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Subject: AUDIT OF ALARA PROGRAM

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The following reports results of an audit of the Columbia Plant ALARA program.

The following source documents were used during the audit:

- License SNM-1107, Section 3.1.2.5
- Regulatory Compliance Committee minutes
- 1994 ALARA Action Plan
- Airborne Reduction Team activities
- 10CFR20, "Standards for Protection Against Radiation"
- NRC Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposures as Low as is Reasonably Achievable", Revision 1, September 1975
- NRC Regulatory Guide 8.37, "ALARA Levels for Effluents from Materials Facilities", July 1993 (ALARA aspects only)
- Regulatory Affairs Procedure RA-219-A, "ALARA Program Responsibilities"
- Regulatory Affairs Procedure RA-219-B, "ALARA Program Evaluation and Reports"
- ICRP recommendations
- SC-DHEC Licensing Guide, "ALARA Levels for Effluents from Materials Facilities", October 1993
- Semi-annual ALARA Reports
- Mini-ALARA meeting minutes

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The following is a summary of review of each of the above:

1. License SNM-1107, Section 3.1.2.5

ALARA is included as a standing agenda item for the Regulatory Compliance Committee (RCC). ALARA issues were discussed during each RCC meeting in 1994, including significant trends from the semi-annual ALARA Reports, other pertinent ALARA data, the ALARA Action Plan, ALARA efforts during the mothballing of MAP, Total Effective Dose Equivalent data, and Airborne Reduction Team activities.

Management commitment and support is evident from these meetings.

Semi-annual ALARA Reports have been written as required. The ALARA Report for the six month period ending June 30, 1994 was modified to reflect the revised 10CFR20 regulation.

ALARA training was provided to employees via the biennial regulatory training conducted during 1994.

2. Airborne Reduction Team activities

The Airborne Reduction Team (ART) is a subcommittee of the RCC, and meets periodically to review data such as airborne activity, Deep-Dose Equivalent data, Committed Effective Dose Equivalent data, and Total Effective Dose Equivalent data.

An ALARA Action Plan has been developed to address key issues.

To augment ART, two "Grass Roots" teams have been formed to review data and to develop a plan to minimize airborne radioactivity and personnel exposures. Each team is coordinated by a first line supervisor, and the Area Managers serve as Mentors.

3. 10CFR20

10CFR20.1(c) and 1101(b) require a formal ALARA program. This is implemented at the Columbia Plant.

10CFR20.1101(c) requires an annual review of the radiation protection program. This is implemented via the semi-annual ALARA Reports.

4. NRC Regulatory Guide 8.10

No discrepancies were noted.

5. NRC Regulatory Guide 8.37

A program is in place to show compliance with the annual dose limit in accordance with 10CFR20.1301. The annual Total Effective Dose Equivalent to a member of the public is less than 1 mREM, from the sum of liquid and gaseous effluents.

A program is also in place to show compliance with 10CFR1302(b)(2)(ii) regarding doses from external sources of radiation. Radiation surveys confirm that the dose at the perimeter of the Controlled Access Area is less than 2 mREM per hour. In addition, Security performs routine inspections of the Controlled Access Area fence and will take action to evict persons lingering near the fence, on Westinghouse property. This assures that no member of the public could receive greater than 50 mREM per year from external sources.

Regarding Management Commitment to ALARA, including goals, the recommended TEDE goal for members of the public is 10 mREM per year. In the ALARA Report for the six month period ending June 30, 1994, an ALARA goal of 20 mREM was established. In the next ALARA Report, this goal will be changed to 10 mREM per year.

6. RA-219-A

Revise this procedure to incorporate the "Grass Roots" team concept.

7. RA-219-B

Revise this procedure to indicate that 1 mREM per year to a member of the public is the investigation limit, and less than 10 mREM per year is the ALARA goal.

8. ICRP recommendations

ICRP recommends that occupational TEDE doses be kept below an average of 2 REM per year. During 1994, approximately 62 individuals exceeded 2 REM, the Columbia Plant ALARA goal. Increased efforts are needed during 1995 to make more progress in meeting this goal.

9. SC-DHEC Licensing Guide

See discussion under NRC Regulatory Guide 8.37.

10. Semi-annual ALARA Reports

The ALARA Report format has been revised to be consistent with the revised 10CFR20. Specific changes were summarized in the ALARA Report for the six month period ending June 30, 1994.

11. Mini-ALARA meeting minutes

No discrepancies were noted.

12. Summary of Recommendations

12.1 Modify the ALARA Report and RA-219-B to reflect the ALARA goal of less than 10 mREM per year to a member of the public, and revise RA-219-B to add an investigation limit of 1 mREM per year to a member of the public.

12.2 Revise RA-219-A to reflect the "Grass Roots" team concept.

12.3 Show progress in meeting the goal of less than 2 REM per year for occupational TEDE exposures.



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