Part 73 (10 CFR 73), "Physical Protection of Plants and Materials," require nuclear power reactor applicants and licensees to address safety/security interface; however, 10 CFR Part 73 does not contain such requirements for fuel cycle facility applicants or licensees. Despite the lack of a specific requirement, the staff routinely addresses both safety and security matters in its licensing reviews and inspection activities. If, in its reviews, the staff identifies a concern regarding an adverse impact of safety activities on security, or vice versa, the staff will address the concern through existing safety (or security) requirements. Based on the Committee's recommendation, the staff evaluated the need to explicitly address the safety-security interface in this revision of NUREG-1520 and concluded that it may create confusion and potentially cause a license reviewer to request additional information from a licensee or applicant regarding a program that is not currently required by the regulations. Therefore, the staff has not added guidance to NUREG-1520 at this time, but has initiated action to include a safety-security interface requirement for fuel facilities in the upcoming revision to 10 CFR Part 73 to make generically applicable the past-9/11 security Orders issued to fuel cycle facilities. Staff will update the SRP in conjunction with the revision of 10 CFR Part 73.

Thank you for the committee's review.

Sincerely,

/RA/

R. W. Borchardt
Executive Director
for Operations

cc: Chairman Jaczko
Commissioner Svinicki
Commissioner Apostolakis
Commissioner Magwood
Commissioner Ostendorff
SECY

The regulations of 10 CFR Part 73 (10 CFR 73), "Physical Protection of Plants and Materials," require nuclear power reactor applicants and licensees to address safety/security interface; however, 10 CFR Part 73 does not contain such requirements for fuel cycle facility applicants or licensees. Despite the lack of a specific requirement, the staff routinely addresses both safety and security matters in its licensing reviews and inspection activities. If, in its reviews, the staff identifies a concern regarding an adverse impact of safety activities on security, or vice versa, the staff will address the concern through existing safety (or security) requirements. Based on the Committee's recommendation, the staff evaluated the need to explicitly address the safety-security interface in this revision of NUREG-1520 and concluded that it may create confusion and potentially cause a license reviewer to request additional information from a licensee or applicant regarding a program that is not currently required by the regulations. Therefore, the staff has not added guidance to NUREG-1520 at this time, but has initiated action to include a safety-security interface requirement for fuel facilities in the upcoming revision to 10 CFR Part 73 to make generically applicable the past-9/11 security Orders issued to fuel cycle facilities. Staff will update the SRP in conjunction with the revision of 10 CFR Part 73.

Thank you for the committee's review.

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