DOE F 1325.8
(08-93)

United States Government **Department of Energy**

memorandum

DATE:

REPLY TO
ATTN OF: Office of Nuclear Safety Policy and Standards:R. Englehart:903-3718

SUBJECT: Request for NPH Categorization Guidance

TO: Dan Guzy, EH-34

You requested an interpretation regarding DOE O 420.1; it's implementation guide, and supporting standards regarding the appropriate methods of assigning seismic Performance Categories (PC) to safety systems in nuclear facilities. Specifically, you described a situation wherein a Safety Significant confinement system in a Hazard Category 2 nuclear facility must be assigned a Performance Category and you are unclear from the guidance as to whether the confinement system should be PC-2 or PC-3.

Safety Significant Structures, Systems, and Components (SSCs) are identified for worker protection and for defense-in-depth purposes through safety analyses (SARs) as required by DOE Order 5480.23. Not all safety SSCs are equally important in the degree of additional protection they provide. For example, a safety SSC would be classified as Safety Class if it were the only safety system satisfying the Evaluation Guideline criterion for Safety Class designation for a particular hazard, but it could be designated Safety Significant if it provided defense-in-depth to a Safety Class SSC. On the other hand, another Safety Significant SSC for defense-in-depth or worker protection may function at a much lower level of potential effect. In these situations one would make the judgment, based on the SAR, that the first Safety Significant SSC should be PC-3, while the second might only be PC-2. Therefore, in designating a PC level for safety SSCs, the importance of the safety function as shown by disciplined safety analyses must be considered.

Implementation Guide 420.1-Y (issued for interim use) states (in part) that PC-3 SSCs are those for which failure to perform their safety function could pose a potential hazard to public health, safety, and the environment because radioactive or toxic materials are present and could be released from the facility as a result of that failure. PC-2 SSCs are meant to assure the operability of essential facilities (e.g., fire house, emergency response centers, hospitals) or to prevent harm to in-facility workers or mitigating the release of hazardous materials within facilities. The designation of the PC level must be based on the SAR and entails some engineering insights or judgments of risk to workers. For example, if the facility in question were in a densely populated area of a site, a PC-3 designation might be appropriate if the potential impacts to surrounding workers upon failure were great, as shown by safety analyses, even though there was no potential public or environmental impact. The Implementation Guide reinforces the need for SAR-based judgments by saying, "The nuclear SAR process yields precisely the insights into the preventive and mitigative functions of the SSCs that are necessary for determining appropriate NPH categories."

DOE-STD-1021, Change 1, is consistent with this guidance. It says that an SSC shall be PC-3 if its failure, as analyzed in a SAR, could result in consequences above the Evaluation Guideline for Safety Class SSCs or for improved performance if justified by cost-benefit considerations; and that an SSC shall be PC-2 if it is Safety Significant. This standard allows the same flexibility, guided by judgment based on disciplined safety analyses, as does the Implementation Guide.

Richard L. Black, Director
Office of Nuclear Safety
Policy and Standards

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