



Department of Energy
National Nuclear Security Administration
Washington, DC 20585



October 23, 2012

MEMORANDUM FOR THE NEVADA SITE OFFICE MANAGER

FROM: DONALD COOK
DEPUTY ADMINISTRATOR
FOR DEFENSE PROGRAMS

SUBJECT: Relief from Department of Energy (DOE) Facility Safety Order
Requirements for Fire Suppression in the U1a Complex

- REFERENCES:
- (1) Memorandum, S. Mellington to D. Cook, *Request for Permanent Exemption from the Fire Protection Requirements Designated in [DOE O 420.1B and DOE STD-1066-99] for the U1a Complex in Area 1 of the Nevada National Security Site*, dated August 13, 2012
 - (2) Memorandum, D. Cook to S. Mellington, *Temporary Relief from DOE Facility Safety Order Requirements for Automatic Fire Suppression in Area 1 of the U1a Complex at the Nevada National Security Site*, dated April 17, 2012
 - (3) PEP-DESS-1020, National Security Technologies *Underground Safety and Health Standards Project Execution Plan*, dated July 27, 2012

I approve the subject exemption to support dynamic experiment campaigns in the U1a Complex at the Nevada National Security Site (NNSS), subject to the conditions included in this memorandum. The Office of Health, Safety and Security (HSS) commented on the request, and the Central Technical Authority (CTA) concurred on this relief from fire suppression in separate correspondence, subject to the same conditions.

SPECIAL CIRCUMSTANCES

Relief is granted from the Department of Energy (DOE) Order (O) 420.1B, *Facility Safety* Chapter II, ¶ 3.c (4), which requires automatic fire suppression throughout all significant facilities or where the fire loss potential exceeds DOE monetary loss limits; Chapter II, ¶ 3.c (1) which specifies “a reliable and adequate water supply for fire suppression;” and Chapter II, ¶ 3.c (9) which stipulates “physical access and appropriate equipment... for effective fire department intervention.” The approval applies to the surface buildings (U1a Air Building, U1a Hoist House, and U1h Hoist House) and the



U1a Complex underground drift areas in Area 1 of the NNSS where dynamic experiments are planned.

SAFETY ASSURANCE

The U1a Complex underground is a structure unique to DOE. There is no single, consensus standard directly applicable to the construction, and operations of the NNSS underground facilities. The DOE directive from which this exemption is sought does not specifically address facilities like the U1a Complex (that is, shaft-accessed underground facilities/laboratories). Going forward, in order to establish regulatory certainty, NSTec will generate the *NNSS Underground Safety and Health* document tailored to the NNSS application. This new document will establish requirements selected from appropriate current regulations, DOE directives and consensus codes and standards. NSTec will interact with the DOE Fire Safety Committee to ensure that the document will be consistent with DOE fire safety policy and practices. Following approval by NSO, this new document will be validated by the Chief of Defense Nuclear Safety (CDNS) using outside experts as appropriate. NSTec will incorporate the *NNSS Underground Safety and Health* document into the NSTec 10 CFR 851, *Worker Safety and Health Program*. Per existing requirements, NSO approves the NSTec *Worker Safety and Health Program*.

HSS has formed the subterranean sub-committee under the DOE Fire Safety Committee to devise appropriate fire protection requirements for underground structures. These requirements will be incorporated into a new or existing DOE directive that will be fully implemented at U1a as required.

The initial Long-Term Fire Protection Strategy for the U1a Complex is provided in the Project Execution Plan (PEP), Reference 3. The initial Strategy will be adjusted (becoming the Long-Term Fire Protection Strategy for the U1a Complex) based on evaluation of the underground complex against the *NNSS Underground Safety and Health* document, scheduled for completion in FY 2013, and adjusted again once DOE approves additional directives to address underground structures.

To support the exemption request, operating conditions for the U1a Complex include check-in/check-out access to the underground; combustible loading control and hot work programs; the training and exercising of workers to suppress potential fires, don protective apparatus and egress to active hoists or refuge chambers; decreased normal and maximum occupancy for the underground; and visitor to escort ratio.

Additionally, the fire alarm/detection system and robust fire barrier in the active underground experiment area ensure early warning to occupants, prompt implementation of protective actions (evacuate the underground, shelter in place, or egress to protected refuge chambers), limited fire and smoke spread; and, fire department dispatch to protect surface facilities in the event of a fire. Reference 1 outlines the bases of the exemption request.

Finally, the terms and conditions of the previous temporary exemption approval (Reference 2) have been satisfied. Specifically, upgrades to training and procedures resulting from the resolution of Nevada Site Office (NSO) comments on the Life Safety Code equivalency were completed and long-term facility upgrades are documented in the PEP.

APPROVAL CRITERIA

DOE O 251.1C, *Departmental Directives Program* allows exemptions to be granted only if the following criteria are met:

- a) *[it] is not prohibited by law;*
Section 5.b.2 of DOE O 420.1B identifies a responsibility of the DOE Secretarial Officers to review and approve requests for exemptions from requirements of the Order.
- b) *would not present an undue risk to public health and safety, the environment, facility workers, or security; and*
New experiment areas are outfitted with appropriate physical features (access to refuge chambers, robust fire barrier, remotely monitored fire alarm and detection) and programmatic measures (limited access, worker training, and combustible loading and hot work controls) which minimize risk to the workers, public, environment, facility and security.
- c) *is warranted under the circumstances.*
The cost to be fully compliant with the Order currently exceeds what is programmatically available. NNSA has balanced priorities and has determined that any potential impact on worker or public health and safety is minimal.

TERMS AND CONDITIONS

The following terms and conditions apply to this exemption:

1. Once new or revised DOE directives that explicitly address life safety and fire protection requirements for subterranean structures are published, applicable requirements must be fully implemented within the implementation period associated with the directives.
2. This exemption does not go into effect until NSO has approved the initial Long-Term Fire Protection Strategy for the U1a Complex (provided in the Project Execution Plan, Reference 3).
3. This exemption will remain in effect, all or in part, until new or revised DOE directives explicitly addressing life safety and fire protection requirements for

subterranean structures supersede all or part of its provisions, and are implemented for U1a.

4. Prior to the next activity (following Pollux) involving Hazard Category 3 or greater quantities of nuclear materials in U1a:
 - a. The *NNSS Underground Safety and Health* document must be developed and coordinated as described in this memorandum.
 - b. Actions required to implement the approved *NNSS Underground Safety and Health* document must be incorporated into the approved Long Term Fire Protection Strategy. The Long Term Fire Protection Strategy will detail annual task plans and out-year planning targets for upgrading the fire protection posture of the U1a Complex.
5. Following NSO approval, the new *NNSS Underground Safety and Health* document must be submitted to CDNS for validation.
6. An FHA revision must be initiated immediately following approval of the *NNSS Underground Safety and Health* document, which is committed for completion in FY13.
7. As conditions change in the U1a Complex underground, new experiments are proposed, long term upgrades are delayed, or as changes to the Documented Safety Analysis (DSA) are made, NSO must evaluate whether the terms of the exemption are compromised so as to require a new exemption request.
8. NNSA must reevaluate periodically the basis for the exemption approval to determine whether the conditions that support the exemption still apply. This reevaluation must be done at a minimum when the following are revised: U1a DSA, U1a Fire Hazards Analysis (FHA), and the *NNSS Underground Safety and Health* document. This can be accomplished also through normal oversight, performance monitoring or NNSA biennial reviews. NSTec with NSO input must prepare a revised exemption request, if warranted.
9. NSO must approve changes to Long-Term Fire Protection Strategy for the U1a Complex.
10. These Terms and Conditions must be entered and tracked to completion in NSTec and NSO action tracking systems. NSO must monitor completion of the upgrades proposed in the Long-Term Fire Protection Strategy for the U1a Complex. NSO must notify Headquarters periodically on the progress of the Long-Term Fire Protection Strategy for the U1a Complex. Note that CDNS will actively track completion of these terms and conditions.

If you have any questions regarding this approval, please contact Mr. Jim McConnell at (202) 586-4379 or have your staff contact Ms. Sharon Steele at (202) 586-9554.

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