U.S. DEPARTMENT OF ENERGY
NATIONAL NUCLEAR SECURITY ADMINISTRATION NEVADA FIELD OFFICE
NEPA ENVIRONMENTAL EVALUATION CHECKLIST

NV-2017-045

FOLLOW ATTACHED PROCEDURES FOR COMPLETING CHECKLIST	Date **June 8, 2017**
A. Project/Activity Title (Attach a brief description of proposed project) **Nevada Desert Research Center (Nevada Desert FACE Facility and Mojave Global Change Facility)**	Anticipated Start Date **Ongoing**
Project Location **NNSS, Area 5**	Proposed By (if other than NNSA/NFO) **NV System of Higher Education: DRI, UNLV and UNR**
NNSA/NFO Line Management Organization	NNSA/NFO Project/Program Manager **Peter Sanders**

ENVIRONMENTAL CONSIDERATIONS: If any phase of the project/activity involves any of the following considerations, check yes and explain in project description. See NFO-16A for consideration guidelines and examples.

CONSIDERATION	YES	NO	UNK	CONSIDERATION	YES	NO	UNK
WASTE				**AIR EMISSIONS**			
1. Non-Rad Solid Waste	☒	☐	☐	1. Chemical Release	☐	☒	☐
2. Hazardous Waste	☐	☒	☐	2. Dust/Particulate Matter	☐	☒	☐
3. Low-Level Rad Waste	☐	☒	☐	3. Explosives	☐	☒	☐
4. Mixed Waste	☐	☒	☐	4. Diesel Generators	☐	☒	☐
5. TRU/Mixed TRU Waste	☐	☒	☐	5. Open Burning	☐	☒	☐
6. Wastewater (domestic/industrial)	☐	☒	☐				
HAZARDOUS MATERIALS				**SITE LOCATION/OTHER**			
1. Petroleum/Fuel Storage/Use	☐	☒	☐	1. Environmental Restoration Site (CAU)	☐	☒	☐
2. Underground Storage Tanks	☐	☒	☐	2. Excavation/Land Surface Disturbance	☒	☐	☐
3. Aboveground Storage Tanks	☐	☒	☐	3. Off Road Travel	☐	☒	☐
4. PCBs/Asbestos	☐	☒	☐	4. Biological/Tortoise Resource Area	☒	☐	☐
5. Pesticides/Herbicides	☐	☒	☐	5. Cultural/Historic Resource Area	☐	☒	☐
6. Radioactive Materials	☐	☒	☐	6. Change in Existing Drainage Pattern	☐	☒	☐
7. Biological Materials/Simulants	☐	☒	☐	7. Impact to Environmental Monitoring System	☐	☒	☐
8. Beryllium	☐	☒	☐	8. Unexploded Ordnance Area	☐	☒	☐
9. Chemical Storage/Use	☒	☐	☐	9. Noise	☐	☒	☐
10. Use of Explosives/Firearms	☐	☒	☐	10. Radiation Controlled Area	☐	☒	☐
				11. Drinking Water System Involvement	☐	☒	☐

DO NOT TYPE OR WRITE BELOW THIS LINE. FOR NEPA COMPLIANCE OFFICER USE ONLY.

B. Is the project/activity included in the final NNSS SWEIS and the ROD or other NEPA document?
☐ Yes (complete Sections C, D, and F) ☒ No (complete Sections D, E, and F)

C. This project/activity is included in the NNSS SWEIS/ROD (or other NEPA document) under the following section and page number:

D. Does the proposed project/activity require any local, state, or federal permits or notifications? ☐ Yes ☒ No

E. If, based on the project description and the preliminary environmental considerations noted above, the proposed action fits within a class of action listed in Subpart D of 10 CFR 1021, write in the space below the paragraph number and short title from the appropriate table of contents of Subpart D, Appendix B, C, or D, for a CX, EA, or EIS. If the proposed action does not fit within any class of action, write "Not Listed" below.
10 CFR 1021: B3.8 Outdoor ecological research project

F. **NEPA COMPLIANCE OFFICER DETERMINATION OR RECOMMENDATION:**
I have determined that the proposed action as described in Item A has been adequately analyzed and meets the requirements for categorical exclusion under the citation in Item E. No further analysis or documentation is required pursuant to NEPA. Any changes or additions to this proposed action will require additional NEPA review.

Carrie Stewart

Digitally signed by Carrie Stewart
DN: c=us, o=u.s. government, ou=department of energy, ou=Energy IT Services, ou=DOE Common Operating Environment, ou=People, cn=Carrie Stewart
Date: 2017.06.26 14:09:20 -07'00'

NNSA/NFO NEPA Compliance Officer

6/26/2017
Date

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Project Description:

Nevada Desert Research Center

Note: This Checklist replaces NV-2011-004.

The University of Nevada, Las Vegas (UNLV), Desert Research Institute (DRI) and University of Nevada, Reno (UNR) are jointly conducting ecological and climate change research at the Nevada National Security Site (NNSS). There are two projects within Area 5 of the NNSS. They are the Nevada Desert FACE Facility (NDFF) and the Mojave Global Change Facility (MGCF). These projects use a trailer on location and have several soil/vegetation study plots. The NDFF explored the impact of elevated atmospheric CO_2 on the Mojave Desert, with fumigation of 550 ppm of CO_2 occurring April 1997 through June 2007. Current NDFF research is examining the retention of CO_2 over time. The MGCF is a complementary research facility that is examining the impact of other climate change factors, i.e., altered precipitation, nitrogen deposition and increased soil crust disturbance. The small field plots (25 m diameter for NDFF and 14 m by 14 m for MGCF) are used to examine current plant/soil/root interactions. Researchers from within Nevada as well as research institutions across the US are using these facilities to examine a large number of responses including, but not limited to, above- and below-ground plant responses, soil nutrient cycles, insect herbivory, and soil moisture.

To perform these experiments a number of different methodologies and equipment are employed. Some of the methodologies may only require a meter stick while others require the use of sophisticated sensors, e.g., soil moisture probes and multispectral scanners/cameras. In general, all research activities adhere to a minimal disturbance rule (no disruption of the biological soil crust and plant life) and therefore have minimal to no environmental impact. The most common activities have included plant measurements of dimensions, gas exchange and water potential and soil measurements of temperature, moisture and respiration. On occasions (no more than twice per year) small surface soil samples are collected by hand.

From time-to-time, small UAS (sUAS; less than 55 lbs) would be flown at MGCF and NDFF to acquire standard color and near infrared images of ground conditions. In the past the sUAS flown was a gas-powered single rotor helicopter. Recently only battery operated fixed wing sUAS have been flown at MGCF and NDFF. Although there is always a potential for failure during flight operations, the risk of significant damage is quite low given the small fuel capacity (less than 1 quart) and small size of the sUAS (54" maximum length and a maximum weight of 15 lbs or less). Standard operating and safety procedures have been developed that comply with CD-P280.004 (Aviation Operations Safety) and all flights are approved in advance by the NNSS Operations Coordination Center.

Environmental Considerations:

Waste:

W-1, Non-Rad Solid Waste: Any solid waste would be collected in a trash dumpster and recycling bins. The trash collected in the dumpster would be placed in a NNSS landfill. The recyclable trash would be collected by appropriate NNSA personnel and sent to the appropriate recycle facilities.

Hazardous Materials:

H-9, Chemical Storage/Use: Small quantities of assorted chemicals would be stored and used on-site at the NDFF and MGCF. These chemicals would include, but not be limited to, spray paint, motor oil, paint thinner, PVC glue and primer. Material Safety Data Sheets would be kept on-site for all chemicals, and appropriate personal protective equipment would always be available to enable proper handling. If any quantity of a chemical was no longer needed, it will be transported to either UNLV or DRI for use, or be added to their individual chemical disposal programs. All chemicals are inventoried on the NNSA mandated Hazardous Substance Inventory (HSI), which is updated annually.

Site Location/Other:

S-2, Excavation/Land Surface Disturbance: Soil and root samples may be collected from time-to-time at all research sites during very short time periods. The excavation is typically as small as a 10 cm deep, 5 cm wide hand-dug soil cores.

S-4, Biological/Tortoise Resource Area: Desert tortoise have been found at the MGCF. Prior to initiation of the project a tortoise survey was completed. The placement of access paths and plots were designed to avoid any active or inactive burrows. The research activities that have been taking place since the treatment plots were established have not had a detrimental impact on any animal. In fact, after plot establishment one desert tortoise actually moved into one of the research plots and has stayed there. There are no incompatibilities between tortoise habitat and the research being conducted. The biologist must be contacted before surface-disturbing activities begin.

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