

~~White Act letter~~

L-31596

U 305 R2/E54



Westinghouse

Letter in your
mailbox

Drawer R
Columbia, SC 29250
(803) 647-3338

February 4, 2002
NRC-02-02

U. S. Nuclear Regulatory Commission
Attn: Mr. Donald E. Stout, Project Manager
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
11545 Rockville Pike
Mail Stop T8A33
Rockville, MD 20852-2738

Dear Mr. Stout:

Subject: ADU Conversion ISA License Annex Revision 5 Submittal (TAC NO. 31377)

Enclosed are (2) revised copies of an Integrated Safety Assessment (ISA) License Annex, submitted in support of the "ADU Conversion System" ISA (TAC NO. 31377).

Revision 5 contains non-substantive updates to improve the format of the fault trees for the Hydrolysis Column, Nitrate Column, Precipitation Column, Decanter, V-x12 Column, and V-x20 Tank. Also, the HF Spiking System has been added to the Conversion License Annex.

If you have any questions, please contact me at (803) 647-3338.

Sincerely,

WESTINGHOUSE ELECTRIC COMPANY

Nancy Blair Parr

Nancy Blair Parr
Licensing Project Manager
Westinghouse Columbia Plant

Docket 70-1151 License SNM-1107

Attachment (2 copies)

Pam,

2/15/02

Please send to be
placed on the docket.

Dow

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NMSSOI Public

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 2 & 4
FOIA _____

L-31596
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ISA LICENSE ANNEX

AMMONIUM DIURANATE CONVERSION SYSTEM

AMMONIUM DIURANATE CONVERSION SYSTEM

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Initial Issue Date: 31 JUL 98
Revision Date: 04 FEB 02

Page No. i
Revision No. 5

April 26, 2002

Ms. Nancy Blair Parr
Licensing Project Manager
Westinghouse Electric Company, LLC
Drawer R
Columbia, South Carolina 29250

SUBJECT: WESTINGHOUSE ELECTRIC COMPANY LLC - (TAC NO. 31562) -
AMENDMENT 30 - AUTHORIZE THE USE OF ICRP 68 ALI/DAC

Dear Ms. Parr:

In accordance with your application dated October 15, 2001, and pursuant to Part 70 to Title 10 of the Code of Federal Regulations, Materials License SNM-1107 is hereby amended to grant an exemption authorizing the use of Annual Limit on Intake (ALI) and Derived Air Concentration (DAC) values based on dose coefficients adopted by International Commission on Radiological Protection (ICRP) and published in ICRP Publication No. 68. In granting the exemption to 10CFR 20.1201(d), we have determined, in accordance with 10 CFR 20.2301, that the exemption is authorized by law and will not result in undue hazard to life or property

Materials License SNM-1107 is also hereby amended, pursuant to your request, to grant an exemption to 10 CFR Part 70.5 to authorize the use of electronic filing. In granting this exemption, we have determined, in accordance with 10 CFR Part 70.17(a), that the exemption is authorized by law, will not endanger life or property or the common defense and security and is otherwise in the public interest.

Materials License SNM-1107 is also amended to include the administrative, organizational and procedural changes requested in your application of October 15, 2001.

Accordingly, Safety Condition S-1 has been revised to include the date of October 15, 2001.

All other conditions of this license shall remain the same.

Enclosed are copies of the amended Materials License SNM-1107 and the Safety Evaluation Report, which includes the Categorical Exclusion.

If you have any questions regarding this matter, please contact Donald Stout of my staff at (301) 415-5269 or by e-mail at des1@nrc.gov.

Sincerely,
/RA/

Daniel M. Gillen, Chief
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards

Docket 70-1151
License SNM-1107
Amendment 30

Enclosures: 1. Materials License SNM-1107
2. Safety Evaluation Report

April 26, 2002

Ms. Nancy Blair Parr
Licensing Project Manager
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/RA/
Daniel M. Gillen, Chief
Fuel Cycle Facilities branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards

Docket 70-1151
License SNM-1107
Amendment 30

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DATE	4/15/02		4/15/02		4/15/02		4/24/02	04/25/02	04/26/02	

* See previous concurrence

DOCKET: 70-1151

LICENSEE: Westinghouse Electric Company, LLC

SUBJECT: SAFETY EVALUATION REPORT: APPLICATION DATED OCTOBER 15, 2001

BACKGROUND

By letter dated October 15, 2001, Westinghouse Electric Company LLC (WEC) requested an amendment to its Special Nuclear Material License SNM-1107 to allow the use of Derived Air Concentration (DAC) and Annual Limit on Intake (ALI) values calculated using the new internal dosimetry models as described in ICRP 68. This is currently considered an exemption request from the requirements of 10 CFR Part 20. However, the Commission by Staff Requirement Memorandum (SRM) dated April 21, 1999, authorized the staff to grant such requests on a case-by-case basis. Included in the same letter was an exemption request to 10 CFR Part 70, Section 70.5 to send official correspondence to the Nuclear Regulatory Commission electronically and participate in the NRC's Electronic Information Exchange (EIE) program. The final request in this letter pertained to organizational and other administrative updates which are listed in detail below.

DISCUSSION

The basic limits on radiation exposures, as well as the minimum radiation protection practices required of any NRC licensee, are specified in 10 CFR Part 20, "Standards for Protection Against Radiation". Part 20 underwent a major revision in the 1980's, and the revised regulation was published as a proposed rule in December 1985. The final rule was published in the Federal Register on May 21, 1991, (56 FR 23391) and became mandatory for all licensees in January 1994.

One of the major changes incorporated in the revised Part 20 was the manner in which internal exposure to radioactive materials is regulated. Before the revision, NRC regulated internal exposures by limiting the amounts of radioactive materials that may be taken into the body over specified time periods. The revised Part 20 eliminated regulation based on intakes and, instead, regulated on the basis of the dose that resulted from those intakes. The internal dose from intake of radioactive material is referred to in Part 20 as the committed effective dose equivalent (CEDE). The change to regulation of dose instead of intake was prompted in part by similar changes in the recommendations provided by national and international bodies, and also by the desire to end the traditional treatment of internal and external doses as two distinct and separate entities. A consequence of the dose-based rule is that compliance would not necessarily be constrained by use of a specific set of parameters to calculate the dose. Part 20, in fact, allows certain adjustments to be made to the model parameters if specific information is available, such as adjustments when the particle size of airborne radioactive material is known, rather than using a default particle size. However, Part 20 also specifies certain protection requirements in the rule in terms of the quantities tabulated in Appendix B, the Annual Limit on Intake (ALI) and the Derived Air Concentration (DAC), rather than in terms of dose. Thus, requirements such as posting of airborne radioactivity areas, monitoring for intakes of radioactive materials, establishment of bioassay programs, and use of respirators are explicitly tied to the measurable quantities, rather than to a dose. This approach was taken in order to assure that these criteria would be easy to implement, and not impose an undue calculation burden on a licensee.

The models used in Part 20 to regulate internal dose are those described in ICRP Publications 26 and 30, adopted by ICRP in 1977 and 1978, respectively. Much of the basic structure of these

models was developed in 1966, although some of its components and parameters were altered somewhat between 1966 and their formal adoption by ICRP in 1978. In 1990 the final rule was published, in 1991 ICRP published a major revision of its radiation protection recommendations (ICRP 60). In the several years following this revision, ICRP published a series of reports in which it described the components of an extensively updated and revised internal dosimetry model. These reports include ICRP Publications 60 (1990), 66 (1993), 67 (1993), 68 (1994), 71 (1995), 72 (1995), and 78 (1997). Because of the way Part 20 was written, NRC licensees are not permitted to use the revised and updated internal dosimetry models.

Although the dose per unit intake calculated using the new models does not differ by more than a factor of about two from the values in Part 20 for most radionuclides, the differences are substantial for some, particularly for the isotopes of uranium, thorium, and some of the transuranic radionuclides. For example, for inhalation of insoluble uranium-235, the CEDE per unit intake calculated using the revised ICRP lung model is a factor about 5 times lower than that in Part 20. Because protective measures are based on hazard, and since hazard is proportional to dose, Part 20 requires significantly more protective measures when using uranium-235 than would be warranted based on the revised models. Another example, based on inhalation of insoluble thorium-232, the CEDE per unit intake calculated using the revised ICRP lung model is a factor about 15 times lower than that in Part 20. As mentioned above, Part 20 requires significantly more protective measures when using thorium-232 than would be warranted based on the revised models. The staff has concluded, during a recent amendment request, that the licensee's Radiation Safety Program is sufficiently sophisticated by training and expertise to utilize the ICRP Model in a manner equivalent to those listed in 10 CFR 20.1201(d), i.e. doses to less than NRC's regulatory limit of 5 rems. Therefore, WEC's request for an exemption under 10 CFR 20.2301 is acceptable because it gives its workers equivalent radiological protection as required by 10 CFR Part 20. Thus, the exemption is authorized by law and will not result in undue hazard to life or property.

In an August 6, 2001 letter from Melvin N. Leach, Chief, Fuel Cycle Licensing Branch, titled "Electronic Information Exchange (EIE) System", the NRC informed WEC of the voluntary program to submit official Part 70 communications electronically. The letter explained the necessity to request an exemption to 10 CFR Part 70, Section 70.5. WEC has chosen to participate in the EIE program and has requested an exemption to Section 70.5. Accordingly, page number 12.6 of their license has been revised to include the exemption that allows WEC to submit Part 70 communications electronically to the NRC per the August 6, 2001 letter from the NRC. This exemption is administrative in nature and is in accordance with NRC guidelines. Approval of this exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest.

The October 15, 2001, letter from WEC also contained a request to approve the following administrative changes in its license application that involve organizational and program updates, and typographical and grammatical errors. The changes are listed below:

Page number 1.0

changed the word absorber "coating" to "addition" and specified that a minimum number of four diesel-powered standby generators are needed to meet the electrical requirements of the site,

Page numbers 1.4,1.5,2.0,2.2,2.3,2.5
updated the organizational structure,

Page numbers 1.9,1.10
updated site plan and key,

Page number 3.0
added reference to the new Corrective Action Process (CAPs) - which has incorporated the intent of the Safety Margin Improvement Program,

Page numbers 2.4, 3.12
updated regulatory training requirements to require refresher training on an annual basis instead of biennial, that will allow electronic copies of the training manual, and provide flexibility in the delivery method for supplementary instruction,

Page numbers 5.1 and 5.2
updated Radiation Work Permits (RWP) to include chemical permit criterion resulting in a Radiation and Chemical Work Permit (RCWP),

Page numbers 5.1, 5.3,5.4,5.5,5.8,5.9,5.10,5.11 and 12.4
revised the radiation dose equivalent calculation methods to use the annual limit on intake (ALI) and derived air concentration (DAC) values based on dose coefficients published by the International Commission on Radiological Protection (ICRP) as published in ICRP Publication No.68, and added authorization to use ICRP 68

Note: WEC's applicable radiological procedures will be modified to reflect these changes prior to implementation of the ALI-DAC exemption. Calculation of internal doses may incorporate these values for calendar year 2001. WEC may use more conservative (i.e., higher dose per unit intake) values, as internal action levels, or for other purposes as approved by WEC Management.

Page number 5.2
changed the word from "un-encapsulated" to "pellet" based on a new safety evaluation and revised ventilation system requirements,

Page number 5.7
included examples of un-encapsulated material, and,

Page number 8.2
deleted named reference to American Nuclear Insurers - necessary audits will be conducted by a non specified vendor.

ENVIRONMENTAL REVIEW

These changes are considered procedural and administrative in nature. The staff has determined that the proposed changes are categorically excluded from the requirement to prepare a site-specific environmental assessment. Therefore, in accordance with 10 CFR 51.22(c)(11), neither an environmental assessment nor an environmental impact statement is warranted for this action.

CONCLUSION

It is generally agreed among the national and international scientific community that the newer models provide more accurate dose estimates than the models used in Part 20. The NRC supports these types of dose estimates, and has authorized the staff to grant exemptions on a case-by-case basis. In view of this situation, the staff recommends approving the licensee's request to use the new models. Additionally, the request to transmit Part 70 official documents electronically is endorsed by the NRC and the staff recommends approving this exemption request. Staff also recommends approval of the page revisions for organizational changes, deletion of American Nuclear Insurers as the sole auditor for fire safety and apparent improvements in refresher training frequency and revised ventilation requirements.

The Region II inspection staff has no objection to this proposed action.

PRINCIPAL CONTRIBUTORS:

Michael Lamastra
Donald Stout