

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Terry J. Garrett
Vice President, Engineering

July 13, 2007

ET 07-0029

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Reference: Letter ET 06-0038, dated September 27, 2006, from T.J. Garrett, WCNO, to USNRC

Subject: Docket No. 50-482: Summary of the Impact to Wolf Creek Generating Station License Renewal Application Severe Accident Mitigation Alternatives Analysis due to Computer Program Error

Gentlemen:

The reference provided Wolf Creek Nuclear Operating Corporation's (WCNO) License Renewal Application (LRA) for the Wolf Creek Generating Station (WCGS). A problem with a computer program used to generate some portions of the Severe Accident Mitigation Alternatives (SAMA) analysis has been discovered that has impact on the WCGS SAMA analysis report. The WCGS SAMA analysis is Attachment F, "Severe Accident Mitigation Alternatives Analysis," to LRA Appendix E, "Applicant's Environmental Report Operating License Stage."

The Total Economic Costs and Total Long-Term Pathway Doses following an accident at WCGS were calculated using MELCOR ACCIDENT CONSEQUENCE CODE SYSTEM (MACCS2). MACCS2 simulates the impact of severe accidents at nuclear power plants on the surrounding environment and is used for the quantification of Level 3 probabilistic risk assessments (PRA).

One of the input files needed to run MACCS2 is "site data". The site data input file is generated using Sector Population, Land Fraction, and Economic Estimation Program (SECPOP2000). A difference in the format of the site data input deck generated by SECPOP2000 and the expected format of the input deck by the MACCS2 code was recently discovered that impacted the Total Economic Costs calculated by MACCS2.

The WCGS SAMA analysis was reanalyzed using the corrected SECPOP input. The attachment to this letter provides an analysis and summary of the impact of the re-analysis to conclusions reached in Attachment F of LRA Appendix E.

No commitments are identified in this submittal. If you have any questions concerning this matter, please contact me at (620) 364-4084, or Mr. Kevin Moles at (620) 364-4126.

A121
NRC

Sincerely



Terry J. Garrett

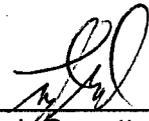
TJG/rlt

Attachment – Summary of Impact to SAMA Analysis

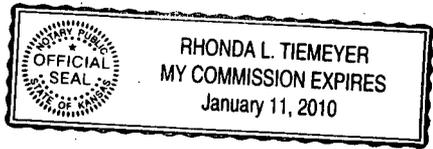
cc: J. N. Donohew (NRC), w/a
V. G. Gaddy (NRC), w/a
C. Jacobs (NRC), w/a
B. S. Mallett (NRC), w/a
Senior Resident Inspector (NRC), w/a

STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

Terry J. Garrett, of lawful age, being first duly sworn upon oath says that he is Vice President Engineering of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By 
Terry J. Garrett
Vice President Engineering

SUBSCRIBED and sworn to before me this 13th day of July, 2007.



Rhonda L. Tiemeyer
Notary Public

Expiration Date January 11, 2010

Attachment

**Summary of the Impact to Wolf Creek Generating Station License Renewal Application
Severe Accident Mitigation Alternative Analysis due to Computer Program Error**

An error in the output of the Sector Population, Land Fraction, and Economic Estimation (SECPOP2000) program (when used to produce a MELCOR ACCIDENT CONSEQUENCE CODE SYSTEM (MACCS2) input file) was discovered that caused the Wolf Creek severe accidents analysis to be reworked. The re-analysis produced an insignificant change to dose-risk and a small change to cost-risk. These changed values were then used to recalculate a monetary screening value (Maximum Averted Cost Risk or MACR) for determining the cost-effectiveness of potential Severe Accident Mitigation Alternatives (SAMA)s.

The modified MACR (accounts for external events) based on the mean probabilistic risk assessment (PRA) results increased from \$1,852,000 to \$1,876,000 (1.3 percent increase). The 95th percentile PRA results sensitivity case was also recalculated and it was determined that the modified MACR increased from \$3,518,800 to \$3,564,400 (also a 1.3 percent increase). The changes to the modified MACR estimates did not impact the analysis.

In addition to the impact on the modified MACR, the SECPOP error also impacted the averted cost-risks that were calculated for each of the SAMAs. The following table provides a summary of the impact of using the corrected results in conjunction with the mean PRA results in the detailed cost-benefit calculations that were performed.

Results Summary for SECPOP Error Correction (Mean PRA Results)

SAMA ID	Cost of Implementation	Averted Cost-Risk (Base)	Net Value (Base)	Averted Cost-Risk (Post SECPOP Correction)	Net Value (Post SECPOP Correction)	Change in Cost Effectiveness?
SAMA 1	\$800,000	\$799,882	-\$118	\$800,784	\$784	Yes
SAMA 2	\$400,000	\$655,712	\$255,712	\$656,254	\$256,254	No
SAMA 3	\$328,000	\$293,252	-\$34,748	\$292,442	-\$35,558	No
SAMA 4 - Case 1	\$600,000	\$243,368	-\$356,632	\$259,672	-\$340,328	No
SAMA 4 - Case 2	\$50,000	\$173,050	\$123,050	\$184,812	\$134,812	No
SAMA 5	\$50,000	\$54,576	\$4,576	\$54,698	\$4,698	No
SAMA 8	\$565,000	\$43,492	-\$521,508	\$43,522	-\$521,478	No
SAMA 13	\$150,000	\$111,168	-\$38,832	\$110,716	-\$39,284	No
SAMA 14	\$1,200,000	\$882,152	-\$317,848	\$883,116	-\$316,884	No
SAMA 15 - Case 1	\$3,250,000	\$404,219	\$2,845,781	\$409,458	-\$2,840,542	No
SAMA 15 - Case 2	\$1,000,000	\$404,219	-\$595,781	\$409,458	-\$590,542	No
SAMA 16	\$565,000	\$22,648	-\$542,352	\$22,800	-\$542,200	No
SAMA 17	\$550,000	\$65,328	-\$484,672	\$65,388	-\$484,612	No

As demonstrated in the table, the corrections to the SECPOP input had a minimal impact on the averted cost-risk estimates and only one SAMA (SAMA 1) that was originally classified as "not cost beneficial" was re-classified as "cost beneficial" based on the use of the corrected input. Given that SAMA 1 was identified as potentially cost beneficial in the 95th percentile PRA results sensitivity analysis that was performed in the Environmental Report (ER) submittal, this change did not result in the identification of any new potentially cost beneficial SAMAs. In addition to the review of the mean PRA results quantifications, it was necessary to examine how the 95th percentile PRA results quantifications were impacted given that they were also used to identify potentially cost beneficial SAMAs. The following table provides a summary of the cost benefit calculations using the corrected SECPOP input in conjunction with the 95th percentile PRA results. In this case, no SAMAs were identified as potentially cost beneficial that were not already identified in the ER submittal.

Results Summary for SECPOP Error Correction (95th Percentile PRA Results)

SAMA ID	Cost of Implementation	Averted Cost-Risk (Base)	Net Value (Base)	Averted Cost-Risk (Post SECPOP Correction)	Net Value (Post SECPOP Correction)	Change in Cost Effectiveness?
SAMA 1	\$800,000	\$1,519,776	\$719,776	\$1,521,490	\$721,490	No
SAMA 2	\$400,000	\$1,245,853	\$845,853	\$1,246,883	\$846,883	No
SAMA 3	\$328,000	\$557,179	\$229,179	\$555,640	\$227,640	No
SAMA 4 - Case 1	\$600,000	\$462,399	-\$137,601	\$493,377	-\$106,623	No
SAMA 4 - Case 2	\$50,000	\$328,795	\$278,795	\$351,143	\$301,143	No
SAMA 5	\$50,000	\$103,694	\$53,694	\$103,926	\$53,926	No
SAMA 8	\$565,000	\$82,635	-\$482,365	\$82,692	-\$482,308	No
SAMA 13	\$150,000	\$211,219	\$61,219	\$210,360	\$60,360	No
SAMA 14	\$1,200,000	\$1,676,089	\$476,089	\$1,677,920	\$477,920	No
SAMA 15 - Case 1	\$3,250,000	\$768,017	-\$2,481,983	\$777,969	-\$2,472,031	No
SAMA 15 - Case 2	\$1,000,000	\$768,017	-\$231,983	\$777,969	-\$222,031	No
SAMA 16	\$565,000	\$43,031	-\$521,969	\$43,320	-\$521,680	No
SAMA 17	\$550,000	\$124,123	-\$425,877	\$124,237	-\$425,763	No