UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

July 16, 2010

MEMORANDUM TO: ACRS Members

FROM: Derek A. Widmayer, Senior Staff Scientist ***/RA/***
Reactor Safety Branch B, ACRS

SUBJECT: CERTIFICATION OF THE MINUTES FOR THE MEETING OF THE RADIATION PROTECTION AND NUCLEAR MATERIALS SUBCOMMITTEE, MAY 18, 2010 – ROCKVILLE, MARYLAND

The minutes of the subject meeting have been certified on July 15, 2010, as the official record of the proceedings for that meeting. A copy of the certified minutes is attached.

Attachment: Certified Minutes

cc: ACRS Staff Engineers

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July 16, 2010

MEMORANDUM TO: Derek A. Widmayer, Senior Staff Scientist
Reactor Safety Branch B, ACRS

FROM: Dr. Michael T. Ryan, Chairman
Radiation Protection and Nuclear Materials Subcommittee

SUBJECT: CERTIFICATION OF THE MINUTES FOR THE MEETING OF THE RADIATION PROTECTION AND NUCLEAR MATERIALS SUBCOMMITTEE, May 18, 2010 – ROCKVILLE, MARYLAND

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting on May 18, 2010, are an accurate record of the proceedings of that meeting.

/RA/

7/16/2010

Michael T. Ryan, Chairman Date
Radiation Protection and
Nuclear Materials Subcommittee

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
RADIATION PROTECTION AND NUCLEAR MATERIALS SUBCOMMITTEE MEETING
MINUTES
May 18, 2010
Rockville, MD

INTRODUCTION

The Advisory Committee on Reactor Safeguards (ACRS) Subcommittee on Radiation Protection and Nuclear Materials met on May 18, 2010, at 11545 Rockville Pike, Rockville, MD, in Room T2-B3. The purpose of the meeting was to review and discuss two draft interim staff guidance documents that supplement the Standard Review Plan "*Review of Safety Analysis Reports for Nuclear Power Plants*," (NUREG-0800). The two documents are DC/COL-ISG-013, "*Assessing the Consequences of an Accidental Release of Radioactive Materials from Liquid Waste Tanks for Combined License Applications*," and DC/COL-ISG-014, "*Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases*."

The Subcommittee planned to gather information, analyze relevant information and facts to formulate proposed positions, as appropriate, for deliberation by the full ACRS. The entire meeting was open to the public. Mr. Derek A. Widmayer was the cognizant ACRS staff scientist and the Designated Federal Official for this meeting. The Subcommittee received no written comments or requests for time to make oral statements from any members of the public regarding this meeting. The meeting was convened at 1:00 pm and adjourned at 2:51 pm.

ATTENDEES

ACRS

M. Ryan, Chairman
D. Widmayer, ACRS Staff

NRC Staff

E. Roach, NRO/DCIP/CHPB
J. Dehmel, NRO/DCIP/CHPB
S. Schaffer, NRO/DCIP/CHPB

R. Raione, NRO/DSER/RHEB
H. Ahn, NRO/DSER/RHEB
J. Giacinto, NRO/DSER/RHEB

G. Bagchi, NRO/DSER

S. Burrows, NRO/DNRL/DDIP

SUMMARY OF MEETING
(Reference Transcript Page Numbers and Presentation Slide Numbers)

Introduction

Dr. Michael Ryan, Chairman of the Radiation Protection and Nuclear Materials Subcommittee, introduced the Subcommittee Meeting. (Transcript Pages 5 & 6)

Opening Remarks

Mr. Ed Roach, Chief of the Health Physics Branch (CHPB) in NRO and Mr. Richard Raione, Chief of the Hydrology Engineering Branch (RHEB) in NRO introduced the presenters from the NRO staff, and introduced the discussions to be presented at the Subcommittee Meeting on the two ISGs. (Transcript Pages 6 – 10)

NRO Presentation on ISG-013

Mr. Jean-Claude Dehmel of the Health Physics Branch in NRO presented information on the contents and development of draft DC/COL-ISG-013, "*Assessing the Consequences of an Accidental Release of Radioactive Materials from Liquid Waste Tanks for Combined License Applications.*" He explained the need for the ISG, the issues and bases for the guidance that was needed in the ISG, the elements of the ISG with emphasis on important considerations, and the impact of the guidance on the areas of review and interfaces with other sections of the SRP. He explained that the major reason for the need for ISG-013 were inconsistencies and incomplete guidance within SRP Section 11.2, BTP 11.6, and the interface with SRP Section 2.4.13. (Transcript Pages 10 – 44), (NRO ISG-013 Slides 1 – 11)

NRO Presentation on ISG-014

Dr. Hosung Ahn of the Hydrology Engineering Branch in NRO presented information on the contents and development of draft DC/COL-ISG-014, "*Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases*." He explained the need for the ISG, the issues that led to the development of the ISG, the elements of the ISG with emphasis on important considerations, and the impact of the guidance on the areas of review and interfaces with other sections of the SRP. He explained that the major reason for the need for ISG-014 were inconsistencies and incomplete guidance within SRP Sections 2.4.12, and 2.4.13 and Regulatory Guide 1.206. (Transcript Pages 44 – 66), (NRO ISG-014 Slides 1 – 12)

Subcommittee Discussion

Dr. Ryan discussed his final comments on the presentations and the two documents being reviewed. (Transcript Pages 66 – 79)

SIGNIFICANT DISCUSSION ITEMS

The following summarize the most significant discussion items from the Subcommittee Meeting:

Applicability of ISG-013 and -014

NRO staff explained that ISG-013 was specifically intended to supplement SRP guidance for the purpose of determining the consequences from an accident that resulted in the catastrophic failure of a tank containing radioactivity. ISG-014 was specifically intended to supplement SRP guidance for determining the dose consequences on the groundwater pathway from the same failure. The ultimate result of these two analyses would be establishing technical specifications (such as the maximum radioactive content of tanks) and mitigative measures to ensure that regulatory requirements continue to be met. A significant aspect of the engineering assessment

for which these ISGs are being written is that the acceptance criteria for the accident is meeting the effluent concentration limits of Appendix B or Part 20, which uses 50 millirem per year as the dose bases.

Guidance for Slow Chronic Leaks Not Included

NRO staff explained that the ISGs were only meant to address the accident scenario. The guidance was not intended to address the situation of slow, chronic leaks resulting in problems with tritium in offsite groundwater wells or of undetected leakage from storage tanks or pipes for which much news has been and continues to be reported. Chairman Ryan pointed out that this was very confusing considering that guidance addressing the requirements of 10 CFR 20.1406 appeared in the same SRP Sections that were being supplemented by the ISGs and yet the guidance was not meant to address this regulatory requirement or the associated issues. Chairman Ryan also pointed out that the guidance being limited to the accident scenario and its associated acceptance criteria based on a dose of 50 mrem/year misses an opportunity to provide guidance on those other scenarios leading to offsite groundwater contamination where the acceptance criteria is based on a dose of 4 mrem/year (from EPA drinking water standards). Since the guidance discusses conceptual groundwater modeling, choices of groundwater analysis methodologies and other guidance that is needed to address the slow chronic leak issues, coordination (or repetition) of the guidance will have to be done at some point anyway.

NRO staff acknowledged the points that Chairman Ryan made, but could only stress that the two ISGs were only meant to fix the issues with the accident analysis. They mentioned that part of the reason for this was advice from OGC to limit the purpose of the ISGs. The staff stated that how to tie all of the potential release scenarios (both accident and chronic slow) together and what to integrate and what not to include remains a challenge they must address in the future.

Suggestions for Resolving Issue of Guidance for Slow Chronic Leaks

NRO staff explained that the guidance for tank failure was originally contained in SRP Chapter 15. But, because that Chapter was reworked for the March 2007 version of the SRP to address design bases accidents, the engineering analyses of the tank failure, which is not a design bases event, was moved to Chapter 11. Staff suggests that the tank failure analyses be moved back to an appropriate section of Chapter 15, which will leave the existing SRP Sections on hydrology and groundwater and waste management to address the problem of slow chronic leaks. There is also an analogous tank failure assessment that is conducted for gaseous tanks, and this would be better addressed in a Chapter 15 section rather than Chapter 11.

SUBCOMMITTEE CONCLUSIONS

Chairman Ryan concluded the meeting by pointing out that the Subcommittee would continue to be interested in the area of groundwater contamination and what the current Ground Water Task Force recommended and what further guidance the staff would have to develop based on the recommendations that addresses some of the issues raised at the Subcommittee Meeting.

REFERENCES

1. 1) U.S. NRC, "*Review of Safety Analysis Reports for Nuclear Power Plants*," NUREG-0800, Revision 6, March 2007.

2. U.S. NRC, *"Assessing the Consequences of an Accidental Release of Radioactive Materials from Liquid Waste Tanks for Combined License Applications,"* DC/COL-ISG-013, Draft, April 2009.

3. U.S. NRC, "*Assessing Groundwater Flow and Transport of Accidental Radionuclide Releases*." DC/COL-ISG-014, Draft, February 2010.