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Nevada official calls for investigation into DOE computer problems blocking access to Yucca Mountain information

CARSON CITY – The complex computer program being used by the U.S. Department of Energy to provide information about its application for a license to build a proposed nuclear waste dump at Yucca Mountain is so rife with problems that Nevada leaders say no one outside DOE can use it.

Bob Loux, executive director of Nevada's Agency for Nuclear Projects, said as much in a letter this week to Dale Klein, chairman of the U.S. Nuclear Regulatory Commission (NRC), the organization that will consider DOE's application to move forward with the Yucca Mountain Project. To access the DOE information, Loux said it would take an "unbelievable" collection of 752 computer processors and 30 master computer servers running in parallel on a Windows 2000 file server system that is virtually obsolete.

"We understand that DOE may now be running or is about to run its Total System Performance Assessment (TSPA) simulation program, the results of which will form the basis for DOE's license application for its proposed Yucca Mountain nuclear waste repository, which DOE plans to file with NRC by June 2008," Loux wrote. "After our detailed review, we thought it imperative to call to your attention a glaring and critical problem with DOE's TSPAs, including its newest one.

"In short, the TSPA *does not meet* the basic requirements of a calculation intended to form the basis for a government license. The model is so complicated and so large, and takes so many computers to run it, and it must be run so many times for the answer to converge, that it is fundamentally not checkable by any third party, including the NRC staff. We doubt there is even anyone in DOE who has a comprehensive command of the entire model."

(more)

Loux said Nevada officials understand that NRC staff members have developed their own less complicated computer model (called the TPA) in order to help them understand issues related to the Yucca Mountain Project. However, he said the NRC “is not the applicant, and its model cannot be the primary grounds for license approval.” Loux said DOE’s application has to stand or fall on its own model and results.

“That model must be transparent and checkable,” he wrote. “NRC cannot license Yucca Mountain on results from a black box, and it should so inform DOE.”

Nevada has been following the development of the new TSPA simulation program and reviewing documents to try to “decipher” the process. DOE’s presentations on this program “raise grave concerns that the hardware configuration adopted by DOE – involving hundreds of computers – is wholly inappropriate for a major safety-related license application that should be accessible for scrutiny by interested third parties” such as state, NRC and other officials.

Loux said DOE is modeling its computer cluster configuration after the “Beowulf Project” developed at NASA’s Goddard Space Center.

“Nevada was most surprised to learn that the specific Beowulf Computer Cluster proposed by DOE for Yucca’s licensing requires use of an immense cluster of computers and processors that no participant can reasonably expect to duplicate,” he said. “In other words, simply running, or likely even inspecting, the structure of DOE’s TSPA for Yucca requires the coordinated use of literally *hundreds of computers and processors and software*, some of which is already obsolete.”

Nevada officials and others charged with reviewing DOE’s application to build the repository at Yucca Mountain, about 90 miles northwest of Las Vegas, may have to buy costly computer equipment or try to access DOE’s own computer cluster just to access the information. Even then, Loux expressed concern that no other participant in the licensing process will be able to reproduce, store and properly evaluate DOE’s information.

He said there’s no guarantee that DOE will preserve the original Beowulf Computer Cluster architecture, or maintain it for a certain period of time.

“Hardware elements will need to be replaced and modifications will need to be made to the operating systems used,” he said. “Thus, there will be a need to ensure that TSPA-LA calculations can be retrieved, scrutinized, modified and repeated, as required, both during and after the Yucca licensing hearings.”

(more)

Nevada’s research of these issues “raises serious concerns, including due process concerns” about DOE making it nearly impossible for stakeholders like Nevada to access the information they need to review and evaluate the Yucca Mountain Project.

Ironically, Loux added, DOE’s 2002 Yucca Mountain site recommendation to President Bush promised to make the federal licensing process and methods “more transparent and verifiable.” Those assurances “now ring hollow,” he said.

For all these reasons, Loux urged the NRC to investigate this problem before DOE files its application seeking a license for Yucca Mountain.

For more information on Nevada’s opposition to the proposed nuclear waste dump, visit www.state.nv.us/nucwaste.

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