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March 20, 2013

UPS/Next Day Air

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Docket No. 40-3392; License SUB-526

SUBJECT: Honeywell Metropolis Works Report on Changes to Public Dose Assessment

Honeywell Metropolis Works hereby submits the enclosed Report pursuant to the requirements set forth by the License Application dated May 12, 2006, as supplemented by letters dated March 20, 2007, May 12, 2008, July 12, 2010, and February 15, 2011.

According to Section 4.1.2, Compliance with 40 CFR 190, of the License Application, "Honeywell shall determine compliance with the 40 CFR 190 dose limits for members of the public...If the parameters important to a dose assessment change, a report shall be submitted within 30 days that describes the changes in parameters and includes an estimate of the resultant change in dose commitment." As required by this license condition, the enclosed Report documents a transition from the EPA's COMPLY computer code to the contemporary CAP-88 code. Both computer programs are used for modeling emissions to predict the inhalation and ingestion dose at the location of the nearest resident.

This change in the computer program results in increased accuracy of public exposure modeling through the implementation of contemporary dose coefficients and ICRP 68 based exposure models.

The aforementioned change, as well as the associated change to the facility's Safety Demonstration Report, was evaluated using Honeywell's configuration management process as not requiring prior NRC approval for the reason that there is no reduction in the level of safety.

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If you or your staff have any questions or require further information, please contact Bob Stokes, Regulatory Affairs and Radiation Protection Manager, at (618) 524-6341.

Sincerely,

Larry A. Smith
Plant Manager

Enclosure

cc: ATTN: Tilda Liu
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ATTACHMENT

REPORT

Change of Parameters Important to Dose Assessment

Introduction

On June 13, 2012, USNRC issued an amendment to Honeywell Metropolis Works (MTW) Materials License SUB-526 authorizing the use of methodologies based on International Commission on Radiation Protection (ICRP) Publication 68. ICRP Publication 68 based dose coefficients may be used to assign effective dose.

According to Section 4.1.2, Compliance with 40 CFR 190, of the Materials License SUB-526, Honeywell shall demonstrate compliance with the dose limits for members of the public as specified in 40 CFR 190. The EPA computer program COMPLY was used by the facility for calculation of the public (nearest resident) dose from emissions.

Acceptance of the newer models and methods of the effective dose to workers assessments also requires modification of the calculations of the public dose from the plant's emissions. Accordingly, the EPA computer program COMPLY is being replaced with the EPA's CAP-88 code.

In accordance with the aforementioned Section of the Materials License "...if the parameters important to a dose assessment change, a report shall be submitted within 30 days that describes the changes in parameters and includes an estimate of the resultant change in dose commitment." Honeywell hereby submits this Report to comply with this license condition and to describe the parameters significant to the assessment of public exposure.

This attachment contains the following information in support of the Report:

- Brief description of the CAP-88 code;
- Comparison of the codes: CAP-88 versus COMPLY;
- Resulting changes in the doses for members of the public;
- Conclusion.

Brief description of the CAP-88 code

The software used to demonstrate compliance with 40 CFR 190 will be CAP-88. It will be used in place of the COMPLY code. Both codes are released by the EPA. The CAP-88 (which stands for Clean Air Act Assessment Package-1988) computer model is a set of computer programs, databases and associated utility programs for estimation of dose and risk from radionuclide emissions to air.

The change in the software is necessary to accommodate the use of ICRP-68 based models and methodologies as authorized in License Conditions 28 and 29 of the SUB-526 Materials License.

Comparison of the codes: CAP-88 versus COMPLY

1. Demonstration of compliance with the COMPLY code assumed a "Building Release" with a specific height, length, and width defining the size of the Feed Material Building. To increase accuracy, implementation of CAP-88 allows the input of a maximum of 6 specific stack heights. Therefore, the 51 individual release points will be grouped together into 6 separate height ranges and the total measured release for each group will be input into the CAP-88 software. The height ranges to be used are defined below:

Group #	Height Range (meters)	CAP- 88 Height Input (meters)
1	3.3 – 8.1	8.1
2	8.1 – 12.9	12.9
3	12.9 – 17.7	17.7
4	17.7 – 22.5	22.5
5	22.5 – 27.2	27.2
6	27.2 – 32.0	32.0

2. Solubility studies performed on materials collected offsite at the nearest resident location (NR-7) will no longer be performed to determine the ratio of Class D, W, and Y material solubility. Instead, all nuclides being released will be assumed to be solubility Type M as defined in ICRP Publication 68. (ICRP Publication 68 defines the following absorption "types" for radioisotopes: F, M, and S. These absorption "types" only loosely correlate with the inhalation classes D, W, and Y used in ICRP Publication 30 based models. Type M materials have intermediate rates of absorption into the bloodstream from the respiratory tract, "Moderate" rate of absorption.)

Resulting changes in the doses for members of the public

In order to estimate the change in public exposure that will be assessed following these changes, data was evaluated for the 2009 monitoring year. The year 2009 was selected to demonstrate the change in exposure results during the largest annual release of airborne radioactive material measured in the past 5 years. As demonstrated by assessment with the COMPLY code, the exposure to the maximally exposed member of the public was 5.3 mrem. This exposure decreases to 2.99 mrem when assessed using the changes outlined above input into the CAP-88 code.

Computer Code	Maximum Dose to Public Member (mrem)
COMPLY	5.30
CAP-88	2.99

Conclusion

Honeywell believes that the use of ICRP Publication 68 based methodologies would facilitate its ALARA program's progress. The newer models and methods would enable MTW to perform more accurate and realistic internal dose assessments for workers. In addition, the CAP-88 code use will improve accuracy of public dose assessment. Since protective measures are based on hazard which is proportional to dose, Honeywell would be able to restructure its Radiation Protection Programs, particularly internal exposure control and protection, to focus on protection based on the actual hazard.

REFERENCES

1. Materials License SUB-526, Amendment 9.

2. Honeywell Metropolis Works License Application Dated May 12, 2006, as Supplemented by Letters Dated March 20, 2007, May 12, 2008, July 12, 2010, and February 15, 2011.

3. Title 40, Code of Federal Regulations, 190.

4. International Commission on Radiation Protection (ICRP) Publication 68, Annals of the ICRP, Volume 24, No. 4, 1994.