# National Nuclear Security Administration
# Categorical Exclusion Determination Form

NEPA ID#: HEDLP 15-001-001

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Proposed Action Title: DPFF R&D Operations in Building 11-102, NNSS (NV-2013-017)
Program or Field Office: Nevada Field Office
Location(s) (City/County/State): Nevada National Security Site (NNSS), Nye County NV

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Proposed Action Description:
This project involves conducting research and development activities necessary to optimize a Dense Plasma Focus (DPF) pulsed neutron generator for operations with tritium. The Dense Plasma Focus Facility (DPFF) is located at the Nevada National Security Site (NNSS), Area 11 in Building 11-102, formerly the Los Alamos Technical Facility (LATF) also known as the old TaDD facility.

The goal is to perform 14MeV neutron yield measurements produced by a Deuterium-Tritium (OT) reaction. The scope of the work includes: testing and operating the DPF generator, its integral components, and control and diagnostics system for the purpose of demonstrating increased yield when using a DT gas mixture. The DPF is expected to generate an upper limit of approximately 1 E14 neutrons/pulse. Pure Deuterium (DD) and DT gas mixtures are required to produce desired neutron outputs. The amount of Tritium necessary for this series of yield measurements is estimated to be 2000 Curies, which falls into the threshold category of a Radiological Facility but less than the Material Control and Accountability current threshold of 16000 Curies.

Upgrades that are planned to begin in FY13 include developing a DPF source to be utilized for a proof of principle neutron experiment in FY14/15 required by LANL. This proof of principle experiment would determine the approach required for a planned neutron experiment at U1a that is listed in the 5-year Subcritical Experiment (SCE) plan. One of the experimental platforms described in the five year SCE plan is a set of experiments utilizing a high-intensity neutron source. A proof of principle experiment has been requested by LANL to show whether or not the DPF capability previously developed can be utilized to meet this requirement. While this proof of principle experiment would not occur this year, significant work is needed to put the DPF in the right configuration to support this experiment while increasing the total number of neutrons produced. Movement and installation of equipment from NLV to NSS and startup testing would begin in FY13 to ensure readiness to support proof of principle experiments in the FY14/15 timeframe.

*Note: This Checklist is Revision 1 of NV-2006-013. The revision describes operation of the DPFF, outlines plans for a proof of principle neutron experiment, and adds the use of pesticides/herbicides (Item H-5). It also uses the most recent version of the NEPA Environmental Evaluation Checklist form NS0-16*

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Categorical Exclusion(s) Applied:

10Part1021 - B.3-10 - Siting/construction/modification/operation/decommission of particle accelerators (less than 100 MeV)

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For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions including the full text of each categorical exclusion, sec Subpart D of 10 CFR 1021. Regulatory Requirements in 10 CFR 1021.410(b): (Sec full text in regulation)

The proposal fits within a class of actions that is listed in Appendix A or B to 10 CPR Part 1021, Subpart D.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal.

The proposal has not been segmented to meet the definition of a categorical exclusion.

Based on my review of information conveyed to me and in my possession concerning the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451. 1B), I have determined that the proposed action fits within the specified class(es) of action and that other-regulatory requirements set forth above are met. Therefore, the application of a categorical exclusion is appropriate.

NEPA Compliance Officer: Linda Cohn Date Determined: 7/22/2013