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Radiological/Nuclear Countermeasures
Test and Evaluation Complex, Nevada Test Site

Final
Environmental Assessment

August 2004

U. S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
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List of Acronyms

BN	Bechtel Nevada
CAS	Corrective Action Site
Cm	Centimeters
CEMP	Community Environmental Monitoring Program
CFR	Code of Federal Regulations
DAF	Device Assembly Facility
dB	Decibels
dBA	A-weighted decibels
DHS	U.S. Department of Homeland Security
DOE	U.S. Department of Energy
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FAA	U.S. Federal Aviation Administration
FFACO	Federal Facilities Agreement and Consent Order
FONSI	Finding of No Significant Impact
FWS	U.S. Fish and Wildlife Service
ft	Foot or Feet
g	Gram
gal	Gallons
HC	Hazard Category
HEU	Highly Enriched Uranium
HWSU	Hazardous Waste Storage Unit
in	Inches
kg	Kilograms
km	Kilometers
kph	Kilometers per Hour
kV	Kilovolt
l	Liters
m	Meters
mi	Miles
mph	Miles per Hour
NAC	Nevada Administrative Code
NEPA	National Environmental Policy Act
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NNSA	National Nuclear Security Administration
NRHP	National Register of Historic Places
NTS	Nevada Test Site
NTS EIS	Nevada Test Site Environmental Impact Statement
NSO	Nevada Site Office
PDSA	Preliminary Documented Safety Analysis
PE-kg	Plutonium-equivalent Kilogram
PHA	Preliminary Hazards Analysis
PL	Public Law
PM10	Particulate Matter less than 10 microns in diameter
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
Rad/NucCTEC	Radiological/Nuclear Countermeasures Test & Evaluation Complex
RMP	Resource Management Plan
ROD	Record of Decision

RWMS	Radioactive Waste Management Site
SA	Supplement Analysis
SAA	Satellite Accumulation Area
SAS	Sensitive Assignment Specialist
SNM	Special Nuclear Materials
SPOs	Security Police Officers
SSC	Safety Structures, Systems and Components
STD	Standard
TSCA	Toxic Substances Control Act
TSR	Technical Safety Requirement
USC	U.S. Code
WMD	Weapons of Mass Destruction

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1.0 INTRODUCTION

The National Environmental Policy Act of 1969 (NEPA) requires Federal agency officials to consider the environmental consequences of proposed actions before decisions are made. In complying with NEPA, the National Nuclear Security Administration (NNSA) follows the Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1500-1508) and the U.S. Department of Energy's (DOE's) NEPA implementing procedures (10 CFR 1021). The purpose of an Environmental Assessment (EA) is to provide Federal decision makers with sufficient evidence and analysis to determine whether to prepare an Environmental Impact Statement (EIS) or issue a Finding of No Significant Impact (FONSI).

The DOE, National Nuclear Security Administration Nevada Site Office (NNSA/NSO), proposes to establish a radiological/nuclear countermeasures testing and evaluation complex at the Nevada Test Site (NTS) in Nye County, Nevada. This EA identifies and discusses potential environmental impacts associated with the proposed action.

1.1 BACKGROUND

As the Federal agency that operates and manages the NTS, the U.S. Department of Energy in 1996 published a *Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* (NTS EIS). Although the NTS EIS addressed a very broad range of potential activities at the NTS, it did not anticipate the increased interest and need for tests and experiments for the development of remote sensing equipment and other activities associated with weapons of mass destruction (WMD) detection and defense arising out of the September 11, 2001, terrorist attacks on the United States. A major concern associated with potential terrorist attacks in the United States is the placement and detonation of improvised nuclear devices and/or radiological dispersion devices. The U.S. Department of Homeland Security (DHS) is the Federal organization charged with defending the borders of the United States. The Homeland Security Act of 2002 (Public Law 107-296), includes provisions authorizing the DHS to utilize DOE sites in carrying out its missions. DHS requested the NNSA/NSO, as part of its work for others program, to construct, operate, and maintain, for use by DHS, the Radiological/Nuclear Countermeasures Test and Evaluation Complex (Rad/NucCTEC) at the NTS. The Rad/NucCTEC would provide an isolated complex to support capabilities for post bench-scale testing and evaluation of radiological and nuclear detection devices that may be used in transportation-related facilities.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The NTS has been the site of a variety of activities relating to national security and combating terrorism. These activities include but are not limited to the following: training, exercises, testing and evaluation, development of technology, military operational readiness and response to WMD environments and events.

A Supplement Analysis (SA) for the NTS EIS addressed the increase in activities associated with combating terrorism and counterterrorism training as well as related activities (DOE, 2003). The evaluation in the SA focused on certain areas of the NTS and anticipated sizes of facilities. Although many of the individual components were described in the SA, the scope of the proposed Rad/NucCTEC is substantially greater than anticipated and its location in a previously undisturbed area was not foreseen. The use of special nuclear materials (SNM) was also not addressed in the SA.

The DHS has identified a critical need to consolidate a broad spectrum of radiological and nuclear countermeasures test and evaluation activities as well as training and other operational needs throughout its organization. The NTS offers the isolation and security needed to successfully operate such a complex. In recognizing the ongoing need for DHS activities, NNSA/NSO is proposing that the Rad/NucCTEC be located at the NTS.

1.3 PUBLIC INVOLVEMENT AND SCOPING

Public involvement in the NEPA process is important for informing potential stakeholders about proposed actions and ensuring any public concerns are given adequate consideration and analysis. Public involvement activities are conducted pursuant to NEPA in accordance with the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508) and DOE NEPA Implementing Procedures (10 CFR 1021). Public participation for this EA includes scoping activities, public review, and expressed comment on the preapproval draft EA.

DOE NEPA Implementing Procedures require, at a minimum, that notification of the intention to prepare an EA be made to the host state and host tribe. In April 2004, NNSA/NSO notified state and local government agencies and officials, other Federal agencies, 17 American Indian tribes and organizations, and U.S. Senators and Representatives from Nevada of its intention to prepare an environmental assessment for the proposed Rad/NucCTEC and provided a 33-day scoping period. In response to these notifications, NNSA/NSO received scoping comments from the Nevada Agency for Nuclear Projects, the Eureka County Yucca Mountain Information Office, and the Citizens Education Project. Copies of the scoping comment letters are reproduced in Appendix A.

Each of the three commenters requested that NNSA/NSO conduct public scoping meetings and extend the scoping period. These requests for public scoping meetings and scoping period extension were based at least in part on an assumption that NNSA/NSO was proposing to conduct releases of radioactive materials into the environment at the Rad/NucCTEC. Based upon the fact that no releases of radioactive materials are planned at the proposed facility and due to the exigencies of the project schedule, NNSA/NSO determined that it would not conduct the requested public scoping meetings nor extend the scoping period.

Two scoping commenters expressed concern for cumulative impact analysis. Of particular concern was the potential for synergistic effects of operations at the Rad/NucCTEC and the proposed releases of biological simulants and small volumes of chemicals at the NTS, ongoing low-level radioactive waste operations at the NTS, the proposed high-level waste repository at Yucca Mountain, and potential resumption of underground nuclear testing. In addition, one scoping commenter identified possible impacts of terrorism and sabotage on the activities under the proposed action.

A preapproval draft EA was released to the public for a 33-day review and comment period. Comments received on the draft EA were reviewed and the final EA has been modified, as needed, to address public and agency comments. Copies of the comments received and NNSA/NSO's responses are in Appendix B of this EA.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section describes the proposed action to construct the Rad/NucCTEC at the NTS. This section also discusses alternatives to the proposed action and describes the no-action alternative under which the Rad/NucCTEC would not be built.

2.1 PROPOSED ACTION

The NNSA/NSO proposes to construct the Rad/NucCTEC at the NTS (Figure 1). The Complex would be located in Area 6, south of the Device Assembly Facility (DAF) (Figure 2). The purpose of the Rad/NucCTEC would be to conduct a wide variety of testing and evaluation activities related to combating terrorism. Specifically, the Rad/NucCTEC would encompass:

- Prototype detector testing and evaluation
- Systems testing and evaluation
- Performance standards validation
- Demonstration of prototype detectors, systems and performance standards
- Verified threat demonstration
- Concept of operations evaluation and verification
- Training

Primary components of the Rad/NucCTEC are discussed in the following paragraphs.

2.1.1 Facility Description

As currently conceived, the Rad/NucCTEC would be designed on a campus concept that would be comprised of up to eight venues supported by common infrastructure as shown in Figure 3: 1) Port of Entry—Primary, 2) Port of Entry—Secondary, 3) Airport/Inspections Facility, 4) Active Interrogation Facility, 5) Environmental Test Facility, 6) Sensor Test Track, 7) High-Speed Road, and 8) Training Facility. The preferred location for the Rad/NucCTEC would be in Area 6 of the NTS, south of the DAF and north of Barren Wash. As plans for the Rad/NucCTEC evolve, some of the facilities could be combined or reconfigured. Possible future expansion could include additional venues. A brief description of each of the proposed venues appears below. These descriptions are based on conceptual diagrams; layout and dimensions may be subject to change.

The venues that would ultimately comprise the Rad/NucCTEC serve a variety of testing functions. The projected roles of the venues in the overall testing mission are indicated in Table 1.

1) Port of Entry—Primary. The Primary Port of Entry would provide a fully operational mockup of a realistically functional U.S. land border crossing facility. This facility would include from three to five traffic lanes and all other features and elements common to a U.S. land border crossing facility, such as roadway design, inspection booths, crash protection and traffic control, canopy, and license plate reader system. This venue would be designed in general conformance with specifications by the General Services Administration, U.S. Land Port of Entry Design Guide (P130).

2) Port of Entry—Secondary. Vehicles designated for secondary processing would be routed from the Port of Entry—Primary to the Port of Entry—Secondary. This inspection area would consist of a building with an adjacent series of two drive-through lanes with a 50-foot (ft) [15

Table 1. Projected Roles of the Venues in the Overall Testing Mission

Venue	Replica Venue (Conduct of Operations and Testing)	Basic Testing Facility	Support Facility
Port of Entry--Primary	X		
Port of Entry—Secondary	X		X
Sensor Test Track		X	
Active Interrogation Facility	X	X	
High-Speed Road	X		
Environmental Testing Facility		X	
Airport/Inspections Facility	X		
Training Facility			X

meters (m)] wide by 65-ft (20 m) long canopy covering them from one end of the building. An area next to the canopied area would be paved and used for screening by either a mobile Vehicle and Cargo Inspection System or mobile x-ray. The building would include two bays with one or two hydraulic vehicle lifts for vehicle inspection and teardown. A loading dock for up to three trucks would be used for trucks too large to fit in the vehicle bays. The building would also include the following: a Port of Entry control room, a conference room, laboratory, restrooms, and the communications support room for the complex. This venue would be designed in general conformance with specifications by the General Services Administration, U.S. Land Port of Entry Design Guide (P130).

3) Airport Inspection Facility. The Airport Inspection Facility would consist of areas for pedestrian/passenger processing, mail and cargo handling, baggage handling, and a break area. This facility could function as a Port of Entry's passenger screening area for a land border crossing or the passenger and baggage screening facility at an international airport terminal. It would include detection equipment typical of international airports in the United States, i.e., baggage x-ray, metal detectors, etc. On the tarmac outside the building, other features could be sited, such as aircraft cargo containers and a mock-up of a wide-body aircraft fuselage with working cargo bay, and elevated ramp loaders. This facility would also include a large break room, restrooms, and a limited security area for storage of classified materials and discussions.

4) Active Interrogation Facility. The Active Interrogation Facility would operate as a user facility wherein developers of active interrogation systems for the detection of highly enriched uranium, special nuclear material, and/or fissile materials may operate their systems in a realistic test environment. The central feature of this facility is a test area composed of a hard surface pad over which semi tractor-trailers, and cargo containers on flat beds can pass. The pad and integral roadway would be designed to provide a wide range of source-to-target container distances (i.e. the distance between the accelerator to the cargo container wall) including a rail system for railroad cars. A remote control room for this facility would be located about 300 ft (91 m) away in the Environmental Test Facility (described below). There would also be a control room located within the Active Interrogation Facility. The facility would be equipped with an overhead crane. In addition to accelerator produced radiation fields, a vertical shaft would be located in the middle of the integral roadway, allowing the emplacement of a high-activity neutron-emitting radionuclide. The neutron beam would be able to sweep across moving containers on the integral roadway. The facility would be designed to safely handle neutron production of 10^{12} or more neutrons per second, broad spectra, and monochromatic high-energy

photon sources capable of generating photo-fission reactions, muon beams, and other charged particle beams.

Shielding and exclusion areas would be established to protect personnel from receiving unsafe radiation doses. In addition, the very high radiation area would be surrounded with a 6-foot high chain link fence with an active interlock system for immediate accelerator shutdown if the gate is opened during operation. All radiation areas would be posted and de-marked. Warning lights would be active when accelerators are in operation.

5) Environmental Test Facility. The Environmental Test Facility would be a multi-function building housing an operational test and evaluation center, user area, and facility control centers. The facility would include a large environmental testing lab located in a 160-ft (49 m) by 75-ft (23 m) climate-controlled hi-bay with a 20-ton overhead crane. The hi-bay would have an area for assembly, reconfiguration, and maintenance of large detectors. The remainder of the hi-bay would contain about six environmental chambers, each with an interior controlled volume of at least 14 ft (4 m) wide by 14 ft (4 m) deep by 13 ft (4 m) high. The test environmental chambers would consist of a temperature and humidity chamber, a smoke test chamber, a vibration and shock table, a wind and dust chamber, a rain and spray chamber, and an anechoic chamber. In addition to the hi-bay area, the facility would house offices, various laboratories, control rooms, a conference room, a break room and restrooms.

6) Sensor Test Track. The Sensor Test Track would be within an area approximately 400 ft (122 m) long and 60 ft (18 m) wide with a radio-controlled vehicle to carry a radioactive source. The facility would be used for performing tests that require numerous radioactive source passes at calibrated speeds. The radio-controlled vehicle, carrying a radioactive source would make repetitive passes near installations of portal monitors.

7) High-Speed Road. The High-Speed Road would be a two-lane roadway built to current Nevada Department of Transportation design standards, construction quality control standards, and standard construction specifications. It would be at least 2 miles (mi.) [3 kilometers (km)] long with a grade of about 3% and shoulders 4 ft (1 m) wide along most of its length. In a 2,000-foot (610 m) long section of the roadway, beginning about 1 mi. (2 km) from its upper end, the shoulders would be approximately 8 ft (2 m) wide. Instrument mounting, power, and communication facilities with restrooms would be installed along the roadway. The roadway would be appropriately marked and would include a runaway arrestor ramp and turnarounds. These features would increase the overall length of this venue to at least 12,450 ft (3,800 m). The 2,000 ft (610 m) long section would be the test section of the roadway. The upper 1 mi. (2 km) of the roadway would be an acceleration zone for trucks to attain speeds of up to 80 miles per hour (mph) [129 kilometers per hour (kph)] before entering the test area. When this facility is in operation, a vehicle would be loaded with non-radioactive materials, sealed source(s), medical isotope(s), (or a quantity of special nuclear material), then driven the length of the roadway at various speeds through the test area where the sensors (portals) undergoing evaluation would be installed. To minimize the risk should an accident occur, SNM would not be removed from its shipping container when in use on the High-Speed Road.

8) Training Facility. The Training Facility would be located in a building 70 ft (21 m) wide by 100 ft (30 m) long and would include offices, conference/class rooms, control/observation rooms, a break room with vending machines, and restrooms.

Although not part of the current proposed project, future additions to the Rad/NucCTEC could include venues such as 1) a short length of full-scale railroad line, which would run parallel to

the High-Speed Road, 2) a seaport facility including shipping containers, a gantry crane, and a mock cargo ship, and 3) a mock urban area. These potential future venues would be located within the project area being assessed in this EA.

2.1.2 Construction and Operations

2.1.2.1 Construction

The Rad/NucCTEC would initially occupy approximately 50 acres, with possible future expansion to approximately 100 acres. The proposed location is in undisturbed habitat. Clearing, grubbing of vegetation and grading would be required. Some areas would require fill material, which would be transported from a borrow pit within the NTS. Trenching and excavation would be required for foundations and installation of various pipes, cables and other appurtenances. Ancillary fuel-burning equipment common to construction of a facility that could be used includes small diesel generators, air compressors, welding units and pumps.

It is anticipated that the Rad/NucCTEC would be constructed in phases. The exact sequencing of the phases is subject to change but at this time the complex would be built in the following phases:

Phase I
Port of Entry—Primary
Port of Entry—Secondary
Sensor Test Track

Phase II
High-Speed Road
Active Interrogation Facility
Environmental Test Facility

Phase III
Airport/Inspections Facility
Training Facility

Phase IV
Potential Future Expansion

2.1.2.2 General Operations

A description of each of the facilities that would comprise the Rad/NucCTEC appears in Section 2.1.1. The Rad/NucCTEC operations schedule would be consistent with the NTS work week, i.e., four ten-hour days per week. Non-radiological/nuclear operations would consist of housekeeping, preventive maintenance, classroom training, vehicle refueling, and general administrative activities. Use and storage of chemicals at the Rad/NucCTEC would consist of standard electronics laboratory chemicals (e.g. alcohol). Small amounts of liquid nitrogen would be used for gamma spectroscopy and would be stored on site.

The expected lifetime of the Rad/NucCTEC is 20 years. After this time, if it is determined that the facility is no longer needed for its intended purpose, it would be decommissioned or placed into alternate service. Before making a decision to place the Rad/NucCTEC into alternate service, NNSA/NSO would undertake an appropriate NEPA process. If the Rad/NucCTEC is

decommissioned, equipment and other property would be removed and salvaged. The site would be surveyed for radiological and chemical contamination and decontaminated, if necessary. The diesel fuel tank would be drained, cleaned out and removed. The septic system would most likely be closed in place so that if necessary it could be reactivated at a later date.

2.1.2.3 Nuclear Operations

The proposed handling of radioactive materials at some of the Rad/NucCTEC venues requires that DOE requirements be met for the design, construction, and operation of a nonreactor nuclear facility. When fully operational, Rad/NucCTEC is anticipated to be classified as a Hazard Category (HC) 2 Nuclear Facility pursuant to DOE Standard 1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports* and subject to the requirements of 10 CFR 830, *Nuclear Safety Management*, Subpart B, *Safety Basis Requirements*. See section 7.0, *Hazard Analysis,* for more information on this process.

NNSA/NSO proposes to use a variety of radioactive materials in Rad/NucCTEC, including SNM, radioactive sources, and short half-life isotopes. Short half-life isotopes typically have half-lives ranging from a few hours to a few years and are usually used for medical applications. The amount of SNM that would be used would not exceed 25 kilograms of plutonium-239, or a radiologically equivalent amount of other SNM (i.e., 50 kg of highly enriched uranium). The quantity of non-SNM radioisotopes that may be used at any of the Rad/NucCTEC venues would not exceed the HC-3 threshold. For all venues at Rad/NucCTEC, the non-SNM radioisotopes that are initially anticipated to be used and their levels of activity are listed in Table 2.

Nuclear Material Safeguards Category I and II SNM would be used in conjunction with sealed radioactive sources at the Primary and Secondary Port of Entry facilities, the High Speed Road, and the Active Interrogation Facility. Handling of radioactive source materials at the Port of Entry facilities would occur in order to configure the source geometry for testing; however, radioactive source materials would not be processed, altered or modified in any way. Although materials at the Active Interrogation Facility would be subjected to neutron and high energy photon beams,

Non-Reactor Nuclear Facility Hazard Category: Facilities operated under the purview of NNSA that contain radiological or special nuclear material are regulated in 10 CFR 830, *Nuclear Safety Management* Subpart B, *Safety Basis Requirements*,. These facilities must be categorized according to the inventory and/or potential consequence to the workers, public and environment. Facilities are categorized into 4 categories: Hazard Category 1, 2, 3 or less than Category 3, with Category 1 being the highest nuclear hazard. Although not yet complete, preliminary analyses indicate that the Rad/NucCTEC is likely to be categorized as a Category 2 Non-Reactor Nuclear Facility as determined by the process identified in DOE Std. 1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports.*

Special Nuclear Material (SNM): As defined in Section 11 of the Atomic Energy Act of 1954, special nuclear material means: (1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the U.S. Nuclear Regulatory Commission determines to be special nuclear material; or (2) any material artificially enriched by any of the above.

Security Category: Nuclear materials managed by the NNSA carry an inherent security risk due to the nature and form of the materials. Because of this risk, NNSA categorizes these materials in four Nuclear Material Safeguards Categories, I through IV, with Category I material being considered to be the highest security risk. During operations, it is envisioned that the Rad/NucCTEC will routinely use Category III & IV material and sometimes use Category I & II material.

Radioactive Sources: The term sealed radioactive source as used in this document consists of a known or estimated quantity of radioactive material contained within a sealed capsule made of non-radioactive material, or contained in a manner to prevent leakage. Accountable sealed radioactive sources are subject to management as identified in 10 CFR 835. Small quantities of some types of radioactive material are not subject to these regulations and are therefore termed exempt. More information on radioactive sources can be found in 10 CFR 835.

the quantity of activation products would be so slight that those levels would be well below free release limits.

Based on the Preliminary Hazard Analyses, source materials that could be used at these facilities could include up to 50 kg of highly enriched uranium and other SNM components in various shapes and sizes up to several kg each. The SNM would be solid metal and encased in non-radioactive metal cladding. Non-SNM radioactive sources would be in either solid or liquid form. Short half-life isotopes are typically used for medical purposes but at Rad/NucCTEC would not be used for those purposes, i.e., they would not be administered to people or animals. All radioactive materials used at the Rad/NucCTEC would be sealed or encased in metal cladding. None of the activities at the Rad/NucCTEC would involve the release of radioactive materials.

Table 2. Non-Special Nuclear Material Test and Evaluation Radiological Source Inventory

Isotope	Activity (mCi)
Industrial Isotopes	
Americium-241	20
Barium-133	0,25
Cobalt-57	1
Cobalt-60	0.1
Cesium-137	0.17
Iridium-192	0.2
Potassium-40	1
Radium-226	12
Thorium-232	2.3
Californium-252	0.0054
Cesium-137	2.00 E+3
Short Half-Life Isotopes	
Galium-67	0.65
Iodine-123	0.31
Iodine-125	0.35
Iodine-131	0.23
Technetium-99m	0.72
Thalium-204	0.78
Xenon-133	0.945
Beta Emitters	
Phosporus-32	0.05
Strontium-90	0.015
Portal Sources	
Cobalt-57	0.020-0.040
Barium-133	0.010
Cesium-137	0.010
Cobalt-60	0.0035
Thorium-228	0.070

A source vault consisting of two portable steel armor storage magazines would be required to support Rad/NucCTEC operations. It is anticipated that the source vault would house a variety of non-SNM radioactive sealed sources. The majority of those would be exempt quantities (see sidebar on previous page) of check sources such as cobalt-60, cesium-137, europium-152,

barium-133, strontium-90, and Americium-241. In addition accountable quantities of these sources as well as small quantities of uranium and plutonium would be held in the source vault. The quantities of the radioactive material held in the source vault would be evaluated against DOE Standard 1027 to assure the inventory is maintained at less than Hazard Category 3 thresholds. All of these sources would need to be readily available to the personnel for checking the operation of, and calibrating instruments in the complex.

SNM would be stored at the DAF, transported to the Rad/NucCTEC when needed, and returned to DAF storage at the completion of the activities. After the Rad/NucCTEC reaches full operational status, SNM is expected to be used on a frequent basis, perhaps daily during certain operational campaigns.

At the Active Interrogation Facility, testing and evaluation of active interrogation systems would be facilitated for detection of highly enriched uranium/SNM/fissile materials in large packages and cargo containers. As described above, an exclusion area would be established around the pad and other engineering and administrative controls implemented to preclude access to the radiation area during operations and to meet the requirements of 10 CFR 835.

Pursuant to Section 161(i)(3) of the Atomic Energy Act of 1954 [Public Law (P.L.) 83-703; United States Code (U.S.C.) 2011 *et seq.*], NNSA is self-regulating with respect to its use of radioactive materials. Consistent with that authority, radioactive source materials acquired from commercial vendors for use at the Rad/NucCTEC would be managed under applicable DOE directives, including 10 CFR 835 upon receipt by NNSA/NSO. Radioactive sources acquired from vendors are regulated by the Nuclear Regulatory Commission or agreement state while in the vendor's custody. During shipment of radioactive materials, regulations of the U.S. Department of Transportation are applicable.

2.1.3 Safeguards and Security

The Security Protective Force at the NNSA/NSO currently has an authorized strength of 130 Security Police Officers (SPOs). The authorized number of SPOs will increase to 160 with the move of the Los Alamos National Laboratory TA-18 project to the DAF (NNSA, 2002). Initial evaluations indicate that the addition of the Rad/NucCTEC will require an additional 30 SPOs. SPOs that protect SNM are Sensitive Assignment Specialist (SAS) SPO II Offensive trained personnel. SAS personnel receive special weapons and tactics training that enhance their ability to protect SNM.

Security requirements for Category 1 and 2 materials require the material be within a material access area located within a protected area. To minimize the number of SPOs required for the protection of a Threat Level 2 activity at the Rad/NucCTEC, additional security measures will be necessary. Those measures include, but are not limited to, intrusion detection and assessment equipment, access control, prohibited article searches, and radiation detection searches to prevent the removal of SNM.

Pursuant to DOE Order 470.1, *Safeguards and Security Program,* NNSA/NSO will develop a security plan for Rad/NucCTEC that meets all requirements for the current design basis threat. A Vulnerability Analysis will validate the security plan, including modeling, force on force exercises, and limited scope performance tests. The results of the Vulnerability Analysis will be incorporated into the final security plan and the NNSA/NSO Site Safeguards and Security Plan. DOE Order 470.1, establishes general program requirements and there are series of orders, policies, and guides tiered from that order. Safeguards and Security program elements include:

Program Management, DOE Order 470 series; Personnel Security, DOE Order 472 series; Protection Operations, DOE Order 5632 and DOE Order 473 series; Materials Control and Accountability, DOE Order 5633 and DOE Order 474 series; and Information Security, DOE Order 5639 and DOE Order 471 series.

2.2 Alternative Actions

The Council on Environmental Quality regulations, Section 1500.2 (e), states that federal agencies shall to the fullest extent possible use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse affects of their actions upon the quality of the human environment. Reasonable alternatives would be those alternatives to the proposed action that meet the purpose and need of the agency. The purpose and need of the NNSA in this instance is to support the DHS in its efforts to better defend US borders by establishing the Rad/NucCTEC at the NTS.

2.2.1 No Action Alternative

Under the no action alternative, NNSA/NSO would not construct, operate and maintain the Rad/NucCTEC at the NTS. Assessment of the no action alternative is required by DOE NEPA Implementing Procedures and Guidelines (10 CFR 1021.321).

2.2.2 Alternative Sites Eliminated from Further Consideration

Alternative locations for the RAD/NucCTEC at the NTS were evaluated by NNSA/NSO as well as the NTS Stakeholders Group and DHS/S&T. The site selection process was documented in the *Radiological/Nuclear Testing and Evaluation Complex Site Selection Evaluation and Recommendation Report* (DHS, 2004). Initially, basic criteria were established to narrow down the selection of potential sites from the entire NTS. The first consideration was that the proposed facility have no adverse impact on the NNSA Stockpile Stewardship and Test Readiness missions. This requirement eliminated large portions of the NTS to the north and northwest of Control Point in Area 6. Second, areas of the NTS were eliminated where ongoing and future projects requiring non-encroachment for security and safety purposes were already identified. This excluded large portions of the northwest quadrant of the NTS. Finally, an overall assessment of existing NTS infrastructure was conducted, narrowing the selection to eight sites for more detailed evaluation.

The eight alternative locations that were evaluated are shown in Figure 4. They include: 1) Port Gaston in Area 26, 2) Area 25 Central Support Area, 3) Area 11 Tweezer Facility, 4) Areas 5 and 6 south of the DAF, 5) Area 6 east of Mercury Highway, 6) Area 5 south of DAF between Cane Springs Road and Barren Wash, 7) Area 27 Baker Site, and 8), Areas 6 and 3 along Orange Blossom Road**.** A rigorous site evaluation process considered a number of criteria that were developed in conjunction with the NTS Stakeholders Group and the DHS Science and Technology Directorate. First, a pass/fail grade was used to evaluate whether an NTS area met the criterion of non-adverse impact to Stockpile Stewardship and Test Readiness. Areas that did not meet this criterion were not considered further. Among the remaining criteria were infrastructure condition and costs (power, water, sewer, etc.) operational security of activities, distance from the DAF, safeguards and security, background radiation, impact to other NTS missions, site geography, environmental considerations, and nuclear operations considerations, such as potential accident scenarios and impact to the public. Each criterion was assigned a relative weight of importance. NNSA and contractor subject matter experts were consulted to determine relative scores. Following the initial scoring, a detailed analysis of the differential cost

of site preparation including excavation and fill and ten year operating costs, was conducted for the three highest-rated sites. The three sites that were located in closest proximity to the DAF were identified for further consideration (sites 4, 5, and 6).

The final site was chosen based on its close access to existing infrastructure and the close proximity to DAF, which would reduce the cost and impact for movement of SNM to and from the Rad/NucCTEC. In addition, the proposed site is not near NTS boundaries, has access to the services at Mercury and emergency services at Control Point, and room for possible future expansion.

The alternative sites are not evaluated any further in this EA.

3.0 AFFECTED ENVIRONMENT

Except where noted, the affected environment, as described in this Section, is summarized from *the Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* (DOE, 1996a). Updated information has been added where appropriate.

3.1 Land Use

3.1.1 Facilities

Area 6 occupies 212 km^2 (82 mi^2) between Yucca Flat and Frenchman Flat, straddling Frenchman Mountain. The DAF and the proposed site of the Rad/NucCTEC are located in the south central portion of Area 6 within the land use area designated in the NTS Resource Management Plan (RMP) as the National Security Use Zone (DOE, 1998). This zone has the most stringent criteria of the three zones identified in the RMP; these criteria include but are not limited to being complementary to or compatible with existing missions in the area, and a compelling need (such as security, restricted access, remote location, physical characteristics) that drives the project to be located in this zone. The DAF is the primary location of all nuclear explosive assembly operations at the NTS.

The NTS is composed of lands reserved to the jurisdiction of the Atomic Energy Commission and its successors. The primary purposes for which the NTS lands were withdrawn are weapons testing and for "use in connection with the NTS". Historical uses of the NTS have included a number of compatible activities in addition to the primary continuing purpose of weapons testing, including various "work for others" activities. The currently proposed activities are also compatible, and not inconsistent with, the ongoing availability of the NTS for use as a weapons testing site. For a more detailed discussion of the land withdrawals for the NTS, the reader is referred to the NTS EIS, Volume 1, Section 4.1.1.1, Public Land Orders and Withdrawals, and Volume 3, Part A, Section 1.4, Use of Withdrawn Lands for Purposes Other than Weapons Testing.

The Control Point complex, a secured compound located centrally in Area 6, serves as the command center as well as the air operations and timing and firing center for Yucca Flat, Frenchman Flat, Pahute Mesa, and surrounding areas. Ancillary facilities near the secured compound include a communications building, several radiological sciences and technical services buildings, a fire and first aid station, and various maintenance and warehouse structures.

The *Federal Facility Agreement and Consent Order* (FFACO) is an agreement between the DOE, DOD and State of Nevada that sets priorities, schedules and deadlines for DOE environmental restoration activities at the NTS and other locations within the state of Nevada. There are no FFACO Corrective Action Sites (CAS) in the area in which the facilities would be constructed. The only CAS in the vicinity of the project area is located about 0.75 mile south on the border between Areas 5 and 6.

3.1.2 Infrastructure

Infrastructure and site support services at the NTS are described below. Included are roads and parking areas, water distribution, waste management, and utilities.

Roads and Parking: Mercury Highway is the main access road inside the NTS. It originates at U.S. Highway 95, approximately 65 mi (105 km) north of Las Vegas. Other existing roads, some unpaved, could provide access or egress in an emergency.

There are approximately 400 mi (644 km) of paved roads and more than 300 mi (483 km) of unpaved roads on the NTS. Paved areas are provided for commuter buses as designated locations, and parking for government and private commuter vehicles is available at most of the facilities on the NTS.

Water: The NTS water system consists of 9 operating wells for potable water, one for nonpotable water and numerous storage tanks, construction water sumps and water transmission systems. Wells, sumps, and storage tanks are used as necessary to support construction or operational activities. A variety of domestic, construction and fire-protection water uses are served by this system. The wells are not currently used to their full capacity and can produce much more water if necessary.

Well 4a is part of the system that serves Area 6, which includes the Control Point, Yucca Flat, and the Well 3 yard. This system is regulated under Public Water System Permit NY-0360-12-NTNC, which is issued by the Nevada State Health Division under Nevada Administrative Code 445A. During normal operations, Well 4a provides water to the Well C booster that connects to the Control Point. Well 4 provides potable water for the DAF and would also service the Rad/NucCTEC. Well 4 is located approximately 1.25 mi (2 km) northeast of the proposed Rad/NucCTEC site.

Power and Communications: Electric power is delivered to the NTS at the Mercury switching center in Area 23 by a primary 138 kilovolt (kV) supply line. Power is then transmitted to a 138 kV transmission system loop which supplies 8 major substations and one 138 kV radial transmission line.

Modes of communication at the NTS include telephone service, a microwave system, data communications, video communications and teleconferencing, a radio network, a U.S. Post Office, and an internal mail system.

Waste Management – At the NTS, Waste Management Program activities include disposal, storage, treatment (i.e. thermal treatment at the Explosives Ordnance Disposal Unit) and closure operations as well as the activities of the Waste Minimization/Pollution Prevention Program. Six types of wastes are managed at the NTS, including low-level radioactive waste, transuranic waste, mixed wastes (transuranic and low-level), hazardous waste, Toxic Substances Control Act (TSCA) wastes (polychlorinated biphenyls), and non-hazardous solid wastes.

Nonhazardous, nonradioactive sanitary, and industrial wastes are disposed of in several industrial landfills, sewage treatment systems, and septic systems located throughout the NTS. There are two Radioactive Waste Management Sites (RWMS) used for the disposal of low-level waste, located in Areas 3 and 5. Mixed low-level radioactive waste generated on the NTS is disposed of in the Area 5 RWMS. Transuranic mixed wastes, and mixed wastes are stored on the Area 5 transuranic waste storage pad according to the Federal Facilities Agreement and Consent Order with the state of Nevada, DOE and the Department of Defense. Hazardous waste, regulated under the Resource Conservation and Recovery Act (RCRA) and TSCA-regulated wastes are shipped off-site to a commercial permitted facility for disposal.

3.1.3 Transportation

The main access to Area 6 is Mercury Highway, which originates at U.S. Highway 95, 65 mi. (105 km) northwest of Las Vegas, Nevada, and accesses the main gate in Mercury. Mercury Highway, a paved two-lane road, is the primary route within the NTS. Most of this road is 26 ft (8 m) wide; however, the shoulders vary from 4 to 6 ft (1 to 2 m) wide. Traffic consists of light- and heavy-duty trucks and cars, security vehicles, and emergency vehicles. The Mercury Bypass is also a paved, two-lane road, 26 ft (8 m) wide that was built to divert traffic around the Mercury base camp to outlying areas of the NTS.

3.2 Topography and Physiographic Setting

The NTS is within the Basin and Range Physiographic Province. The Basin and Range Province is characterized by more or less regularly spaced, generally north-south trending mountain ranges separated by alluvial basins that were formed by faulting.

The area in the vicinity of the DAF and proposed Rad/NucCTEC site is situated on the western margin of Frenchman Flat at an elevation of approximately 3,700 ft (1,130 m) above mean sea level. The land surface in this area descends at a 4 - 5% slope to the east, towards Frenchman Lake (DOE, 1995).

3.3 Geology and Soils

The geology of the NTS consists of a thick section [more than 34,768 ft (10,597 m)] of Paleozoic and older sedimentary rocks, locally intrusive Cretaceous granitic rocks, a variable assemblage of Miocene volcanic rocks, and locally thick deposits of postvolcanic sands and gravels that fill the present-day valleys.

Although soils in the region have not been mapped extensively, they are thought to consist of loose to dense granular alluvial deposits interspersed with hard, cemented layers of caliche at depth (Converse Consultants, 1984).

3.4 Seismicity

The NTS lies within Seismic Zone 2B on the seismic risk map of the Uniform Building Code. Historical records of tectonic earthquakes within a 200 mi (320 km) radius of the NTS indicate that its structures have been subjected to ground accelerations of 0.12 g or less (DOE, 1995). Several faults are located in the vicinity of the proposed site. These include the Cane Springs Fault, Mine Mountain Fault, Yucca Fault, Rock Valley Fault and Mercury Valley Fault. There are no known active faults located within the project boundaries (Frizzell and Shulters, 1990).

3.5 Water Resources

3.5.1 Surface Water

The NTS is within the Great Basin, a hydrographic basin in which no surface water leaves except by evaporation. The Great Basin is part of the Basin and Range Physiographic Province. Hydrographic basins in the region have internal drainage controlled by topography. Streams in the region are ephemeral. Throughout the region, springs and manmade impoundments are the only sources of perennial surface water. Runoff results from snowmelt and from precipitation during storms that occur most commonly in winter and occasionally in fall

and spring, and during localized thunderstorms that occur primarily in the summer. Much of the runoff quickly infiltrates into rock fractures or into the dry soils, some is carried down alluvial fans in arroyos, and some drains into playas where it may stand for weeks as a lake. A number of small arroyos are present throughout the proposed Rad/NucCTEC location. Barren Wash is located south of the proposed project location.

Water discharges at the NTS are managed according to state of Nevada regulations. The NTS maintains compliance with required permits. Water pollution control permits issued by the State are obtained for industrial and domestic wastewater discharges. Discharge and monitoring requirements imposed by the State serve to prevent degradation of the surface waters (and groundwater) at the NTS.

3.5.2 Groundwater

The eastern half of the NTS, including the DAF and proposed Rad/NucCTEC site, is within the Ash Meadows component of the Death Valley groundwater basin (DOE, 1995). The depth to groundwater near the DAF is approximately 800 ft (244 m) below land surface (Bright et al, 2001). Groundwater flows generally south and southwest. Groundwater quality within aquifers is generally acceptable for drinking water and industrial and agricultural uses.

Water-resource use in support of the missions of the NTS is undertaken pursuant to the NTS federally reserved water rights associated with the land withdrawal comprising the NTS.

3.5.3 Floodplains and Wetlands

Floodplains and wetlands are environmentally sensitive resources, as listed in Title 10 CFR Part 1021 B(4)(iii). Pursuant to 10 CFR 1022, DOE requirements for compliance with floodplain and wetland environmental review, NNSA/NSO evaluated the proposed project area to determine if any wetlands or floodplains are present. No wetlands exist in the proposed Rad/NucCTEC location. The proposed project area is subject to sheet-flow run-on of water from higher terrain during heavy precipitation events but no backwater flooding occurs. The proposed project area is not located in a floodplain.

3.6 Biological Resources

The proposed project site on the NTS is located in habitat most like the Mojave Desert on an alluvial fan in northwestern Frenchman Flat. It lies near the transition ecoregion which straddles the Great Basin ecoregion in the northern, higher altitude portions of the NTS and the Mojave Desert ecoregion in the southern quarter of the NTS. As a result, there is a diversity of plant and animal communities representative of both deserts, as well as some communities common only in the transition zone between these deserts. The transition zone extends to the east and west far beyond the boundaries of the NTS.

3.6.1 Flora

The most dominant perennial plant species in the project area include shadscale saltbush (*Atriplex confertifolia*), white bursage (*Ambrosia dumosa*), creosote bush (*Larrea tridentata*), Nevada jointfir (*Ephedra nevadensis*), and range ratany (*Krameria parvifolia*). The project site lies within the *Atriplex confertifolia-Ambrosia dumosa* Shrubland vegetation association (Ostler, et al, 2000).

No threatened or endangered plants, or plants proposed for listing as threatened or endangered occur on the NTS. There are 17 plant species found on the NTS which are considered "species of concern" by the U.S. Fish and Wildlife Service (FWS) or are on the state of Nevada plant watch list. None of these plants are known to occur in the lower elevation alluvial fan of northwestern Frenchman Flat. The nearest populations of plant species of concern are on the slopes of French Peak to the northwest in Area 11.

3.6.2 Fauna

Over 300 vertebrate species have been observed on the NTS, including 60 species of mammals, 239 species of birds, and 34 species of reptiles. Eighty percent of the bird species are transients. Many of the birds on the NTS, including almost all of the waterfowl and shorebirds, use the playas in Frenchman and Yucca Flats, artificial ponds at springs, and sewage lagoons during their migration and/or during winter. All but three bird species observed on the NTS are protected from harm under the Migratory Bird Treaty Act. Past field trapping and observational studies conducted at the DAF resulted in the capture of 9 species of small mammals, 7 species of lizards, and the observation of 35 species of birds (Woodward et al., 1995a; 1995b).

The Mojave Desert population of the desert tortoise is listed under the Endangered Species Act as threatened. The State of Nevada also classifies the desert tortoise as a threatened species under its state laws protecting sensitive species. The proposed project area is within the range of known desert tortoise habitat in an area of moderate tortoise abundance (17 – 35 tortoises per square kilometer).

3.7 Air Quality

The climate at the NTS is characterized by limited precipitation, low humidity, and large diurnal temperature ranges. The lower elevations receive approximately 15 centimeters (cm) [(6 inches (in)] of precipitation annually, with occasional snow accumulations lasting only a few days. The average annual wind speed is 7 mph (11 kph). The prevailing wind direction during the winter months is north northwesterly, and during the summer months, south southwesterly. Severe thunderstorms may produce high precipitation that continues for approximately one hour and may create a potential for flash flooding.

The NTS is located in Nevada Intrastate Air Quality Control Region 147, which is designated as an attainment area with respect to the National Ambient Air Quality Standards. Ambient air quality at the NTS is not currently monitored for criteria pollutants or hazardous air pollutants, with the exception of radionuclides. Elevated levels of ozone or particulate matter may occasionally occur because of pollutants transported into the area or because of local sources of fugitive particulates. There are no large sources of other pollutants nearby. The present air quality on the NTS is good.

3.8 Noise

Major noise sources at the NTS include equipment and machines (e.g., cooling towers, transformers, engines, pumps, boilers, steam vents, paging systems, construction and material-handling equipment, and vehicles), blasting and explosives testing, and aircraft operations. No NTS environmental noise survey data are available. A background sound level for rural desert areas of 30 A-weighted decibels (dBA) is a reasonable estimate.

3.9 Visual Resources

Criteria used for the analysis of visual resources in the NTS EIS included scenic quality, visual sensitivity, and distance and/or visibility zones from key public viewpoints. Area 6 is not visible from any public viewpoint.

3.10 Cultural Resources

Cultural resources are prehistoric or historic sites, buildings, structures, districts, objects, or places considered to be important to a culture or community. Cultural resources located on the NTS include archaeological sites, architectural or engineering features, and Native American religious or sacred places. Federal legislation requires agencies to consider the effect of proposed projects on cultural resources that are considered eligible for listing on the National Register of Historic Places (NRHP).

To date, more than 400 cultural resource investigations have been conducted on the NTS. Approximately 4 percent of the NTS has been investigated, mostly by 100 percent coverage pedestrian surveys, with some data recovery excavation and Native American ethnographic consultation. A total of almost 2,200 cultural resources have been recorded; of those nearly half are eligible for inclusion on the NRHP. Ninety-six percent of the resources are prehistoric, with the remainder either historic, recent significant, unknown, or multi-component (DOE 1999; DOE 2000; DOE 2002c; FAA 2000).

A large area encompassing the proposed project location has been surveyed for cultural resources. While this is an undisturbed site, there are no significant cultural resource sites located within the proposed project site which would require any mitigation treatment before construction.

3.11 Occupational and Public Health and Safety

The potential for activities at the NTS to impact the health and safety of the general public is minimized due to factors such as the remote location of the NTS and the sparse population surrounding it, and a comprehensive program of administrative and design controls. Potential impacts to the health and safety of NTS workers are minimized by adherence to federal and state regulations, to DOE orders, and to the plans and procedures of each organization performing work on the NTS. Worker exposures to radioactive or chemical pollutants are minimized through training, monitoring, use of personal protective equipment and the use of administrative controls.

The types of work expected during construction of the Rad/NucCTEC, such as forklift operation, maintenance, and welding would be similar to those types encountered throughout the NTS. Similar activities would also take place during operation of the Rad/NucCTEC in order to maintain the facility. Other activities that could pose additional safety risks involve handling of radioactive sources and accidents involving heavy vehicles used in the training venues.

3.12 Socioeconomics

The region of influence for the NTS consists of Nye and Clark counties, Nevada. The NTS EIS cites a 1994 survey of NTS worker residential distributions that found that 90 percent of the work force lives in Clark County and 7 percent live in Nye County. The remaining 3 percent reside in other counties or states. Within Clark County, most of the employees live in Las

Vegas. In 1994, the NTS accounted for 1 percent of total Clark County employment, as contrasted with 6 percent of total Nye County employment. There are approximately 1,200 contractor, national laboratories, and federal personnel that work at the NTS, and annual funding is about $380 million (DOE, 1999).

A maximum of approximately 80 people are expected to occupy the Rad/NucCTEC during its operation, including training activities. Future expansion could result in an increase of personnel at the Rad/NucCTEC during training activities.

3.13 Environmental Justice

As required by Executive Order 12898, the NTS EIS analyzed the issue of adverse affects of federal programs, policies, and activities on minority populations and low-income populations. The percentages of minority and low-income populations within census block groups for Clark, Nye, and Lincoln counties were plotted by using a geographic information system and the impacts to off-site populations from activities on the NTS were identified. While low-income and minority populations do exist, it was found that no populations existed that were subject to disproportionately high adverse effects.

4.0 ENVIRONMENTAL EFFECTS

This section identifies the direct and indirect environmental consequences of the alternatives considered. The level of analysis for each resource area is based upon the potential magnitude of the environmental effect.

4.1 PROPOSED ACTION

This section describes the environmental consequences expected to occur if the Rad/NucCTEC were to be constructed and operated at the NTS.

4.1.1 Land Use

4.1.1.1 Facilities

The proposed Rad/NucCTEC would be within a land use area designated in the NTS RMP as the National Security Use Zone (DOE, 1998). The development of the Rad/NucCTEC would result in an initial disturbance of approximately 50 acres of land with possible later expansion to 100 acres. Use of the proposed facility within this area is consistent with the NTS land use and the Resource Management and Comprehensive Land-Use Planning measures outlined in the NTS EIS Record of Decision (ROD)(DOE, 1996b). There would be no conflicts with land uses in areas surrounding the NTS.

4.1.1.2 Infrastructure

Roads and Parking: Establishment of the Rad/NucCTEC at the proposed location would necessitate the creation of an access road from Mercury Highway to the Complex approximately 0.5 mi. (0.8 km) long, a second road from the DAF to the Rad/NucCTEC approximately 0.5 mi. (0.8 km) long, and additional shorter roads from within various parts of the Complex. All or most of the access roads would be paved. Parking areas at each of the facilities would also be paved.

Water: Water for domestic and process water requirements would be provided to the Rad/NucCTEC through service connections to the main NTS public water system. A new 8 inch (in.) water line to meet domestic and process water requirements would extend from the existing 10 in. line along Mercury Highway to the Rad/NucCTEC. The 10 in. line is fed from water storage tanks 4 and 4a. Existing water tanks 4 and 4a are located east of the DAF and approximately 1.25 mi. (2 km) from the Rad/NucCTEC. One water tank, approximately 100,000 gallons (gal) [(378,500 liters (l)] would be located near the complex. Water from the tank would be solely for fire protection. Trenching for the new water pipe would take place in previously disturbed areas running parallel to roads wherever possible.

Assuming an average use of 35 gal (132.5 l)/day per person, water usage and wastewater produced by 80 people would be approximately 2,800 gal (10,598 l)/day. Extension of the existing water and construction of new septic systems to incorporate the new facility would require a design review and approval by the State, plus modification of the existing public water system permit and new septic system permits. In order to protect the main water distribution system, the facility would have appropriate backflow prevention devices installed and periodically checked.

Power and Communications: Power and communication lines would extend to the Rad/NucCTEC from existing lines located near Mercury Highway. After expansion it is anticipated that the Rad/NucCTEC would consume approximately 1,000,000 kilowatt hours/year. As identified in Chapter 3 the existing utility infrastructure would support all activities with minor upgrades to the infrastructure as drops from utility lines.

Waste Management: Construction debris and general trash generated by worker activities would result from construction and operation of the Rad/NucCTEC. Construction debris would be disposed of in the U10c landfill. Food wastes and other general trash would be transported to the Area 23 sanitary landfill for disposal. The amount of non-hazardous solid waste would not be expected to exceed 450 m^3 (15,390 ft^3) per year, assuming an average occupancy of 30 personnel, resulting in minimal impacts from Rad/NucCTEC activities. Installation of two septic tanks and leach fields is planned; the two septic systems would be sized to provide adequate wastewater disposal capacity for all activities conducted at the Rad/NucCTEC, including training. NNSA/NSO would coordinate with the Nevada Bureau of Health Protection Services to ensure appropriate design of the septic systems and for permitting.

Small quantities of hazardous wastes such as paints and solvents could be generated during construction activities. In accordance with normal operating procedures at the NTS, one or more Satellite Accumulation Areas (SAA) would be set up at the construction site. After one drum of hazardous waste had accumulated (in each SAA) it would be transported to the RCRA permitted HWSU in Area 5. During the year when a sufficient quantity of hazardous waste has accumulated at the HWSU to make off-site shipping economical, a licensed vendor transports this waste to a RCRA permitted treatment/disposal facility for final disposition. Similar measures would be used for any hazardous waste generated during operation of the Rad/NucCTEC.

Little, if any, radioactive or mixed waste would be expected to result from Rad/NucCTEC operations. It is anticipated that when the activity level of short half-life isotope sources is below the levels needed for use at the complex they would be returned to the vendor for disposition. Other non-SNM sources would be retained during the facility's lifetime or until they are no longer needed. Disposition of other non-SNM sources would be accomplished by transferring them to other suitable users, in accordance with applicable Federal rules for personal property dispositioning or disposing of them as low-level waste in accordance with DOE Order 435.1, *Radioactive Waste Management*. Low-level waste generated on the NTS may be disposed of at the Area 5 or Area 3 Radioactive Waste Management Sites. If mixed low-level waste were generated, it would be disposed either at the Area 5 RWMS or an off-site permitted disposal facility.

4.1.1.3 Transportation

Transportation of equipment and materials to the NTS for construction of the Rad/NucCTEC would be via commercial trucks over established roads. This is not expected to result in any impacts on land use or the roads other than impacts normally incurred by trucking transport. Upon completing construction of the Rad/NucCTEC, transportation would mainly consist of the daily commute by approximately 15-20 personnel employed at the Rad/NucCTEC and additional personnel attending training sessions. Existing roads to the facility would be sufficient to handle transportation of construction materials and the vehicles that would be used to carry personnel to the facility. Upon completion of the Port of Entry Primary, Port of Entry Secondary and the Sensor Test Track, any SNM transported from the DAF to the Rad/NucCTEC would be transported via Mercury Highway. Future expansion would include a separate access road that

would extend directly from the DAF to the Rad/NucCTEC so that traffic on Mercury Highway would remain unaffected by transportation of SNM between the two facilities.

4.1.2 Topography and Physiographic Setting

The proposed facility would be situated on a large alluvial fan deposit. Arroyos are present throughout the project site. Excavation and grading would be facilitated by flat or gently sloping terrain. The project area would encompass approximately 50 acres with possible eventual expansion to 100 acres and would not substantially alter the topography or physiographic setting.

4.1.3 Geology and Soils

The geology of the site is generally favorable for construction of the proposed Rad/NucCTEC. Soils are typically fined grained and caliche is generally not present in amounts that will complicate excavation or grading. Maintenance of natural drainage will require some engineering in the forms of ditches or culverts, or both.

4.1.4 Seismicity

Area 6 is within Seismic Zone 2b defined by the Uniform Building Code as an area with moderate damage potential. Design of the Rad/NucCTEC would be according to the Uniform Building Code to minimize risks of damage from seismic activity.

Seismicity would not be expected to affect the operation of the Rad/NucCTEC or result in any associated adverse environmental impacts. In terms of potential seismic risk, the Cane Springs Fault is the most significant known geological feature in the vicinity of the Rad/NucCTEC and DAF, and its mapped surface expression is located approximately 3-5 miles south-southeast of the DAF (DOE, 1995).

4.1.5 Water Resources

4.1.5.1 Surface Water

Water requirements for construction and operation of the Rad/NucCTEC would be serviced by existing water supply wells and public water system. The main use of water during the construction phase would be for dust suppression, and the quantity of water is within the quantity analyzed in the NTS EIS (DOE, 1996a). Under normal operation, the Rad/NucCTEC would have no adverse effects on the surface hydrology in the area. No perennial streams exist in the vicinity of the proposed Rad/NucCTEC site.

4.1.5.2 Groundwater

The NTS EIS (DOE, 1996a) assesses the impact of water withdrawal at the NTS. Groundwater use at the NTS is now less than one-fifth of the historic peak. Water requirements for construction and operation of the proposed Rad/NucCTEC would be insignificant when compared to previous usage at the NTS and would not be likely to require additional water appropriation for the public waters of the state of Nevada.

Hazardous materials are not expected to be used at the Rad/NucCTEC, and so no liquid effluents containing hazardous materials would be discharged during operation of the Rad/NucCTEC. Even if a hazardous material release were to occur, the depth to groundwater in the vicinity of Rad/NucCTEC is about 800 feet and the evapotranspiration rate far exceeds precipitation. For this reason there is not a pathway for contamination to reach the groundwater. Any spills of contaminants would be cleaned up expeditiously to prevent contamination of runoff water. Radiological and nuclear materials would be handled according to established procedures to prevent accidental releases. Some of the sources would be sealed; some radioactive sources, due to their short lifetimes, would not be in a certified sealed source container but in a sealed container not to be opened on site. Quantities of SNM would either be a certified sealed source, ceramic oxide pellets in glass or plastic vials, metal clad solid, or in metallic form. No SNM would be present in powder or other pyrophoric form. Operation of the Rad/NucCTEC would therefore not be expected to result in any environmental effects to the groundwater.

4.1.5.3 Flood Plains and Wetlands

Precipitation on the NTS results in surface water runoff only during unusually intense storms. Rainfall typically infiltrates rapidly into the soil and runs off into channels where it evaporates. As a result of flood hazard studies conducted at the DAF, a diversion channel and berm was constructed to protect the facility from runoff during storm events (DOE, 1995). A similar storm water conveyance structure would be constructed on the west side (i.e. upslope) of the Rad/NucCTEC with appropriate culverts. A site-specific flood analysis for a 100-year event would be developed before Title III design.

4.1.6 Biological Resources

The proposed project location is situated within the range of the threatened desert tortoise. Biological surveys and monitoring for the desert tortoise would be performed as specified in the existing Final Programmatic Biological Opinion for Nevada Test Site Activities (Opinion) issued to NNSA/NSO by the U.S. Fish and Wildlife Service (File No. 1-5-96-F-33). The proposed project may destroy up to 100 acres of tortoise habitat, but this amount is well within the allowance of land disturbance permitted under the Opinion. All mitigation actions prescribed under the Opinion would be followed to ensure that the project will not adversely impact the population of desert tortoises in the region. Pursuant to the Biological Opinion for the NTS, it would be necessary for the project to compensate for the loss of desert tortoise habitat, either through payment for acres disturbed, or by revegetating an equal amount of disturbed tortoise habitat elsewhere on the NTS. In addition, there would be some impacts to local populations of plants and wildlife, primarily due to displacement. Effects to these local populations would be minimized through careful planning and execution of activities. Surveys to determine the presence of nests and eggs of birds protected under the Migratory Bird Treaty act would be conducted and construction activities would be coordinated to prevent their harm during construction.

4.1.7 Air Quality

Air emissions associated with the Rad/NucCTEC would primarily include fugitive dust from construction. The quantity of fugitive dust emissions generated by vehicles and equipment during construction would affect air quality in the project area, but these impacts would be minor and short term in nature. Extensive surveys have been conducted on the NTS to delineate areas of radioactive contamination, and the proposed project site was not found to be

radioactively contaminated. Therefore there would be no exposure pathways or potential health impacts to workers, trainees and others from resuspension of radionuclides. Standard dust suppression techniques, such as watering, would be used as needed to minimize emission of fugitive dust. Other potential impacts to air quality from construction of the Rad/NucCTEC include emissions from fuel-burning construction equipment such as scrapers and front-end loaders, and from gasoline and diesel powered vehicles and trucks. It is estimated that a total of 250,000 gallons of fuel would be consumed during construction of Rad/NucCTEC.

During operation of the Rad/NucCTEC air emissions would be minimal and would generally be limited to pollutants from gasoline and diesel powered vehicles and trucks. Emissions from radionuclides such as uranium and plutonium sources are regulated under the National Emission Standards for Hazardous Air Pollutants (NESHAPS). Under 40 CFR 61.07 and 40 CFR 61.96, when radioactive sources are used or handled at a facility, an evaluation is required by EPA to determine if an application for approval of construction or modification would be required. Following United States Environmental Protection Agency (EPA) guidelines in Appendix D to Part 61, "Methods for Estimating Radionuclide Emissions," an EPA CAP-88 model evaluation of the proposed facility was conducted and determined the dose to the maximally exposed individual to be below 0.1 mrem/yr. Based on these results, an application to the EPA for approval of construction would not be necessary. No emissions are anticipated from the proposed facility under normal operations. The NTS presently operates an EPA-approved site compliance air monitoring network for radionuclides that would include the proposed facility in addition to other NTS facilities. In addition, the Desert Research Institute operates the Community Environmental Monitoring Program (CEMP) on behalf of NNSA/NSO. The CEMP consists of 26 air monitoring stations located in communities in Nevada and Utah. Each of the CEMP stations is maintained by a local citizen.

4.1.8 Noise

Construction of the Rad/NucCTEC would create some elevated noise levels but these would likely not be discerned by neighboring DAF personnel, due to the distance of the DAF from the Rad/NucCTEC. Hearing protection would be required of all workers that could be potentially adversely affected by increased noise levels. Noise from the Rad/NucCTEC during activities such as travel by trucks on the 2-mile high-speed highway would not be expected to have any effects.

4.1.9 Visual Resources

The proposed Rad/NucCTEC would not be visible from accessible public lands, including U.S. Highway 95. The Rad/NucCTEC would be located in proximity to an already existing structure, the DAF, and would not impact visual resources in this area.

4.1.10 Cultural Resources

The proposed site for the Rad/NucCTEC is within an undisturbed area. Based upon previous intensive pedestrian surveys by qualified archaeologists, no significant cultural resource sites exist in the area of potential effect for the proposed project. If previously undiscovered cultural resources were encountered during construction, all activities that could adversely affect them would be stopped; NNSA/NSO would initiate consultation with the Nevada State Historic Preservation Officer and the Advisory Council on Historic Preservation, as appropriate, pursuant to Section 106 of the National Historic Preservation Act In addition, NNSA/NSO would consult

with the Consolidated Group of Tribes and Organizations to identify potential impacts to American Indian cultural resources.

4.1.11 Occupational and Public Health and Safety

The potential for activities at the NTS to impact the health and safety of the general public is minimized by a combination of the remote location of the NTS, the sparse population surrounding it, and a comprehensive program of administrative and design controls. Visitors to the NTS are subject to essentially the same safety and health requirements as workers. For instance, if workers are required to wear personal protective equipment (PPE), such as a hardhat, safety glasses, and/or steel-toed boots, before entering a facility, visitors would be required to don the same PPE. Visitors would not be permitted unescorted access to any Rad/NucCTEC venue. Access to areas of the NTS where working conditions require special hazard controls is restricted through the use of physical security, signs, fences, and barricades.

The health and safety of NTS workers is protected by adherence to the requirements of federal and state law, DOE orders, and the plans and procedures of each organization performing work on the NTS. DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, establishes the framework for an effective worker protection program to reduce or prevent injuries, illnesses, and accidental losses by providing DOE Federal and contractor workers with a safe and healthful workplace. DOE Order 440.1A requires compliance with a wide range of safety and health related regulations and standards including, 29 CFR 1910, *Occupational Safety and Health Standards*, 29 CFR 1926, *Safety and Health Regulations for Construction*, and 29 CFR 1960, *Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters.*

Inasmuch as Rad/NucCTEC would be used for Work for Others activities, it is anticipated that non-NNSA/NSO personnel would be conducting work at the various venues. During the time that these personnel would be conducting work at Rad/NucCTEC, they would be considered as site workers and would be subject to all of the same requirements as NNSA/NSO Federal and contractor workers. Those requirements would include training ranging from “General Employee Radiation Training” to “Radiological Worker II Training”. NNSA/NSO would develop facility-specific training, as appropriate, to help ensure the safety and health of all personnel conducting work at Rad/NucCTEC.

Impacts to worker safety and health due to construction and industrial activities associated with Rad/NucCTEC are not expected to vary from those analyzed in the NTS EIS. Similarly, the impacts to worker health associated with radiological/nuclear operations would be the same as those addressed in the NTS EIS.

4.1.12 Socioeconomics

At full operation, the Rad/NucCTEC is estimated to consist of about 15-20 personnel, including a nuclear facility manager, nuclear cognizant systems engineer, nuclear operations safety, instructors, technical staff, technical maintenance and a safety representative. It is not expected that the small number of new employees would generate noticeable additional secondary jobs related to purchases of goods and services in either Clark or Nye Counties.

4.1.13 Environmental Justice

Due to the relatively small size of this project, its remote location, and limited number of employees, no subsection of the population, including minority or low-income population, would receive disproportionate impact.

4.2 NO ACTION ALTERNATIVE

If the Rad/NucCTEC were not constructed, the environment in the vicinity of the project area would remain as it is. Elimination of the small number of new jobs that would have been created had the Rad/NucCTEC been constructed would not adversely affect socioeconomics or environmental justice.

5.0 CUMULATIVE EFFECTS

According to the Council on environmental Quality regulations at 40 CFR 1508.7, cumulative impacts are anticipated impacts to the environment resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time." The region of influence for assessing cumulative impacts can vary widely from one resource to another. Because the Rad/NucCTEC would have few, if any, environmental impacts outside of its immediate vicinity, the region of influence for this cumulative impact analysis, unless otherwise stated is the NTS.

In addition to the ongoing activities of the NTS, such as waste management (solid, hazardous, low-level radioactive, mixed waste, and transuranic wastes), HAZMAT Spill Center, and DAF there are a number of other potential activities that NNSA/NSO analyzed as part of the cumulative impacts assessment. Those potential activities include the Yucca Mountain Repository, the relocation of Technical Area 18 critical experimental facilities from Los Alamos National Laboratories to the DAF, releases of biological simulants and chemicals under *Environmental Assessment for Activities Using Biological Simulants and Releases of Chemicals at the Nevada Test Site* (DOE/EA-1494) (Chem/Bio EA), and expansion of the existing Area 6 Aerial Operations Facility.

The following sections summarize the potential incremental contribution to cumulative impacts that would be expected from the proposed action and the no action alternative.

5.1 PROPOSED ACTION

5.1.1 Land Use, Transportation, and Waste Management

The Rad/NucCTEC fits within the expected land use of the National Security Use Zone as identified in the NTS RMP (DOE, 1998). Use of the land for activities planned under the Rad/NucCTEC project would not be expected to adversely impact ongoing activities at surrounding NTS or off-site facilities. NNSA/NSO, as part of the site selection process for the Rad/NucCTEC, determined that there would be no conflict with the primary mission of the NTS, which is to maintain a state of readiness to conduct one or more underground nuclear tests at the direction of the President.

The proposed construction and operation of Rad/NucCTEC would not have any impact on activities or personnel at the Yucca Mountain Project. Although the presence of Rad/NucCTEC in its proposed location would reduce potential areas on the NTS for conducting releases of biological simulants and/or chemicals under the Chem/Bio EA, this impact is considered very minor. There is sufficient displacement between the proposed project location and the Area 6 Aerial Operations Facility to preclude cumulative land use impacts.

An increase of approximately 15-20 one-way vehicle trips daily, generated by workers employed at the Rad/NucCTEC, would contribute only slightly to the total annual mileage on U.S. Highway 95 and the NTS. The number of workers at the NTS as of 2001 (3,593) was less than the average of 3,659 in 1996 and significantly less than the average 7,700 reported from 1993 data (DOE, 2002). Thus, there would be no noticeable impact to traffic or transportation on public highways or on the NTS.

Small amounts of hazardous wastes could be generated from construction and operation of the Rad/NucCTEC. Solid and liquid non-hazardous wastes would be generated in greater quantities but would only result in minimal impacts. The additional waste streams resulting from operation of the Rad/NucCTEC would represent a very minor increase in waste volumes currently generated at the NTS. There would be little cumulative impact from the generation of these wastes.

5.1.2 Topography and Physiographic Setting

The Rad/NucCTEC would be constructed in an undisturbed area located in proximity to the DAF. Cumulative effects on topography or the physiographic setting at this location would be very minor.

5.1.3 Geology and Soils

Rad/NucCTEC construction would impact up to 100 acres of soil but would not affect subsurface geological resources directly. Both the Yucca Mountain Project and the Area 6 Aerial Operations Facility would also impact soils. However, these impacts combined with impacts to soils and geological media from existing facilities and activities in the region would affect only a very small portion of the NTS and surrounding areas.

During the construction phase, grubbing and grading activities, as well as excavation, would be minor. The amount of aggregate used during construction would be minor and would not result in any impacts to regional aggregate mining. The cumulative impact on geology and soils at both locations would be negligible.

5.1.4 Water Resources

Naturally occurring surface waters at the NTS are limited to ephemeral streams resulting from snowmelt and precipitation runoff and drainage into playas to form temporary lakes. There would be no impact to surface water from the construction or operation of the Rad/NucCTEC therefore there would no cumulative impact to this resource.

Groundwater use at the NTS is now less than one-fifth of the historic peak (DOE, 1996a). Withdrawal of groundwater for construction and operation of the proposed Rad/NucCTEC would add incrementally to the amount currently used; however, this additional water use combined with currently used and anticipated uses would be well within the quantity analyzed in the NTS EIS (DOE, 1996a) and would not represent a cumulative increase in impacts over those addressed in the NTS EIS. Because there would be no releases of radioactive material to the environment, there would be no opportunity to contaminate groundwater resources. Therefore, there would be no cumulative impacts to groundwater.

5.1.5 Biological Resources

Approximately 50 acres would initially be utilized for construction of facilities associated with the initial phases of the Rad/NucCTEC, with possible eventual expansion to 100 acres. All of the land that would be used for the Rad/NucCTEC is undisturbed. Wildlife habitat and existing plant communities would be somewhat affected by construction or operation of the Rad/NucCTEC. Some of that impact would be offset by reclamation of a like area of previously disturbed land within desert tortoise habitat on the NTS. The Area 6 Aerial Operations Facility is located outside of desert tortoise habitat. Therefore, there would be no cumulative effect on desert

tortoise from the Rad/NucCTEC and the Aerial Operations Facility. Activities under the Chem/Bio EA would not result in loss of desert tortoise habitat and short term impacts would be mitigated through relocation of any tortoises within the impact area. There would be no cumulative impact to desert tortoises from the interaction of the Rad/NucCTEC and activities under the Chem/Bio EA. The Yucca Mountain Project lies within desert tortoise habitat. The Rad/NucCTEC project would conduct tortoise surveys before undertaking any ground disturbing activities and would relocate any tortoises found to suitable habitat in another location. In addition, NNSA/NSO would restore a like amount of previously disturbed tortoise habitat on the NTS to compensate for loss of habitat. These mitigating actions for Rad/NucCTEC would ensure that there would be no adverse impacts to the population of desert tortoises in the region. Therefore, there would be no cumulative impact to desert tortoises when considering Rad/NucCTEC with Yucca Mountain Project .

The NTS encompasses approximately 1,375 square miles (880,000 acres). As of 1996 the total amount of land disturbed on the NTS was approximately 60,000 acres (DOE, 1996a). This represents less than 7.0 per cent of the total NTS area. The proposed Rad/NucCTEC would disturb a maximum of 100 acres of land not previously disturbed, for an incremental increase in habitat loss of only 0.01 per cent. Noise generated by the operation of the Rad/NucCTEC when combined with noises from existing industrial operations and other activities in the in the area would result in a negligible cumulative impact on wildlife.

5.1.6 Air Quality

Construction activities would generate less than one ton of fugitive dust (PM^{10}). This quantity of fugitive dust would comprise less than 0.00006 percent of the total of 177,660 tons associated with land disturbance activities throughout the region represented by the Stateline and Tonopah resource areas and the Las Vegas Valley (DOE, 1996a). There would be little or no emissions generated as a result of operations. The cumulative effect on air quality of constructing and operating the Rad/NucCTEC would be minimal.

Based on the worst case analysis conducted for the facility, there would be no reasonable likelihood that activities at Rad/NucCTEC, including an accident, could adversely affect personnel at the Yucca Mountain Project.

5.1.7 Noise

Noise impacts associated with construction and operation of the Rad/NucCTEC would be restricted to the immediate vicinity and would not affect persons or residents in adjacent areas or add measurably to regional noise levels.

5.1.8 Visual Resources

Changes to the visual character of the region would be very minor due to the proximity of the Rad/NucCTEC to the DAF and to nearby facilities at Control Point. The new facility would not be visible from off-site, so that there would be no impact to the general public. The cumulative visual impact of the Rad/NucCTEC at the NTS would be negligible.

5.1.9 Cultural Resources

The site of the proposed project is undisturbed. Previous surveys and studies in the vicinity of the DAF and proposed Rad/NucCTEC location have determined that there are no resources of significance present. There would be no cumulative impacts to cultural resources.

5.1.10 Occupational and Public Safety and Health

Based on occupational injury rates for construction and other industrial activities cited in the NTS EIS (DOE, 1996a), Rad/NucCTEC activities would result in only one or two potential injury cases per year, with a similar estimated number of lost workdays. The Rad/NucCTEC activities would not affect the regional rate. Rad/NucCTEC activities would be conducted within the proposed project boundaries and would not affect the public.

Some NTS workers may perform tasks at multiple facilities where exposure to radioactivity is possible. All workers at NNSA/NSO and at the proposed Yucca Mountain Repository sites are protected by a comprehensive radiation protection program, fully responsive to 10 CFR 835, *Occupational Radiation Protection*. The NNSA/NSO and Yucca Mountain Project Radiation Protection Program is documented in *NV/YMP Radiological Control Manual* (RADCON Manual) (Gile 2000). The RADCON Manual specifies annual dose limits for workers, pregnant workers, minors, and members of the public. NNSA/NSO coordinates all activities at the NTS through its Site Operations Center to prevent conflicts associated with site use. NNSA/NSO has detailed emergency response/management plans for each facility at the NTS and for the NTS in general. If an accident were to occur at Rad/NucCTEC appropriate emergency response plans would be implemented and steps take to protect the health and safety of potentially affected personnel.

Hazards posed to workers and the public during operations would be minimized by following established procedures that include various administrative controls and ensuring that Rad/NucCTEC personnel were properly trained in dealing with the potential hazards. Cumulative impacts from operation of the facility would be minimal.

5.1.11 Socioeconomics

There would be no measurable effect on the number of jobs, average wages and household earnings, and tax revenues in Nye County from the addition of the Rad/NucCTEC.

5.1.12 Environmental Justice

There would be no impacts to minority and low-income populations in the region of influence from the development of the Rad/NucCTEC. Thus, there is no contribution to the cumulative impact.

5.2 NO ACTION ALTERNATIVE

If the Rad/NucCTEC were not constructed, there would be no adverse affects that would result in cumulative impacts to the environment, to occupational and public health and safety, or socioeconomics or environmental justice.

6.0 MITIGATION MEASURES

Mitigation measures are required for resources that would have major adverse impacts as a result of the proposed action or alternative action. In the FWS Biological Opinion for the Nevada Test Site (1996), the FWS states that a viable mitigation measure for loss of tortoise habitat is revegetation of disturbed areas. NNSA/NSO complies with the Biological Opinion through such mitigation measures as revegetation and relocation. Desert tortoise relocation is a common practice in Nevada. There are numerous examples of successful habitat reclamation in the Mojave Desert, and various articles and reclamation manuals have been published (Bainbridge et al 1998). NNSA/NSO has also funded research on habitat reclamation on and near the NTS and has demonstrated that habitat reclamation is feasible (CRWMS 1999).

Impacts to resource areas analyzed throughout this EA, with the exception of the biological resources, were determined to be minor for the Proposed Action. Construction of the RadNucCTEC would result in a loss of habitat for the desert tortoise and other fauna that would be compensated by appropriating funds to either restore habitat elsewhere on the NTS or to deposit into the Desert Tortoise Habitat Conservation Fund administered by Clark County. There would be no impacts to the resource areas analyzed throughout this EA for the No Action Alternative.

7.0 HAZARD ANALYSIS

Materials that generate ionizing radiation occur in nature, and are all around us. As a result, everyone receives some ionizing radiation exposure from the earth and the cosmos. Harmful effects to exposure of ionizing radiation depend on the intensity of the radiation and the time of exposure. Some radioactive materials proposed to be used at the Rad/NucCTEC will only emit small quantities of ionizing radiation and pose little threat to the workers, public and environment.

Other radioactive materials intended for use at the complex have the potential for generating a radiation dose that could have harmful effects on living things under certain conditions. Because of this potential at some facilities under the purview of the NNSA, a set of requirements and standards have been developed that mandate the implementation of programs that assure the safe operation of facilities that use large quantities of radioactive materials. These programs are custom tailored to the facility, defining policies and procedures for the safe operation of the facility, using a graded approach. For example, a facility only using tiny sources to calibrate instruments would not have a program with the same rigor as that of a nuclear reactor facility. In order to determine the scale of the program to be developed for a facility, the proposed inventory of hazardous materials and the activities associated with those materials are analyzed using the methods identified in DOE Standard 1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports. This preliminary analysis results in a preliminary hazard categorization. (See sidebar on page 10 for further discussion about facility hazard categorization.) Once identified, the hazard category (HC) of the proposed nuclear facility determines the level and rigor of further analysis that is required for compliance with other DOE requirements that are related to nuclear safety, including 10 CFR 830, Subpart B.

In addition to categorization, a preliminary hazards analysis (PHA) is performed on the facility and the envisioned activities to identify potential accident scenarios. In the PHAs that were developed for the Rad/NucCTEC, types of hazards and accidents that could occur were categorized into those that involved radiation sources and those due to natural phenomena. Three general types of accidents that could result from radiation sources included those resulting during handling of sources, vehicle accidents resulting in damage to sources, and impacts to sources from things including but not limited to falling objects, security firearm discharges, fires, and worker exposure. Accidents from natural phenomena included those due to lightning strikes and seismic activity.

DOE Order 420.1, *Facility Safety*, requires the application of design requirements for nuclear facilities to be "guided by safety analyses that establish the identification and functions of safety structures, systems, and components (SSC) for a facility and establish the significance to safety of functions performed by those SSC." Applying the principles contained in DOE Order 413.3, *Program and Project Management for the Acquisition of Capital Assets*, a PHA was developed during the conceptual phase of the proposed Rad/NucCTEC project. The purpose of the PHA is to identify the potential hazards associated with the proposed facility (or complex), to estimate the potential significance of consequences that arise from those hazards to the public, workers, or the environment, and to identify the tentative importance of facility safety structures, systems, and components or controls in the reduction of risks from those hazards. The PHA for each venue is, therefore, based on the maximum source quantity anticipated to be used at that venue. Results or conclusions drawn from the PHA are used to support decisions on design concepts and national consensus codes or standards chosen for safety structures, systems,

and components that serve important safety functions. The results from the PHA are conventionally used to support the critical decision to proceed with the preliminary design phase of a project. To date, NNSA/NSO has completed PHAs for five of the proposed venues of the Rad/NucCTEC. Those venues are the Port of Entry Primary and Secondary facilities, the Active Interrogation Facility, the High-Speed Road, and the Sensor Test Track.

One of the principle purposes of several of the venues of the Rad/NucCTEC (i.e., Port of Entry Primary, Port of Entry Secondary, High Speed Road, and Active Interrogation Facility) would be to simulate hypothetical attempts by terrorists or other entities to smuggle radioactive material or SNM into the United States and to test (or validate) monitoring equipment capabilities to detect such materials. The amount of radioactive material used to simulate such activities is expected to approach the amounts of SNM contained in conventional nuclear weapons of U.S. design. Although no explosive material would be used at the facility, highly enriched uranium (HEU) may be used at certain venues in quantities up to 50 kilograms (kg). Plutonium and other SNM sources may also be used. The hazards analysis requires an upper bound on this material at risk. A generic value equivalent to 25 kg of plutonium-239 is typically used for hazard and accident analysis models for typical nuclear devices. Using the methodology of DOE Standards 1027-92 and a maximum inventory of 25 plutonium-239 equivalent kilograms (25 PE-kg), the preliminary HC for those venues was determined to be an HC-2 nuclear facility. The HC-2 threshold as specified in DOE Standard 1027-92 is 900 PE grams. Thus the anticipated inventory for these particular venues is more than 25 times higher than the threshold. NNSA/NSO would make to attempt to limit the maximum inventory in these venues to a value below the HC-2 threshold.

The maximum quantity of radioactive source material to be used at the Sensor Test Track venue would be 8.0 grams (g) of plutonium-239, 8 g of Uranium-235, plus the non-SNM sources listed in Table 2. Using the “sum of fractions” methodology of DOE Standard 1027-92, and these source inventories, the Sensor Test Track was determined to be a less than HC-3 nuclear facility (conventionally referred to as “radiological facility”). The HC-3 threshold as specified in DOE Standard 1027-92 is 8.4 PE grams. Thus the total permitted inventory of radioactive material must be maintained below the nuclear facility HC-3 threshold. The Sensor Test Track will maintain a radiological inventory control program to ensure it remains within the analyzed safety envelope.

Other venues that may be established at Rad/NucCTEC would be subject to the same analyses as those described above.

A number of administrative and engineering controls would be implemented to ensure that the probability of occurrence of potential accidents and hazards was low. These administrative and engineering controls are derived from performing the PHA. Potential engineering controls would include source size and packaging, radiation monitoring instruments, speed controls, and fire protection features such as hydrants and building sprinkler systems. Potential administrative controls would include a variety of programs such as training programs to ensure that personnel were qualified, vehicle maintenance programs, an emergency response program, pre-positioned fire extinguishers, source handling restrictions, and radiation protection programs.

The PHAs completed to date concluded that by instituting engineering and administrative controls, applying standard industrial safety programs and a radiological control program, operations could be conducted safely and missions accomplished. No significant residual safety risks were identified.

The PHA also serves as the foundation for development of a Preliminary Documented Safety Analysis (PDSA) and final DSA with technical safety requirements (TSR) that are required by 10 CFR 830, Subpart B for design, construction, and operation of nuclear facilities at DOE sites. Currently, the project is at the point of the completion of the Conceptual Design phase. Using the process identified in DOE O 413.3 (referenced above), Preliminary and Final Design are conducted in parallel with the PDSA. This process enables an iterative interaction between the two activities so that engineering controls to mitigate hazards identified in the PDSA can be designed into the facility as the process evolves. Subsequently, as the DSA is developed, operating procedures and TSRs can be developed for the conduct of safe operations. Prior to the approval of nuclear operations, a series of approval events occurs. The DSA is reviewed by an independent Safety Basis Review Team, the contractor conducts a Contractor Operational Readiness Review, and the NNSA performs an Operational Readiness Review. These operational reviews are performed when the facility is completed and the workers are fully trained to the procedures written for the activities, and the TSRs are in place. After all issues identified by the reviews are resolved, nuclear operations are permitted to commence with the release of a Safety Evaluation Report signed by the NNSA approval authority.

8.0 REGULATORY REQUIREMENTS

This section briefly describes some of the major federal and state laws and regulations, executive orders, and DOE Orders that may apply to the proposed action and alternative. The NTS EIS, Appendix C, provides a comprehensive list of statutes, regulations, and executive orders applicable to NNSA/NSO.

8.1 FEDERAL LAWS AND REGULATIONS

Atomic Energy Act, 42 U.S.C. 2011, enacted by P.L. No. 83-703 as amended. The Atomic Energy Act ensures proper management, production, possession and use of radioactive materials. Under the Act, DOE is authorized to develop generally applicable standards for protecting the environment from radioactive materials.

Clean Air Act (CAA)*, 42 U.S.C. 7401, enacted by P.L. No. 90-148 as amended.* The Clean Air Act, as amended, is intended to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population. The regulatory program for the CAA is administered within the state of Nevada by the Nevada Division of Environmental Protection, Bureau of Air Pollution Control. Construction of the Rad/NucCTEC would be conducted under the NTS Air Quality Operating Permit.

Clean Water Act of 1977, 42 U.S.C. 1251, et seq. enacted by P.L. No. 95-917 [amendments to the Federal Water Pollution Control Act of 1972]. The Clean Water Act was enacted to "restore and maintain the chemical, physical, and biological integrity of the Nation's water." Aspects of the proposed action subject to the CWA would be permitted through the State of Nevada.

Endangered Species Act of 1973, 16 U.S.C. 1531, enacted by P. L. No. 93-205 as amended. The Endangered Species Act is intended to prevent the further decline of endangered and threatened species and to restore these species and their habitats. The proposed project is located with the range of the threatened desert tortoise.

Energy Reorganization Act of 1974, 42 U.S.C. 5801, enacted by P. L. No. 93-438. The Energy Reorganization Act was established to improve government operations and to carry out the performance of other functions including, but not limited to, the Atomic Energy Commission's military production and research activities.

Homeland Security Act of 2002, 6 U.S.C. 101 et seq., enacted by P. L. No. 107-296, served to mobilize and organize our nation to secure the homeland from terrorist attacks. One primary reason for the establishment of the Department of Homeland Security was to provide the unifying core for the vast national network of organizations and institutions involved in efforts to secure our nation.

National Environmental Policy Act of 1969 , 42 U.S.C. 4321, enacted by P. L. No. 91-190 as amended. NEPA established the policy of promoting awareness of the consequences of major federal activities on the quality of the human environment, and consideration of the environmental impacts during the planning and decision-making stages of a project. This EA is prepared pursuant to Section 102 of NEPA and in compliance with Council on Environmental Quality *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR 1500-1508) and DOE *National Environmental Policy Act Implementing Procedures* (10 CFR 1021).

Noise Control Act of 1972, 42 U.S.C. 4901, enacted by P. L. 92-574 as amended. The Noise Control Act, as amended, directs all federal agencies to carry out, "to the fullest extent within their authority," programs within their jurisdictions in a manner that furthers a national policy of promoting an environment free from noise that jeopardizes health and welfare.

Occupational Safety and Health Act of 1970, 29 U.S.C. 657, et seq., enacted by P. L. 91-596. The Occupational Safety and Health Act (OSHA) establishes specific standards for employers to assure as much as possible a safe and healthful workplace for employees. DOE emphasizes compliance with these regulations through DOE orders that prescribe OSHA standards that contractors shall meet as applicable to work at government-owned, contractor-operated facilities.

Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, enacted by P. L. No. 94-580 as amended, was enacted to ensure the safe and environmentally responsible management of hazardous and nonhazardous solid waste, and to promote resource recovery techniques to minimize waste volumes. Hazardous waste is defined under RCRA as a waste that poses a potential hazard to human health or the environment when improperly treated, stored, or disposed.

Safe Drinking Water Act (SDWA) of 1974, 42 U.S.C. 300f, et seq., enacted by P.L. No. 93-523 as amended. The primary objective of the SDWA is to protect the quality of public water supplies and all sources of drinking water. Through delegation by the Environmental Protection Agency, the state of Nevada regulates public drinking water supplies by establishing and enforcing drinking water standards and by developing and implementing aquifer and water source protection regulations.

8.2 STATE LAWS AND REGULATIONS

State of Nevada laws and regulations that are applicable to the construction or operation of the Rad/NucCTEC include:

Clean Water Regulations: Sewage lagoons and septic systems are regulated under the Nevada Administrative Code (NAC), Chapter 444. Standards, regulations, permits, and requirements for septic tanks and other sewage disposal systems are established for single-family dwellings, communities, and commercial buildings.

Safe Drinking Water Regulations: The NAC, Chapter 445A, specifies that public water systems must meet the requirements of the national Primary Drinking Water regulations. These regulations set standards and requirements for drinking water and for the construction of wells and other water supply systems. Rad/NucCTEC would be interconnected with an existing permitted drinking water system. The permit would be modified, as necessary, to include the proposed facilities.

Clean Air Regulations: The NAC, Chapter 445B, implements both state and federal clean air statues and identifies requirements for permits for each air pollution source as well as monitoring requirements. Particulate emissions from surface disturbing activities which encompass an area equal to or greater than five acres are regulated under the NAC and require a Surface Disturbance Permit. Disturbances greater than 20 acres are required to implement a dust control plan. The NTS Class II Air Quality Operating Permit includes surface disturbances, so that separate Surface Disturbance permits are not required for activities within the NTS. Because the permit is applicable to disturbances throughout the entire NTS, which is much

greater than 20 acres, dust suppression is required for all surface disturbances. At the NTS the most common method of dust control is through the use of water sprays.

Solid Waste Regulations: Chapter 444 of the NAC sets forth the definitions, methods of disposal, special requirements for hazardous waste, collection and transportation standards, and classification of landfills.

Radiation Control Regulations: Chapter 459 of the NAC includes state regulations for radiation control. NAC 459.120 exempts DOE and its contractors and subcontractors from regulation under NAC 459.010-450.950 for certain activities. NNSA/NSO will consult with the Nevada Bureau of Health Protection Services, as appropriate, to resolve any questions regarding applicability of NAC 459.120 to Rad/NucCTEC.

8.3 DOE REGULATIONS, STANDARDS AND ORDERS AND EXECUTIVE ORDERS

10 CFR 830, Nuclear Safety Management, governs the conduct of DOE and contractor personnel and others who provide items or services that affect, or may affect, the safety of DOE nuclear facilities. A contractor must perform work according to the safety basis for a hazard category 1 (potential for significant off-site consequences), 2 (potential for significant on-site consequences) or 3 (potential for only local significant consequences). Hazard controls must be established that ensure adequate protection of workers, the public, and the environment.

10 CFR 835, Occupational Radiation Protection, establishes radiation protection standards, limits, and program requirements for protecting individuals from ionizing radiation resulting from DOE activities. DOE activities must comply with a documented radiation protection program as approved by the DOE.

DOE Order 420.1A. This Order, *Facility Safety*, requires that design requirements for nuclear facilities be guided by safety analyses. These analyses must include the identification and functions of safety structures, systems, and components for a facility and establish their functions significance to safety.

DOE Order 435.1, Radioactive Waste Management. The objective of this Order is to ensure that all DOE radioactive waste is managed in a manner that is protective of worker and public health and safety, and the environment.

DOE Order 450.1, Environmental Protection. The objective of DOE Order 450.1 is to implement sound stewardship practices that are protective of the air, water, land, and other natural and cultural resources impacted by DOE operations and by which DOE cost effectively meets or exceeds compliance with applicable environmental; public health; and resource protection laws, regulations, and DOE requirements.

DOE Order 470.1, *Safeguards and Security Program,* establishes general program requirements for all safeguards and security programs within DOE. There are series of orders, policies, and guides tiered from that order. Safeguards and Security program elements include: Program Management, DOE Order 470 series; Personnel Security, DOE Order 472 series; Protection Operations, DOE Order 5632 and DOE Order 473 series; Materials Control and Accountability, DOE Order 5633 and DOE Order 474 series; and Information Security, DOE Order 5639 and DOE Order 471 series.

DOE Standard 1027-92. This Standard, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*, (DOE, 1997) provides guidance in determining the preliminary hazard category for a nuclear facility.

Executive Order 11514 (NEPA). Under this Order, federal agencies must continually monitor and control their activities to protect and enhance the quality of the environment. Procedures must also be developed to ensure that the public is informed and understands the federal plans and programs with environmental impact and to obtain the views of interested parties.

Executive Order 12898. This Order directs federal agencies to achieve environmental justice through identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States, its territories and possessions.

8.4 PERMITS

Permits that are applicable to the construction or operation of the Rad/NucCTEC are listed in Table 1. Other compliance-related activities that would need to be addressed before construction include the preparation and submittal of engineering plans and drawings for installation of potable water lines, water storage tanks, and septic systems.

TABLE 3

Permits Applicable to the Rad/NucCTEC

Permit Number	Permit Name	Expiration Date	Issuing Agency/ Regulation	Applicability to RNCTEC
AP9711-0549.01	Air Quality Operating Permit	06/25/09	State of Nevada Clean Air Act	• Surface Disturbance • Requires Dust Plan
NY-0360-12 NTNC	Public Water System Permit	09/30/04	State of Nevada Safe Drinking Water Act	• Potable water supply • Permit Modification Required • Engineering Plan Review Required
New Permit Required	Septic System	N/A	State of Nevada Clean Water Act	• Septic Tank/Leach Field • New Permit Required • Engineering Plan Review Required
1-5-96-F-33	Desert Tortoise Incidental Take Authori-zation	12/31/06	US Fish & Wildlife Service	• Authorizes Incidental Take • Requires Pre-Activity Surveys

9.0 GLOSSARY

Ambient air. That portion of the atmosphere, outside of buildings, to which the general public is exposed.

Aquifer. Stratum or zone below the surface of the earth capable of producing water as from a well.

Decibel (dB). A standard unit for measuring sound-pressure levels based on a reference sound pressure of 0.0002 dynes per square centimeter. This is the smallest sound a human can hear.

Decibel, A-weighted (dBA).: Adjusted unit of sound measurement that corresponds to the relative sensitivity of the human ear at specified frequency levels. This represents the loudness as perceived by humans.

Endangered Species. A species of possible management concern due to their restricted distribution or the potential for habitat disturbance.

Effluent. A gas or fluid discharged into the environment.

Environmental Impact Statement. A document required by the *National Environmental Policy Act* of 1969, as amended, for proposed major Federal actions involving potentially significant environmental impacts.

Fault. A fracture or fracture zone along which there has been displacement of the sides relative to one another parallel to the fracture.

Fugitive Dust. Particulate matter composed of soil. Fugitive dust may include emissions from haul roads, wind erosion of exposed soil surfaces, and other activities in which soil is either removed or redistributed.

Groundwater. Subsurface water within the zone of saturation.

Half-life. A half-life represents the time necessary for half of the radioactive element in a material to decay. In general, an isotope with a longer half-life presents a weaker field of ionizing radiation than the same mass of an isotope with a shorter half-life.

Hazardous Waste. Wastes that are designated as hazardous by the Environmental Protection Agency or State of Nevada regulations. Hazardous waste, defined under the Resource Conservation and Recovery Act, is waste from production or operation activities that pose a potential hazard to human health or the environment when improperly treated, stored, or disposed.

Infrastructure. Utilities and other physical support systems needed to operate a laboratory or test facility.

Mitigation. Actions and decisions that (1) avoid impacts altogether by not taking a certain action or parts of an action, (2) minimize impacts by limiting the degree or magnitude of an action, (3) rectify the impact by repairing, rehabilitating, or restoring the affected environment, (4) reduce or eliminate the impact over time by preservation and maintenance operation during the life of the action, or (5) compensate for an impact by replacing or providing substitute resources or environments.

Nonattainment Area. An area that has been designated by the U.S. Environmental Protection Agency or the appropriate site air quality agency as exceeding one or more national or state Ambient Air Quality Standards.

Particulate. Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog found in air or emissions.

Playa. A dry, vegetation-free, flat area at the lowest point of an undrained basin.

Record of Decision (ROD). A public document that explains which cleanup alternative would be selected for the area of concern.

Runoff. The discharge of water through surface streams.

Seismicity. The likelihood of an area being subject to earthquakes. The phenomenon of earth movements.

Significant. The common meaning of significant is; “having or likely to have considerable influence or effect.” As it pertains to the National Environmental Policy Act, “significant” requires that both context and intensity be considered in evaluating impacts (40 CFR Part 1508).

Special Nuclear Materials (SNM). SNM is defined in the Atomic Energy Act of 1954 as plutonium, uranium enriched in the isotope 233 or 235, and any other material which the Nuclear Regulatory Commission determines to be SNM; or, any material artificially enriched by any of the foregoing.

10.0 REFERENCES

Regulations, Orders, and Laws

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10 CFR Part 835	U.S. Department of Energy, "Occupational Radiation Protection," *Code of Federal Regulations*, Office of Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, D.C., 1998.
10 CFR Part 1021	U.S. Department of Energy, "National Environmental Policy Act; Implementing Procedures," *Code of Federal Regulations*, Office of Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, D.C., 1992.
29 CFR Part 1910	U.S. Department of Labor "Labor: Occupational Safety and Health Standards," *Code of Federal Regulations*, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, D.C., 1993.
40 CFR Part 61	U.S. Environmental Protection Agency, Subpart C, National Emission Standard for Beryllium, 1998.
40 CFR Part 1500-1508	Council on Environmental Quality (CEQ), "Protection of the Environment: Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act," *Code of Federal Regulations,* Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, D.C., 1993.
49 CFR Parts 100-178	U.S. Department of Transportation, Transportation of Hazardous Materials, Code of Federal Regulations, Office of the Federal Register, National Archives and records Administration, U.S. Government Printing Office, Washington, D.C., 1995.
DOE Order 420.1A	U.S. Department of Energy (DOE), "Facility Safety," Washington, D.C., 2002.
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General

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DOE, 2002	U.S. Department of Energy, "Supplement Analysis for the Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada," July 2002.
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APPENDIX A

SCOPING COMMENT LETTERS

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KENNY C. GUINN
Governor

STATE OF NEVADA

ROBERT R. LOUX
Executive Director

OFFICE OF THE GOVERNOR
AGENCY FOR NUCLEAR PROJECTS
1761 E. College Parkway, Suite 118
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Telephone: (775) 687-3744 • Fax: (775) 687-5277
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May 4, 2004

Mr. Dirk Schmidhofer
NEPA Document Manager
U.S. Department of Energy
National Nuclear Security Administration
P.O. Box 98518
Las Vegas, Nevada 89193-8518

Dear Mr. Schmidhofer:

The Nevada Agency for Nuclear Project is providing the following comments on DOE/NNSA's Notification of Intention to Prepare an Environmental Assessment for a Radiological/Nuclear Countermeasures Test and Evaluation Complex (NOI) at the Nevada Test Site (NTS):

(1) Since the proposed test and evaluation complex will be dealing with radioactive materials, and given the sensitivities among Nevada citizens and communities with respect to past, present and contemplated nuclear activities at NTS, it is in DOE/NNSA's interest (as well as the interests of affected Nevadans) for your agency to assure that ample opportunities for public comment have been made available. The type of project contemplated (i.e., the use of radiological/nuclear source terms at NTS and planned releases of radioactive materials) has the potential, especially in Nevada, to evoke considerable public concern, given the past history of contamination from the nuclear weapons testing program, the atmosphere of distrust engendered by that program, and the current atmosphere of controversy surrounding the Yucca Mountain high-level waste repository project. Since DOE has not widely publicized or distributed the NOI, additional efforts must be made to inform the public about the proposal and provide opportunities for comment. DOE should immediately schedule public meetings in Las Vegas and Nye County and give serious consideration to one or more additional meetings in "downwind" communities in Nevada (and possibly Utah). Meeting dates, times and places plus addresses for making written comments should be well publicized so as to maximize public awareness and participation.

(2) The comment period for the countermeasures complex NOI should be extended to a minimum of 60 days to allow for the public meetings discussed above and for adequate time for the public to make comments. We note that the thirty-three day period announced in the letter sent to the State Clearinghouse (the only notice we have seen) commenced as of the date of that letter (April 6, 2004). I would further point out that the State Clearinghouse did not receive the letter until April 12th, and my office (and presumably other affected State agencies) did not receive copies until April 13th. That means that a full week of the comment period had already passed before Nevada agencies even obtained the NOI, and it is not at all clear that members of the public and other potentially affected parties are even now aware of its existence.

(2) The proposed EA must address all of the standard impact categories routinely covered under a NEPA analysis (i.e., land use, visual resources, noise, socioeconomics, cultural resources, water resources, geology and soils, air resources, biological resources, traffic and transportation, human health and safety, environmental justice, infrastructure, waste management, etc.). In addition, the EA should address the impacts of the project that derive from the nuclear nature of the effort, the public's high perception of risk regarding things nuclear, and possible stigmatizing effects resulting from the proposed action. The EA should analyze impacts in relation to, at a minimum, the proposed action and a realistic and defensible no-action alternative. Such an analysis must be made so as to facilitate comparison of the impacts of going forward with the proposed action with taking no action. If DOE/NNSA is contemplating several possible approaches/courses of action, each one should be dealt with as a discrete alternative and assessed with respect to all impact area in a manner that allows ready comparison among the alternative and no-action.

(3) Cumulative Impacts: We note that almost simultaneous with the release of the Countermeasures Complex NOI, DOE/NNSA released a predecisional Draft EA for using biological simulants and releases of chemicals at NTS (ref. the April, 2004 "Predecisional Draft Environmental Assessment for Using Biological Simulants and Releases of Chemicals at the Nevada Test Site" DOE/EA-1494). The EA for the Countermeasures Test and Evaluation Complex must assess possible cumulative impacts from biological and chemical releases contemplated in the EA for the biological/chemical releases project, including any possible synergistic effects as a result of interactions between radiological and biological, and chemical agents.

Likewise, the proposed EA must examine possible cumulative impacts from DOE's ongoing low-level radiological waste (LLW), mixed LLW and hazardous waste, and transuranic waste activities at NTS. Thousands of shipments of waste come into NTS each year. The EA should assess any potential health or safety impacts to DOE LLW or truwaste workers, drivers, inspection personnel, etc. from radiological releases under the proposed action. Potential impacts to these other DOE programs resulting from planned or unplanned releases of radiological materials under the Countermeasures Complex proposed action (i.e., work stoppages, evacuations, etc.) should also be thoroughly examined.

If DOE adheres to its published schedule and overcomes State of Nevada opposition to the proposed Yucca Mountain repository program, large numbers of workers and others involved with the construction of that project will be woking and traveling on NTS regularly. Likewise, starting in 2010 (according to DOE's schedule), large numbers of spent fuel and high-level waste shipments could start arriving at the repository. The EA should examine possible impacts of the proposed action on Yucca Mountain workers, drivers, inspectors, and others involved with that project. For example, could there be harmful health effects to individuals who are repeatedly exposed to radiological materials disbursed under the proposed action? The EA should examine meteorological conditions that could cause such exposures and assess any short or long-term consequences.

(4) The proposed EA should address whether the proposed action is consistent with the purpose for which Congress withdrew the land for the Nevada Test Site (i.e., atomic weapons testing-related activities). Under the terms of the negotiated settlement of the State of Nevada's lawsuit challenging the Nevada Test Site EIS, DOE was to have consulted with the Bureau of Land Management regarding the status of the land withdrawal and consistency of various NTS activities with the mission of the NTS as specified in the land withdrawal legislation. To date, State officials are not aware that such consultation has taken place or any plans for resolving the issue.

(5) The proposed EA must contains a thorough discussion of possible impacts of terrorism and sabotage on the activities contemplated in the proposed action. Are the radiological/nuclear materials to be used in any way potential targets for terrorist action? What precautions are planned for securing the materials while being transported to the NTS? What are the potential impacts/consequences of a successful terrorist attack on a shipment of radiological/nuclear materials enroute to NTS (i.e., release of the material in a large metropolitan area along a shipping route, not just in Nevada but in a large city outside Nevada)? The EA should contain a section that addresses possible terrorism/sabotage impacts, both at NTS and during transportation to NTS.

Because of the insufficient public notice regarding the availability of the NOI and the lack of public comment meetings, we again strongly recommend that DOE/NNSA extend the deadline for the comment period, schedule public meeting as discussed above, and widely publicize the availability of the document, the comment period and the meetings.

Sincerely,

Robert R. Loux
Executive Director

RRL/cs
cc Governor Guinn
Mike Stafford, State Clearinghouse

CITIZENS EDUCATION PROJECT
444 Northmont Way
Salt Lake City, Utah 84103

May 14, 2004

Mr. Dirk Schmidhofer
NEPA Document Manager
U.S. Department of Energy
National Nuclear Security Administration
P.O. Box 98518
Las Vegas, NV 89193-8518

Dear Mr. Schmidhofer:

The Citizens Education Project recently became aware of the DOE/NNSA's Notification of Intent to Prepare an Environmental Assessment for a Radiological/Nuclear Countermeasures Test and Evaluation Complex at the Nevada Test Site. We are aware that the comment deadline for this NOI expired May 9th, but we ask that you consider the following comments and requests.

First, we would like to be placed on the list of recipients of the pre-approval draft EA when it is published, perhaps in June 2004.

Second, we urge the DOE/NNSA to conduct public hearings on the EA proposing development of a Countermeasures Complex in St. George, Cedar City, and Kanab, Utah. This project would involve planned releases of radioactive materials, and Utahns living downwind have had a tragic, disastrous experience with exposure to radiation released from NTS. There will be considerable public concern about this proposal, and Utah residents deserve the opportunity to be fully informed of the need for, nature of, and potential risks and impacts from the project.

Lastly, we would hope that the draft EA would take into account in assessing the cumulative impacts of the proposal the following other programs and projects currently in operation or under consideration for implementation at the Test Site:

(Predecisional Draft Environmental Assessment for) Using Biological Simulants and Releases of Chemicals at the NTS;

Low-level radioactive waste (LLW), mixed LLW and hazardous waste, and transuranic waste activities at NTS;

Hazmat Spill Center activities;

Potential construction and operation of the proposed Yucca Mountain Project;

Potential resumption of nuclear weapons testing.

We sincerely hope that you will take these concerns into consideration.

Respectfully,

Steve Erickson, Director
Citizens Education Project
444 Northmont Way
Salt Lake City, Utah 84103
(801) 554-9029
Erickson.steve1@comcast.net

Eureka County
Yucca Mountain Information Office
P.O. Box 990
Eureka, NV 89316
775/237-5707 fax 775/237-5708

April 27, 2004

Kenneth A. Hoar, Director
Environment, Safety and Health Division
U.S. Department of Energy
National Nuclear Security Administration
P.O. Box 98518
Las Vegas, Nevada 89193-8518

RE: Request for Scoping Meetings and Extension of Scoping Comment Deadline for Notification of Intention to Prepare an Environmental Assessment for Radiological/Nuclear Countermeasures Test and Evaluation Complex

Request for Extension of Comment Deadline on the Environmental Assessment for Using Biological Simulants and Releases of Chemicals at the Nevada Test Site (NTS)

Dear Mr. Hoar:

Eureka County, Nevada received notification from the State of Nevada Agency for Nuclear Projects regarding the proposed Environmental Assessments referenced above.

We have the following requests.

1. Request for Scoping Meetings and Scoping Comment Deadline Extension for EA on Radiological/Nuclear Countermeasures

We join the State of Nevada in requesting scoping meetings on the NOI for the EA on the Radiological/Nuclear Countermeasures Test and Evaluation Complex.

Eureka County, like many rural counties in Nevada, experienced the effects of releases from nuclear weapons testing on the Nevada Test Site. Presently we are under consideration for the transportation routing of high-level nuclear waste and spent nuclear fuel to the proposed Yucca Mountain repository, partially on the Nevada Test Site. We have an ongoing concern regarding activities at the Test Site, and their potential cumulative impact on residents of our county.

We also request that the deadline for comments be extended to ensure that all affected parties can participate in the scoping hearings.

2. Request for a Copy of the EA on Biological Simulants and Releases of Chemicals at NTS, and extension of comment deadline.

Eureka County is requesting a minimum 60 day comment period for the EA on Biological Simulants proposal. We also support the state's request for DOE to hold meetings on this proposal in the vicinity of the NTS. In addition, Eureka County is requesting a written copy of the Environmental Assessment for review and comment.

Eureka County is concerned with the potential cumulative impacts and health effects from this project in relation to the Yucca Mountain nuclear waste repository and associated transportation.

Please add us to the mailing list for future communication on both of these significant projects.

Thank you for your attention to these requests.

Sincerely,

Abigail C. Johnson
Nuclear Waste Advisor

cc: Leonard Fiorenzi
Laurel Marshall

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APPENDIX B

PUBLIC COMMENTS AND RESPONSES

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APPENDIX B
PUBLIC COMMENTS AND RESPONSES

In May 2004, the U.S. Department of Energy's National Nuclear Security Administration Nevada Site Office (NNSA/NSO) issued the *Preapproval Draft Environmental Assessment for the Radiological Nuclear Countermeasures Test and Evaluation Complex, Nevada Test Site* (DOE/EA-1499) for review and public comment. A total of six comment letters were received. These letters were analyzed and NNSA/NSO identified a total of 86 comments.

This appendix provides the comments received and NNSA/NSO's responses. Each written comment letter has been included. Comments have been assigned unique reference numbers. Responses to comments follow each letter and contain the comment reference number. Table A-1 is a list of the comment letters that were received, with the letter reference numbers, commenter name, and organization if applicable.

Table A-1. Summary of Comments Received on the Preapproval Draft Environmental Assessment

Comment Reference Number	Commenter	Page Number
L-1	Robert Loux, State of Nevada, Agency for Nuclear Projects, Carson City, NV	B-3
L-2	Peggy Maze Johnson, Citizen Alert, Las Vegas, NV	B-17
L-3	John Hadder, Citizen Alert, Reno, NV	B-19
L-4	Steve Erickson, Citizens Education Project, Salt Lake City, UT	B-22
L-5	Vernon Brechin, Mountain View, CA	B-26
L-6	Sam Volpentest, Tri-City Industrial Development Council, Kennewick, WA	B-43

KENNY C. GUINN
Governor

STATE OF NEVADA

ROBERT R. LOUX
Executive Director

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July 2, 2004

Mr. Dirk Schmidhofer
NEPA Document Manager
National Nuclear Security Administration
Nevada Site Office
P.O. Box 98518
Las Vegas, Nevada 89193

Re: State of Nevada Comments on DOE/NNSA's Preapproval Draft Environmental Assessment (EA) for a Radiological/Nuclear Countermeasures Test and Evaluation Complex at the Nevada Test Site (DOE/EA-1499)

Dear Mr. Schmidhofer:

Attached please find the State of Nevada's comments on the above-referenced draft EA. The comments were prepared with input from affected State agencies and are in addition to comments submitted on May 4, 2004 in response to the April 6th, 2004 notification of intent to prepare the EA.

Thank you for the opportunity to comment on this important matter. If you have questions or need additional information, please feel free to contact me.

Sincerely,

Robert R. Loux
Executive Director

RRL/cs
Attachment

cc Steve Robinson, Governor's Office
Allen Biagi, NDEP
Jolaine Johnson, NDEP
Stan Marshall, NSHD
Mike Alexander, NSHS

STATE OF NEVADA COMMENTS ON THE U.S. DEPARTMENT OF ENERGY/NATIONAL NUCLEAR SECURITY ADMINISTRATION'S PREAPPROVAL DRAFT ENVIRONMENTAL ASSESSMENT FOR A RADIOLOGICAL/NUCLEAR COUNTERMEASURES TEST AND EVALUATION COMPLEX, NEVADA TEST SITE (DOE/EA-1499)

July 2, 2004

General Comments

(1) The draft Environmental Assessment (EA) does not address comments received during the scoping period that ran from April 6th – May 9th, 2004. L-1-1

Discussion: The draft EA contains no mention of comments received by DOE/NNSA regarding the scope of analysis for and potential impacts of the proposed test and evaluation complex. The draft EA should have clearly articulated the comments received, identified the commenter for each, and provided a response as to how each comment was addressed. This could have easily been done in a comment-response section of the draft EA. As it stands, it is impossible to tell whether DOE/NNSA considered (or even read) any of the comments it received and how those comments did or did not affect the scope of the analyses described in the draft EA.

(2) *Nevada officials are concerned that the process for making the public aware of the proposed Test and Evaluation Complex and the preapproval draft EA does not provide adequate notice of the proposed project or the process for commenting on it.* L-1-2

Discussion: Since the proposed test and evaluation complex deals with radioactive materials, and given the sensitivities among Nevada citizens and communities with respect to past, present and contemplated nuclear activities at NTS, it would have been in DOE/NNSA's interest (as well as the interests of affected Nevadans) to go beyond what is minimally required and assure that ample opportunities for public comment were made available. The type of project contemplated (i.e., the use of radiological/nuclear source terms at NTS and planned emissions of radioactive materials) has the potential, especially in Nevada, to evoke considerable public concern given the past history of contamination from the nuclear weapons testing program, the lingering distrust engendered by that program, and the current atmosphere of conflict and controversy surrounding the Yucca Mountain high-level waste repository project.

As was the case with respect to the April 6, 2004 notice of intent dealing with scoping for the draft EA, DOE/NNSA has not widely publicized or distributed the preapproval draft EA to assure that the public and others are adequately informed about the proposal and opportunities for comment. Nevada officials believe it would be in DOE/NNSA's interest to schedule public meetings on the draft EA in (at least) Nye County and Las

Vegas and give serious consideration to one or more additional meetings in "downwind" communities in Nevada (and possibly Utah). Meeting dates, times and places plus addresses for making written comments should also be well publicized so as to maximize public awareness and participation.

Specific Comments

Section 2.0 – Proposed Action and Alternatives

2.1.1 – Facility Description: Page 6 describes a simulated "Airport Inspection Facility" that would presumably include airport X-ray equipment. Such equipment would contain "machine-produced radiation sources" that could be subject to State Health Division regulation depending on the source. The final EA should describe any such equipment and the radiation source(s) to be used. L-1-3

Active Interrogation Facility – The narrative suggests that highly enriched uranium, special nuclear material (SNM) and/or fissile materials may be available for operators to test their equipment. What does "source-to-target" container distances mean? "Accelerator-produced radiation fields" are mentioned. What size and safety features for this equipment are intended? What "high activity neutron-emitting radionuclide" is intended to be used? L-1-4

The text also indicates that the Active Interrogation Facility would operate a neutron beam emitted by emplacement of the high-activity neutron emitting radionuclide that is capable of "sweeping across moving containers on the integral roadway" suggesting an open beam in the environment. What is being done to prevent workers from inadvertently walking into a radiation field? What specifically is the safety design to safely handle the high neutron field mentioned and the monochromatic high energy photon sources, muon beams and other charged particle beams. The final EA should describe details of the "shielding and exclusion areas to be established" and other safety mechanisms to be used. L-1-5

High-Speed Road – The draft EA discusses the use of vehicles loaded with "sealed sources, medical isotopes or a quantity of special nuclear materials." The final EA should discuss the sources of these materials (i.e., where will they come from and are they NRC-regulated) and whether any would be subject to State Health Division regulation. L-1-6

2.1.2 – Construction and Operations: It is unclear from the discussion whether there are Corrective Action Units in the area in which the facilities would be constructed. The Federal Facilities Agreement and Consent Order (FFACO) requires that the Nevada Division of Environmental Protection (NDEP) have access to such sites for inspections and observation of remedial activities if they are present. L-1-7

2.1.1.3 – Nuclear Operations: The second paragraph indicates that special nuclear materials will be stored at the NTS Device Assembly Facility (DAF) after completion of activities. Does this mean that SNM will remain at the Radiological/Nuclear Countermeasures Complex facilities at the end of each work day prior to completion of the training sessions and other activities? If so, what security or other surveillance will be in place if the SNM is not stored at the end of each work day at the DAF? L-1-8

The 1st paragraph on page 9 describes "up to 50 kg of highly enriched uranium or other SNM components in various shapes and sizes up to several kg each" that could be used at the facility. In paragraph 2 on page 9, the draft references the use of other "radioactive source material" including undefined "additional large sealed sources." The final EA should describe the non-SNM source material that would be in either solid or liquid form and whether or not these materials derive from NRC licensees. L-1-9

2.1.3 – Safeguards and Security: To the extent possible, the final EA should include, as an appendix, the "nuclear implementation plan" that is being developed to control nuclear materials and prevent their loss. If some information in the plan is classified, the non-classified portions of the plan could be included. As an alternative, a classified appendix containing the plan could be referenced and shared with State personnel with appropriate clearances. L-1-10

2.2 – Alternative Actions: The draft EA does not address possible alternative locations outside of the Nevada Test Site (NTS) that could potentially host the test and evaluation complex. While the document describes certain features of the NTS that seem to fit well with the proposed facility, there are likely other locations within the DOE/NNSA complex nationwide that would also be viable locations. Sites in New Mexico (Sandia, Los Alamos), Idaho (INEEL), South Carolina (Savannah River) and others would seem to be alternatives that should have been assessed and discussed in the draft EA. The draft EA contains no analyses demonstrating that NTS is the most appropriate site and no rationale for why DOE/NNSA chose NTS over locations in other states. An adequate evaluation of alternatives should include the comparison of sites on NTS with potential sites at other DOE/NNSA facilities.[1] L-1-11

Section 3.0 – Affected Environment

3.1 – Land Use: The draft EA fails to address whether the proposed action is consistent with the purpose for which Congress withdrew the land for the Nevada Test Site (i.e., atomic weapons testing-related activities). Under the terms of the negotiated settlement of the State of Nevada's lawsuit challenging the Nevada Test Site EIS, DOE was to have consulted with the Bureau of Land Management regarding the status of the land withdrawal and consistency of various NTS activities with the mission of the NTS as specified in the land withdrawal legislation. To date, State officials are not aware that such consultation has taken place or any plans for resolving the issue. L-1-12

[1] An example of this type of analysis is contained in DOE/NNSA's Draft Supplemental Programmatic Environmental Impact Statement on Stockpile Stewardship and Management For a Modern Pit Facility (DOE/EIS-236-S2), which looked at potential sites for the proposed modern pit facility at various locations in the DOE/NNSA complex.

3.1.2 – Water (also 4.1.1.2): The final EA should discuss whether any of the referenced wells would be used as potable sources for human consumption and, as such, be subject to State Health Division water program requirements. L-1-13

Section 4.0 – Environmental Effects

4.1.2 – Infrastructure (Waste Management, page 19):

Hazardous Waste: The draft EA notes that "[s]mall quantities of hazardous wastes ... could be generated during construction activities. Any hazardous wastes would be transported to Area 5 RWMS to await off-site disposal." The final EA should clearly specify the procedure that will be used for the final disposal of such wastes (i.e., what off-site facility will be used for final disposal, how would the waste be moved there; the types of agreements, etc. that would be needed to effectuate such disposal; etc.). L-1-14

Low-Level Radioactive and Mixed Waste: While the draft EA indicates that little, if any, radioactive or mixed waste would be expected to result from project activities, the final EA should clearly describe how such waste would be handled, managed and disposed of. Especially in the case of mixed hazardous and low-level radioactive waste, what would be the path for disposal, given the status of DOE's Part B permit application with the Nevada Division of Environmental Protection? L-1-15

Medical Isotopes: The draft EA states "it is anticipated that the *medical isotope supplier* would reclaim any unused material when the activity was below the levels needed for use at the complex. Non-medical isotopes would be retained during the facility's lifetime and either excessed if suitable users are available or disposed of according to current radioactive waste disposal procedures" (emphasis added). The final EA should identify "the medical isotope supplier" to determine if this is an out-of-state NRC-licensee subject to State Heath Division regulation. The final EA should also contain a discussion of the regulatory regime that will govern such materials. Would medial isotopes provided by commercial suppliers be subject to NRC (and agreement state) regulation? What is the role of the Nevada State Health Division Radiological Health Section in overseeing and regulating such materials, given that Nevada is an NRC agreement state and Radiological Health implements regulations governing the use of such materials? If DOE is asserting self-regulation with respect to such materials, what is the statutory/regulatory basis for such assertion? L-1-16

The final EA should describe the storage protocols to be used for retaining "non-medical isotopes" during the facility's lifetime. L-1-17

The final EA should also describe in detail what the "current radioactive waste disposal procedures" are and how DOE/NNSA proposes to implement them for any radioactive wastes from the complex that requires disposal. L-1-18

The draft EA also indicates that "special nuclear materials" will be employed during operations of the test and evaluation complex (ref. Section 1.1 – Proposed Action and the text box on page 8). While the draft EA infers that such special nuclear materials will be "sealed sources," the final EA should address the regulatory regime governing the use of such materials as well as regulations and procedures governing the disposal of "special nuclear materials" that may be required in the event of a failure of the sealed source container or unexpected contamination from such sources. L-1-19

4.1.7 – Air Quality: The final EA should address the potential for construction and other Test and Evaluation Complex activities to result in the re-suspension of radionuclides left over in the soils from prior weapons testing activities at NTS. Some questions to be addressed include: Have there been analyses done to determine the amount and types of radionulcides in the soils at the proposed project site? What are the potential exposure pathways? What would be the potential health impacts to workers, trainees, and others of soil disturbances that re-suspend these radionuclides? L-1-20

The second paragraph under this section discusses "emissions from uranium and plutonium sources," noting that "[p]otential emissions were evaluated using an EPA-approved computer model, CAP-88, to determine whether monitoring would be required. Preliminary results indicate that emissions would fall well below the NESHAPS dose limit of 10 millirems per year (40 CFR 61.92) and that no monitoring would be required." Because this section discusses emissions from radionuclides and other sections of the draft EA references radionuclides as being sealed sources or otherwise contained, it is unclear just what "emissions" there may be from such sources or why the use of the CAP-88 computer model is necessary. L-1-21

Given the nature of the activities contemplated for the proposed action, DOE/NNSA would be well-advised to establish an effective monitoring system to demonstrate what the actual annual emissions from all potential radionuclide sources are instead of relying on hypothetical computer modeling. L-1-22

4.1.11 – Occupational and Public Health and Safety: The final EA should address the issues of radiation exposures to workers, trainees, and others resulting from the re-suspension of radionuclides from past weapons testing activities (see discussion in relation to 4.1.7 – air quality – above). L-1-23

The final EA should also provide the reference supporting the statement, "[v]isitors to the NTS are subject to essentially the same safety and health requirements as workers" (i.e., DOE or other regulations governing visitor safety and heath requirements), since the operation of the Radiological/Nuclear Countermeasures Complex will necessarily involve the participation of a significant number of "visitors" to NTS to participate in facility activities. Is it likely that, because of the numbers of such visitors and the nature of their involvement, special safety and health requirements might have to be developed? L-1-24

Section 5.0 – Cumulative Effects

5.1.1 – Land Use, Transportation, and Waste Management: Almost simultaneous with the release of the Countermeasures Complex Preapproval Draft EA, DOE/NNSA is in the process of finalizing an EA for using biological simulants and releases of chemicals at NTS (ref. the April, 2004 "Predecisional Draft Environmental Assessment for Using Biological Simulants and Releases of Chemicals at the Nevada Test Site" DOE/EA-494). The final EA for the Countermeasures Test and Evaluation Complex should assess possible cumulative impacts from biological and chemical releases as well as from training and other activities contemplated in the EA for the biological/chemical releases project. L-1-25

Likewise, the final EA should examine possible cumulative impacts from DOE's ongoing low-level radiological waste (LLW), mixed LLW and hazardous waste, and transuranic waste activities at NTS. Thousands of shipments of waste come into NTS each year. The EA should assess any potential health or safety impacts to DOE LLW or truwaste workers, drivers, inspection personnel, etc. from radiological and non-radiological activities contemplated under the proposed action. Potential impacts to these other DOE programs resulting from accidents or incidents at the Countermeasures Complex (i.e., work stoppages, evacuations, etc.) should also be thoroughly examined. Likewise, impacts to the Test and Evaluation Complex from activities or incidents associated with other NTS activities should be evaluated. L-1-26

If DOE adheres to its published schedule and overcomes State of Nevada opposition to the proposed Yucca Mountain repository program, large numbers of workers and others involved with the construction of that project will be working and traveling on NTS regularly. Likewise, starting in 2010 (according to DOE's current schedule), large numbers of spent fuel and high-level waste shipments could start arriving at the repository. The EA should examine possible impacts of the proposed action on Yucca Mountain workers, drivers, inspectors, and others involved with that project as well as any impacts to the Countermeasures Complex from Yucca Mountain project activity. For example, could there be harmful health effects to individuals who are exposed to radiological materials accidentally or intentionally disbursed under the proposed action? The EA should examine meteorological conditions that could cause such exposures and assess any short or long-term consequences. L-1-27

5.1.6 – Air Quality: The final EA should evaluate construction and other relevant activities planned for other projects/locales at the NTS and assess whether there could be cumulative impacts from re-suspension of weapons testing radionuclides in soils. Construction and/or other soil-disturbing activities occurring at the Test and Evaluation Complex simultaneously with such activities at other NTS or proximate locations (i.e., the Yucca Mountain project; Area 5 low-level waste operations; etc) could result in cumulative impacts associated with re-suspension, depending on certain factors such as meteorological conditions, etc. L-1-28

DOE/NNSA needs to ensure that a modification to the application for the existing air quality operating permit is submitted and approved prior to the addition of any new emission unit or modification to an existing emission unit requiring a permit. L-1-29

5.1.10 – Occupational and Public Health and Safety: See comment above (5.1.6) regarding cumulative effects of various NTS activities on re-suspension of radionuclides from weapons testing and potential that might require analysis to determine impacts on worker and public health. L-1-30

Section 6.0 – Mitigation Measures

The final EA should contain a detailed plan for ongoing monitoring of radiation and radiological emissions/exposures. L-1-31

Section 7.0 – Accident Analysis

The section of the draft EA on Accident Analysis appears to be inadequate. The blanket assertion that engineering and administrative controls and standard industrial safety programs support the conclusion that "no significant residual safety risks were identified," is unsubstantiated. At a minimum, the final EA should identify and define credible worst case accidents for both Test and Evaluation Complex operations and for transportation/vehicle operations (i.e., explosion and fire resulting in aerosolized release of radioactive or toxic materials, etc.). Without a clear evaluation of potential worst case accidents, it is not possible to conclude that hypothesized engineering and administrative controls or industrial safety programs will be adequate to prevent, mitigate, or otherwise deal with such occurrences. L-1-32

Section 8.0 – Regulatory Requirements

This section is intended to describe "some" of the laws and regulations which would be applicable to this proposed action. It is unclear how some were identified and others not. For example NAC 445A refers to Water Pollution Control, yet Section 8.2 talks only about public water systems and leaves out the discussion about pollution control and spill reporting as well as other aspects of the regulations. The list of DOE Orders in Section 8.3 does not include DOE Order 435.1. Section 8.4 regarding permits does not include the relevant agreements such as the FFACO and the Agreement in Principle.

The section either needs to clarify that this is an incomplete list (and justify why such a list is used) or the discussion needs to be more specific and inclusive about applicable requirements. L-1-33

8.1 – Federal Laws and Regulations: The final EA should also identify the following federal laws/regulations and discuss how they relate to the proposed action:

(1) The Resource Conservation and Recovery Act (RCRA)

RCRA governs how any hazardous or mixed hazardous/radioactive wastes are managed and disposed of.

(2) U.S. Nuclear Regulatory Commission (NRC) Regulations

NRC regulations govern the use of commercial and medical radiation sources that originate from NRC licensees.

8.2 – State Laws and Regulations: The State of Nevada has delegated authority with respect enforcing to RCRA and NRC regulations. The final EA should include an evaluation of (1) the Nevada State Health Division's authority with respect to the use of commercial and medical radiation sources at the proposed Test and Evaluation Complex and (2) the Nevada Division of Environmental Protection's authority for enforcing applicable RCRA regulations.

L-1-33 (cont'd)

8.4 – Permits: Table 1 on page 30 should include hazardous materials permits required for transporting hazardous and radioactive materials. It should also include any permits required from the Nevada State Health Division (for the use of radioactive sources) and the Nevada Division of Environmental Protection (for hazardous materials disposal, etc.).

The Air Quality Operating Permit, AP9711-0549.01, referenced on Table 1 was issued on June 25, 2004 and expires June 25, 2009. All facilities on the Nevada Test Site are/will be subject to the renewed permit.

Response to comment L1-1. A new section has been added to the EA, 1.3 Public Involvement and Scoping, and letters received during the scoping period have been included in Appendix A.

Response to comment L1-2. A new section has been added to the EA, 1.3 Public Involvement and Scoping.

Response to comment L1-3. The Airport Inspection Facility would include x-ray equipment for examining baggage and carry-on items typical of any airport in the United States. State of Nevada regulations for radiation control are found at Nevada Administrative Code 459. Those regulations include certain exemptions (NAC 459.120) for work conducted by the U.S. Department of Energy. As applicable, NNSA/NSO will consult with the Nevada Bureau of Health Protection Services to ascertain the applicability of NAC 459 to Rad/NucCTEC and equipment and materials used therein.

Response to comment L1-4. "Source-to-target" container distance refers to the distance between the accelerator to the cargo container wall, which would be approximately one meter.

Response to comment L1-5. Safety features at the Active Interrogation Facility would include a 6-foot high chain link fence surrounding the very high radiation area. The fence would have an active interlock system for immediate accelerator shutdown if the entrance gate were opened during operation. Any radiation areas would be posted with appropriate signs. Warning lights would be active when accelerators are in operation. Section 2.1.1 has been revised to clarify shielding, exclusion areas, and other safety mechanisms that would be used at the Active Interrogation Facility.

Response to comment L1-6. The SNM that would be used at Rad/NucCTEC is owned by NNSA. Radioactive sources that would be used at Rad/NucCTEC are owned by NNSA or would be acquired from various sources, including commercial vendors, national laboratories, etc. Although the preapproval draft EA used the term "medical isotopes," it is important to note that there would be no medical use of radioactive materials at Rad/NucCTEC. However, isotopes with relatively short half-lives that are typically used for medical purposes will be used for tests and evaluations of detection equipment and for training at Rad/NucCTEC. For this reason, the term "medical isotopes" has been replaced throughout the EA with the term "short half-life isotopes." NNSA/NSO anticipates that short half-life isotopes for use in Rad/NucCTEC would be acquired from licensed vendors. It is anticipated that short half-life isotopes would be used for a period of about one week following acquisition and then would be returned to the vendor(s) for disposition.

Radioactive materials that would be used at the complex are regulated under 10 CFR 835 while in the custody of NNSA. DOT regulations would apply to any shipments of radioactive materials. Radioactive materials acquired from or returned to a vendor would be regulated by NRC or an appropriate agreement state while in the possession of the vendor. Section 2.1.2.3 has been revised to include this information.

Response to comment L1-7. There is one FFACO site, a Corrective Action Site (CAS), located in the vicinity of the project area. It is located about 0.75 mile south of the proposed Rad/NucTEC site, on the border between Areas 5 and 6. The CAS is an open well that appears to have been started and then abandoned. Section 3.1 has been revised to include this information.

Response to comment L1-8. SNM would be stored at the DAF at the end of each work day. The only exception to this would be when the "work day" is 24 hours and the complex is fully

staffed with security forces present. Section 2.1.2.3 has been revised to clarify this.

Response to comment L1-9. Radiological sources, other than SNM and short half-life isotopes would be acquired from NRC or agreement state licensees and transferred to DOE control. Section 2.1.2.3 has been revised to more fully describe non-SNM sources that would be used at Rad/NucCTEC.

Response to comment L1-10. All radioactive/nuclear materials would be protected in accordance with applicable requirements. Sections 2.1.2.3 and 2.1.3 of this EA describe nuclear operations that would occur at the Rad/NucCTEC and safeguards and security measures, respectively. The "nuclear implementation plan" referenced in section 2.1.3 of the preapproval draft EA is a project management tool used to document the steps that would be taken to comply with 10 CFR 830, *Nuclear Safety Management*. Section 2.1.2.3 of this EA has been revised to summarize the steps that would be taken to ensure Rad/NucCTEC compliance with 10 CFR 830.

Response to comment L1-11. The NTS, and in particular the proposed location in Area 6, was viewed by the sponsor and NNSA to be the best suited location for the Rad/NucCTEC for the following reasons: the presence of an established (existing) staging facility for SNM, located near the Rad/NucCTEC; an experienced federal/contractor work force; the ability to meet security requirements when working outside of a physical structure; isolated and restricted public access with relatively few encroachment issues due to the NTS being surrounded by other federal lands; and, NTS can meet the requirements of the new DOE Design Basis Threat. Section 2.2.2 has been revised to better describe the site selection process.

Response to comment L1-12. The administrative land withdrawals which compose the boundaries of the NTS were withdrawn for the use of the DOE's successor Atomic Energy Commission for "weapons testing" and for purposes "in connection with" the NTS. Historical uses of the NTS have included a number of compatible activities in addition to the primary continuing purpose of weapons testing, including various "work for others" activities. The currently proposed activities are also compatible, and not inconsistent with, the ongoing availability of the NTS for use as a weapons testing site.

In response to comments on the draft NTS EIS, in 1996 the DOE committed to entering into a consultation process with the U.S. Department of Interior (DOI) to ensure that uses of the NTS would remain consistent with the purpose for which the lands were withdrawn. (As noted in the Agency for Nuclear Projects comment, a similar DOE commitment was entered into in settlement of a state of Nevada lawsuit.) The consultation process between the DOE and the DOI is still underway, and DOE has kept the State of Nevada appraised of this consultation through repeated correspondence with state of Nevada officials from 1998 through 2003.

Response to comment L1-13. As indicated in Section 8, Table 1, Public Water System Permit NY-0360-12-NTNC is applicable to the public water system that would supply the proposed Rad/NucCTEC. This permit is issued by the Nevada State Health Division under the Safe Drinking Water Act. Section 3.1.2, which contains a brief discussion of the NTS water system, has been revised to include this information. Table 1 has also been updated to correct the permit number.

Response to comment L1-14. Bechtel Nevada Waste Generator Services (BN/WGS) would establish one or more Satellite Accumulation Areas (SAA) at the construction site. After one drum of hazardous waste has accumulated in a SAA or upon completion of construction and disestablishment of the SAA(s), BN/WGS would be responsible for transport of the hazardous waste to the Resource Conservation and Recovery Act (RCRA) permitted

Hazardous Waste Storage Unit (HWSU) in Area 5. During the year when a sufficient quantity of hazardous waste has accumulated at the HWSU to make off-site shipping economical, a licensed vendor transports this waste to a RCRA permitted treatment/disposal facility for final disposition. Section 4.1.1.2 has been revised to more fully describe how hazardous waste would be managed during Rad/NucCTEC construction and operation.

Response to comment L1-15. There are no plans to generate low-level or mixed waste at the Rad/NucCTEC. All radioactive materials would be encapsulated or sealed, and would not intentionally be breached. Should any radioactive wastes ever be generated, the wastes would be managed in accordance with DOE Order 435.1, *Radioactive Waste Management*, using the processes already in place for managing radioactive wastes generated at the NTS. Low-level and mixed low-level waste generated on the NTS may be disposed of at the Area 5 Radioactive Waste Management Site. NNSA/NSO maintains RCRA-compliant interim status for Pit 3 at the Area 5 RWMS for disposal of mixed low-level radioactive waste generated on the NTS (Permit #NVHW009, Part V.A, March 1995; reissued November 2000). Bechtel Nevada Waste Generator Services works with waste generators to assure proper characterization of the waste and adherence to waste acceptance criteria.

Response to comment L1-16. State of Nevada regulations for radiation control are found at Nevada Administrative Code 459. Those regulations include certain exemptions (NAC 459.120) for work conducted by the U.S. Department of Energy. As appropriate, NNSA/NSO will consult with the Nevada Bureau of Health Protection Services to ascertain the applicability of NAC 459 to Rad/NucCTEC and equipment and materials used therein, including short half-life isotopes.

Response to comment L1-17. Storage of sources at Rad/NucCTEC is described in Section 2.1.2.3 of this EA.

Response to comment L1-18. See response L1-15 above.

Response to comment L1-19. If a radioactive waste were generated by SNM, the waste would be managed as low-level radioactive waste or Transuranic (TRU) waste, as appropriate. TRU waste generated at the Rad/NucCTEC would be stored on the existing TRU Waste Pad at the Area 5 Radioactive Waste Management Site pending shipment for disposal at the Waste Isolation Pilot Plant in Carlsberg, New Mexico. Also, see response L1-15 above.

Response to comment L1-20. Prior weapons testing at the NTS was limited to certain areas of the NTS that did not include the proposed project site. Much if not all of the radioactivity released as a result of atmospheric testing in the Frenchman Flat area decayed very quickly after each test was conducted. Areas contaminated from safety tests, or subcritical events, have undergone extensive surveys to delineate areas of radioactive contamination. The proposed project site was not found to be radioactively contaminated. Therefore there would be no exposure pathways or potential health impacts to workers, trainees and others from resuspension of radionuclides. Section 4.1.7 has been revised to clarify this issue.

Response to comment L1-21. An evaluation was conducted to determine if an application for approval of construction or modification would be required by EPA under 40 CFR 61.07 and 40 CFR 61.96. Following EPA guidelines in Appendix D to Part 61, “Methods for Estimating Radionuclide Emissions,” an EPA CAP-88 model evaluation of the proposed facility was conducted and the maximum dose to an individual was determined to be below 0.1 mrem/yr, the limit above which an application to the EPA would be necessary. No emissions are anticipated from the proposed facility under normal operations. Section 4.1.7 has been revised to clarify this issue.

Response to comment L1-22. The NTS presently operates an EPA-approved site compliance air monitoring network for radionuclides that would include the proposed facility. Section 4.1.7 has been revised to include this information.

Response to comment L1-23. See response L1-20 above.

Response to comment L1-24. Section 4.1.11 has been revised to more accurately describe safety and health protection standards that will be applicable to the Rad/NucCTEC.

Response to comment L1-25. Section 5.1.1 has been revised to address activities that would be conducted at the NTS under *Environmental Assessment for Activities Using Biological simulants and Releases of Chemicals at the Nevada Test Site* (DOE/EA-1494).

Response to comment L1-26. Some NTS workers may perform tasks at multiple facilities where exposure to radioactivity is possible. All workers at NNSA/NSO sites are protected by a comprehensive radiation protection program, fully responsive to 10 CFR 835, *Occupational Radiation Protection*. The NNSA/NSO Radiation Protection Program is documented in *NV/YMP Radiological Control Manual* (RADCON Manual). The RADCON Manual specifies annual dose limits for workers, pregnant workers, minors, and members of the public. NNSA/NSO coordinates all activities at the NTS through its Site Operations Center to prevent conflicts associated with site use. NNSA/NSO has detailed emergency response/management plans for each facility at the NTS and for the NTS in general. If an accident were to occur at Rad/NucCTEC appropriate emergency response plans would be implemented and steps taken to protect the health and safety of potentially affected personnel. Section 5.1.10 has been revised to incorporate this information.

Response to comment L1-27. This comment refers to the potential for harmful health effects to individuals working at the Yucca Mountain Project (YMP) who are exposed to radiological materials accidentally or intentionally dispersed under the proposed action. Anytime a person is exposed to a significant quantity of radiation there is a potential for harmful health effects. Since all radioactive materials used at the facility would be totally sealed and would be used only in that form, there is no plan to intentionally disperse radioactive materials. Therefore, the only way that a worker at YMP could be exposed would be due to an accident of sufficient energy combined with proper weather conditions to disperse materials and carry the dispersion to the YMP. The NNSA has developed a methodology of analysis, planning and program implementation to minimize the potential for accidents, as well as the mitigation of consequences in the remote possibility of an accident occurring. Modeling is performed using quantity and form of materials at risk (in this case radionuclides expected to be present at the facility), weather and terrain conditions, and distances to workers and the public. The results of that modeling provide information that is used in the planning of facility design and the construction of safety structures, systems, and components (for example, shielding and fire suppression systems) so that the potential for accident and consequence of the accident are minimized. (See Section 7.0, Hazards Analysis for further discussion on this topic). In addition, each operating facility at the Nevada Test Site (NTS) is required to prepare an Emergency Management Hazards Assessment (EMHA) that identifies hazards during an emergency as well as the response to envisioned emergencies. EMHAs also identify personnel at the facility that are responsible for taking action, notification and response procedures, evacuation routes, etc. There is an established Emergency Management network at the NTS that provides interface with the facility personnel in the event of an emergency for coordination of site-wide response, including YMP personnel. Simulated emergencies are required to be performed at all facilities on a regular basis to exercise the emergency response capability at the NTS. All these activities would contribute to make the risk posed to YMP workers from Rad/NucCTEC extremely low.

Response to comment L1-28. See response L1-20 above.

Response to comment L1-29. Currently there are no potential emission sources at the proposed complex that would require modification of the NTS Class II Air Quality Operating Permit. Surface disturbances associated with construction of the Rad/NucCTEC are regulated by a site-wide surface disturbance that is part of the NTS Class II Air Quality Operating Permit (see Section 8.4, Table 1) and as such requires the control of fugitive dust.

Response to comment L1-30. See response L1-20 above.

Response to comment L1-31. See response L1-22 above.

Response to comment L1-32. Section 7.0, Accident Analysis has been re-titled "Hazards Analysis" and revised to describe the rigorous hazard identification and mitigation process that NNSA/NSO will use to ensure that adequate and appropriate engineering and administrative controls are incorporated into the design and operation of Rad/NucCTEC.

Response to comment L1-33. Section 8, "Regulatory Requirements" has been revised to incorporate additional requirements that may be applicable to the Rad/NucCTEC.

CITIZEN ALERT

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July 5, 2004

Mr. Dirk Schmidhofer
NEPA Document Manager
National Nuclear Security Administration
Nevada Site Office
PO Box 98518
Las Vegas, NV 89193

Re: *Citizen Alert Comments on DOE/NNSA's Pre-approval Draft Environmental Assessment for a Radiological/Nuclear Countermeasures Test & Evaluation Complex at the Nevada Test Site (DOE/EA-1499)*

Dear Mr. Schmidhofer:

Citizen Alert is extremely concerned about any further plans for the Nevada Test Site (NTS) until we get some response to the concerns we have sent to the Department of Energy as well as to our Governor.

In May of this year we released a report on NTS and the groundwater contamination caused by the years of testing. We believe the citizens in this state and neighboring states have been lied to by this government and we need more answers and some action before we sign off on any additional testing.

This fall we will be holding "town hall" meetings around the State and we will be sharing our findings about this groundwater contamination with our fellow citizens. I am sure they will have a lot to say about your proposal after they have read our report.

We are proposing that you extend your deadline until after November, 2004, so people who are affected get the information they need to make in informed response to yet another assault on our lands. L-2-1

We have grave concerns about the materials you intend to store and use in this "countermeasures test and evaluation complex" and what kind of security you intend to employ. The information we have received is sketchy, at best and we believe additional hearings are called for to answer our concerns. L-2-2

We look forward to hearing from you.

Sincerely,

Peggy Maze Johnson

Peggy Maze Johnson

Response to comment L2-1. The basis for the commenter's request for extending the deadline for comments on the EA until after November 2004 is based upon an assumption that the proposed project would adversely impact groundwater. Based on the analysis described in Section 4.1.5.2, NNSA/NSO has determined that the requested extension is unwarranted**.**

Response to comment L2-2. Section 2.1.3 has been revised to provide additional information on measures for securing special nuclear material and all other radioactive materials that would be used at the proposed facility. Although it is agreed that security of these materials is critical, specific details of safeguards and security plans are not subject to public review and comment. Therefore, the requested public hearings are not warranted

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Citizen Alert's *Additional Comments* (July 6, 2004)

on DOE/NNSA's Preapproval Draft EA for Using Biological Simulants and Releases of Chemicals at the Nevada Test Site

Citizen Alert questions the extent of consultation with Native American tribes and nations in developing this EA. For example, section 4.1.10 states "Based upon previous intensive pedestrian surveys by qualified archaeologists, no significant cultural resource sites exist in the area of potential effect for the proposed project." Who were these qualified archaeologists? Did the DOE/NNSA consult with the Western Shoshone and Southern Paiute regarding cultural sites? As the historical aboriginal residents of the land the DOE/NNSA should be required to acquire their approval, in our opinion, in order to move on this project. At the very least there should be consultation which we found no mention of in the EA. L-3-1

The need for this facility is not made clear in the Draft EA. Citizen Alert recognizes the implication of the Sept. 11, 2001 terrorist attack; however, the Draft EA does not delineate the extent of existing test and countermeasures facilities, which is required to provide a grounding basis for this facility. L-3-2

There are many Nevadans that would like to see portions of the Nevada Test Site reclaimed for other than restricted use. It is concerning that the DOE/NNSA may continue to adjoin to the "existing mission" of the Nevada Test Site as described in the *Final Environmental Impact statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* at the whim of the current political climate. If indeed the mission of the NTS is to be an evolving concept such that the land is to be effectively "in reserve" for future defense needs currently not defined then the DOE/NNSA should clarify this agenda. L-3-3

Section 6.0 of the Draft EA suggests possible mitigation of the loss of Desert Tortoise habitat. Citizen Alert challenges the effectiveness of this procedure as the Desert Tortoise is quite sensitive to changes in habitat. The EA sites no examples of where habitate restoration and tortoise relocation has been done successfully elsewhere. In fact, it is likely that evidence exists to the contrary from the attempts to locate a low-level radioactive waste dump in Ward Valley California, which fell under great criticism regarding impacts to the Desert Tortoise. Therefore, Citizen Alert sees this section of the EA to be deficient. L-3-4

In closing, Citizen Alert further stress the need for public outreach on this proposal. During the entire period of comment gathering leading up to July 6, 2004 the DOE/NNSA has not conducted a single public meeting or scoping. While such a process is not required by law, the public has a right to be well informed as to how their land is too be used and there should be the opportunity for active public discourse regarding such government activities. Certainly given the history of poor disclosure of defense/DOE related activities in Nevada it certainly behooves the DOE/NNSA to be more mindful of important and needed public engagement. L-3-5

Prepared by John Hadder, Northern Nevada Coordinator

Response to comment L3-1. NNSA/NSO contracts with the Desert Research Institute (DRI) for cultural resources support. DRI is funded to maintain a cadre of qualified professional archaeologists who exceed the Secretary of the Interior Standards and Guidelines for Archaeology and Historic Preservation, 30 CFR Part 61. The surveys of this area were conducted by DRI archaeologists. As stated in the EA, there are no significant cultural sites in the area of potential effect for the proposed project.

Consultation with the tribes was accomplished through the draft EA process. Copies of the draft EA were distributed to 17 tribal chairpersons and 23 tribal representatives. No comments or questions were received from the tribes.

Response to comment L3-2. Although there are other facilities in the country that are performing detector test and evaluation activities, none of these facilities are categorized as a Nuclear Hazard Category II facility. This limits the types of material that can be used in those facilities. In addition, a key purpose for constructing the Rad/NucCTEC at the proposed location is the proximity of the Device Assembly Facility, which will house the SNM materials to be used at the facility.

Response to comment L3-3. The NTS EIS addressed a wide range of ongoing, planned, and potential activities at the NTS. The Record of Decision for the NTS EIS stated, in part, "The DOE Nevada Operations Office [National Nuclear Security Administration Nevada Site Office] Work for Others Program will continue to be an important aspect of Nevada Test Site related activities. These ongoing activities primarily involve the Department of Defense, the Defense Special Weapons Agency [Defense Threat Reduction Agency], and other federal agencies. The primary focus of these activities is centered around treaty verification, nonproliferation, counterproliferation, demilitarization, and defense related research and development." The proposed Rad/NucCTEC falls within the kinds of activities contemplated in the NTS EIS and ROD.

Response to comment L3-4. In the US Fish and Wildlife Service (FWS) Biological Opinion for the Nevada Test Site (1996), the FWS states that a viable mitigation measure for loss of tortoise habitat is revegetation of disturbed areas. This mitigation measure is common in many Biological Opinions that the FWS issues to various agencies and companies that disturb land in tortoise habitat. Since it is the responsibility of the FWS to protect desert tortoises, DOE will comply with their Biological Opinion on appropriate mitigation measures. Desert tortoise relocation is a common practice in Nevada with many of the individuals that have been removed in the Las Vegas Valley being relocated to the area south of Jean where they are being monitored by FWS and/or BLM personnel. There are numerous examples of successful habitat reclamation in the Mojave Desert. The commenter is referred to the work done by the Desert Manager's Group under the working group - Desert Lands Restoration. This working group is an interagency effort that includes private and university professionals involved in land restoration. They have published various articles and reclamation manuals on desert land reclamation (Bainbridge et al 1998). The DOE has also funded research on habitat reclamation on and near the NTS and has demonstrated that habitat reclamation is feasible (CRWMS 1999).

Bainbridge, D., R MacAller, M. Fidelibus, A.Newton, A.C. Williams, L. Lippitt, and R. Fransen. 1998. A Beginner's Guide to Desert Restoration. Second Edition. Department of Interior, National Park Service, Lake Mead National Recreation Area.

Civilian Radioactive Waste Management System. 1999. Reclamation Feasibility Studies at Yucca Mountain, Nevada: 1992-1995. B00000000-01717-5700-00003. U.S. Department of Energy. Washington, D.C.

Response to comment L3-5. A new section, 1.3 Public Involvement and Scoping, has been added to this EA.

CITIZENS EDUCATION PROJECT

June 19, 2004

Dirk Schmidhofer
NEPA Document Manager
National Nuclear Security Administration
Nevada Site Office
P.O. Box 98518
Las Vegas, NV 89193

Dear Mr. Schmidhofer:

The Citizens Education Project (CEP), a Salt Lake City-based nonprofit organization, submits the following comments on the Preapproval Draft Environmental Assessment for Radiological/Nuclear Countermeasures Test and Evaluation Complex, Nevada Test Site (DOE/EA-1499).

First, we formally request that the DOE/NNSA conduct a public hearing on this EA in St. George, Utah to inform the public about this proposal and accept verbal comments, prior to the close of the comment period. If necessary, the comment period should be extended to accommodate this hearing and allow for time for citizens to submit written comments for 10 days following the hearing. Given Utah's disastrous experience with exposures to fallout from NTS nuclear tests, there will be considerable concern in "downwind communities" about the nature and potential impacts of this project. DOE/NNSA should do the responsible thing and address those concerns directly and in person. L-4-1

Second, our conclusion after reviewing the EA is that it fails to adequately address and explain the potential impacts and the mitigation measures to be taken to minimize those impacts, as detailed below. For these reasons, the EA should not be approved and a full Environmental Impact Statement and process should be prepared and conducted. L-4-2

Citing the NTS EIS (DOE,1996), the EA states that "impacts to off-site populations from activities on the NTS were identified. While low-income and minority populations do exist, it was found that **no populations existed that were subject to disproportionately high adverse effects**." [3.13, emphasis added] We strongly disagree and object. Adverse effects to many thousands, if not millions of Americans due to nuclear testing at the NTS are well-known and documented. To dismiss this reality is offensive. L-4-3 L-4-4

The EA states that the Rad/Nuc CTEC would have no environmental justice impacts (4.1.13), and states in several other sections that there would be no off-site impacts to human health. We would might accept this claim if there were thorough analysis and sufficient assurances elsewhere in the EA that nothing will go wrong, that there will be no accidents, sabotage, terrorism, or other incidents during transportation or operation of the complex that would result in loss of radiological sources or dispersion of their contents.

However, the EA states that the nuclear implementation plan has not been developed yet. The administrative and engineering controls that will be implemented are not explained. We would point out that SNM and other radiological sources are lost and/or unaccounted for nationally in alarming numbers with disturbing frequency. Without a plan in place, and with controls only vaguely referred to, assurances by the DOE/NNSA that sources to be used in this project will be safe and secure are less than reassuring. A full EIS should delineate sufficiently the nuclear implementation plan and the administrative and engineering controls so that the public can evaluate this aspect of the Rad/Nuc CTEC. L-4-5

The use of accelerator produced radiation fields and a neutron beam (p.6) are inadequately explained and the measures to protect personnel from potentially unsafe radiation doses is not sufficiently addressed in the EA. L-4-6

The EA evaluated no alternative sites other than different locations on the NTS. This is not adequate. Sites at other DOE, DOD, or federal facilities/installations should have been studied as alternatives. This is particularly important and necessary since the EA does not address whether the proposed action is consistent with the reason for the original land withdrawal for NTS – nuclear weapons testing. A full EIS should examine non-NTS alternative sites. L-4-7

The EA should have, but does not address the potential health effects upon personnel during construction and operation of the Rad/NucCTEC from the re-suspension due to ground disturbance of radioactive particles from fallout from nuclear weapons tests. L-4-8

Lastly, the EA cumulative effects analysis fails to account for anticipated "incremental impacts of the proposed action when added to other past, present and **reasonably foreseeable future actions**...taking place over a period of time", as required by 40 CFR 1508.7. [emphasis added] The EA does not address, as requested by CEP and by the State of Nevada in comments submitted in response the NOI, cumulative impacts and potential mission incompatibilities with the (EA for) Using Biological Simulants and Releases of Chemicals at the NTS, on-going low-level radiological waste (including possible disposal of Fernald wastes), mixed LLW and hazardous waste and transuranic waste activities at NTS, possible high level radioactive waste disposal at Yucca Mountain, and most importantly, the potential resumption of nuclear weapons testing at NTS. Certainly, DOE/NNSA would not argue that these activities are not reasonably foreseeable, and we would assume that, due to the hazardous nature and potential of those activities, they would be deserving of analysis as actions that have "collectively significant" cumulative impacts. Failure to address these impacts are sufficient in and of themselves to make a FONSI for this EA inappropriate and unsupportable, and a full EIS necessary. L-4-9

Respectfully,

Steve Erickson, director
Citizens Education Project

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Response to comment L4-1. As described in Chapter 4.0 Environmental Effects, there would be no offsite impacts from Rad/NucCTEC operations. Based on this fact, NNSA/NSO determined that conducting the requested public meetings in "downwind" communities would not be warranted.

Response to comment L4-2. Based upon this EA and considering all of the comments received, NNSA/NSO will determine if a full environmental impact statement is necessary to adequately address the environmental impacts of the proposed Rad/NucCTEC or if a finding of no significant impact is supported.

Response to comment L4-3. The commenter's objection is referring to the testing of nuclear weapons at the NTS. There has not been a nuclear detonation at the NTS since September 1992. Although the proposed action would include the handling of Special Nuclear Materials, nuclear testing (i.e. detonation of nuclear weapons) would certainly not be conducted at Rad/NucCTEC and there would be no adverse impacts to any off-site populations.

Response to comment L4-4. Sections 2.1.2.3 and 2.1.3 of this EA describe operations and safeguards and security for Rad/NucCTEC.

Response to comment L4-5. Section 7.0 has been revised to describe the iterative process that is used to identify and mitigate against potential hazards that may be posed by a proposed nuclear facility, such as Rad/NucCTEC. Also, see response L1-10 above.

Response to comment L4-6. See response L1-5 above

Response to comment L4-7. See responses L1-11 and L1-12 above.

Response to comment L4-8. See response L1-20 above.

Response to comment L4-9. Section 5.1.1 has been revised to address activities that would be conducted at the NTS under *Environmental Assessment for Activities Using Biological simulants and Releases of Chemicals at the Nevada Test Site* (DOE/EA-1494) as well as other ongoing and proposed projects. Also, see response L1-27.

July 4, 2004

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Mr. Dirk Schmidhofer
NEPA Document Manager
National Nuclear Security Administration
Nevada Site Office
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Re: Comments on DOE/NNSA's Preapproval Draft Environmental Assessment (EA) for Radiological/Nuclear Countermeasures Test and Evaluation Complex at the Nevada Test Site (DOE/EA-1499)

Dear Mr. Schmidhofer:

Attached are my comments on the above-referenced draft EA.

Thank you for the opportunity to comment on this important matter.

Sincerely,

Vernon Brechin

Vernon Brechin

cc Robert Loux, NWPO
Steve Robinson, Governor's Office
Allen Biagi, NDEP
Terre Maize, NDEP
David Tomsovic, USEPA
Peggy Maze Johnson, Citizen Alert of Nevada

Vernon Brechin's comments on the U.S. National Nuclear Security Administration's Preapproval Draft Environmental Assessment for a Radiological/Nuclear Countermeasures Test and Evaluation Complex, Nevada Test Site (DOE/EA-1499)

General Comments

Little effort seems to have been made to notify the public concerning this proposed project which I will refer to as the TEC. Support of an open democratic system of government requires actions which go well beyond minimal requirements. Those who control our nation's nuclear arsenal need to clearly demonstrate the principles they stand for.

Upon issuance of the 1996 Nevada Test Site Environmental Impact Statement (NTS EIS) the U.S. EPA formally requested the NTS management to make a greater effort to notify key agencies and other interested parties of future NEPA actions. In response the DOE's NTS Record of Decision (ROD) contained the following statement. "The DOE will ensure that future tiered NEPA documents (including EAs) are circulated for review and comment to all affected and interested parties." (61 FR 65554, 3rd column, middle). Apparently, this EA process failed to meet, such standards. In such cases accountability, backed up with stringent penalties are in order.

Each NNSA contractor that may have been involved in the preparation of this EA process should be identified along with contact address and phone numbers. Included in an appendix should be statements that their involvement involves no conflict of interest. L-5-1

The following comments refer to the TEC, or to the proposed facility even if NNSA manages to rename it.

Specific Comments

Section 1.2 - Purpose and Need for Proposed Action

The final EA, or EIS, should provide an appendix which details the decision tree that led to this proposal and all the funding sources, including the Public Law L-5-2

line items that specify the funds for the initial studies and this EA process.

As proposed, this facility does not significantly add to the employment base of the Las Vegas region. The remote location necessitates lengthy commutes for experimenters, trainers and trainees once operations start. L-5-3

Section 2.0 - Proposed Action and Alternatives

2.1.1 - Facility Description: On page 2, index line 39 is mention of possible future expansion. Typically, such mention takes place after some resources have been expended on initial planning for such elements. The final EA should include a full analysis of all elements or venues that are mentioned in the draft EA such as the railroad components. At a minimum the full 100 acres should be assessed in the final EA and a detailed map should be provided along with a table that provides survey boundary coordinates based upon a precision GPS survey. Copies of the map, a statement of the planned use of this land and the geographic coordinate data should be sent to the local BLM and EPA offices at least one month before NNSA makes any key decisions on the proposed project. Unlike the draft EA, the final analysis should not pick and choose those components which can be quickly assessed. Consistency is needed throughout the EA. L-5-4

Active Interrogation Facility - If the tests involve special nuclear materials (SNM) in the form of fielded or stored nuclear weapons from the U.S. stockpile, then what will be the policy concerning announcing the presents of such weapons at the TEC? If such weapons will be present at the site will additional measures be taken to safeguard them? Will similar policies be applied to the use of weapons physics packages, or similar key weapons components, which could be transported to and from the DAF storage bunkers and the TEC? The relationship between Nuclear Material Safeguards Category I and II SNM to actual nuclear weapons or their physics package components should be described in a sidebar. L-5-5

In the case of the "Accelerator-produced radiation fields" what types of machine and personnel safety measures will they involve? Will there be multiple interlocked safety features? When "high activity neutron-emitting radionuclide" is used what materials will be used to confine the neutron beam to the intended target area? What will be the mass and configuration of the shielding L-5-6

materials? The final EA or EIS should address all these issues including analysis of radiation due to neutron induced sky-shine. Will there be preventive measures taken to prevent neutron exposure to wildlife, including plants. The final EA should address the neutron activation of all materials in the source and target areas. If sufficient activation occurs what will be the plans for decay storage or material disposal? L-5-6 (cont'd)

High-Speed Road - A map is needed showing where this road might overlap existing roads. The present state of this planned route should be fully described stating whether any of it is presently cleared, graded and paved for use as planned. All areas of presently undisturbed habitat that would be disturbed by the proposed and conceptual expansions should be noted along with the total acreage. L-5-7

High-Speed Road - Realistic testing may require that the target or suspect nuclear materials not be confined within safe containers. Potential smugglers should not be expected to try and meet all U.S. shipping safety requirements, including housing their devices in crash tested shipping casks. If the test objects are housed in flimsy containers in truck trailers or railroad cars and there is a high-speed accident then there is strong possibility of the uncontrolled release of radioactive materials into the environment. The final EA or EIS should address this issue for all the facilities proposed and it should fully access all, potential worst-case accidents. L-5-8

2.1.2 - Construction and Operations / 2.1.2.3 - Nuclear Operations: The relationship between Nuclear Material Safeguards Category I and II SNM to actual nuclear weapons, or their physics package components, should be described in a final EA, or EIS, sidebar. The TEC draft EA states that up to 50 kg of highly enriched uranium and other SNM components in various shapes and sizes up to several kg each could be used at the proposed facility. This description suggests that actual nuclear weapons or key components of their physics packages could be utilized for the test and training operations at the TEC. As a result, NNSA should upgrade the environmental analysis to a NEPA driven Environmental Impact Statement (EIS). L-5-9 L-5-10

On page 9 of the EA, line 4, it states "(T)he radioactive source materials would not be processed, altered or modified in any way." This may be false. The source material could be U-235, U-233, or Pu-239 which upon L-5-11

exposure to the high-flux neutron source will fission releasing radiation that detectors sense. The fission of some of the atoms in this target turns it into a source which is a product of the deliberate alteration of some of its component atoms. Another statement is needed concerning the deliberate alteration of target materials, by neutrons, to detect the target materials. The final EA, or EIS, should explain whether radiation shielding and transport containment structures will be removed from the source/target materials so as to present a more realistic example of an improvised, smuggled nuclear device. Finally, since the high-flux neutrons will result in neutron activation of many materials (including the air) in the general area of the target package, these materials will be altered, requiring monitoring and proper handling of these materials. For example, some of the iron in the truck, or the railroad car, will be converted into radioactive iron isotopes.

L-5-11 (cont'd)

L-5-12

L-5-13

If the proposed TEC results in usable materials becoming radioactive then those materials may require special disposal which can be quite costly.

On line 30 of page 9 of the draft EA it states that the expected lifetime of the proposed facility is 20 years. That suggests that NNSA expects it to take two decades to develop the technology and train the personnel. Much of this technology may not be practical to implement at scores of port facilities throughout this country.

The termination of the mission of the TEC is also addressed in this paragraph. As I mention a few paragraphs below, DOE has an atrocious record for recovering the value of its original property investments. In fact, the public is presently stuck with an over $100 billion bill for DOE facility cleanup efforts.

2.1.3 - Safeguards and Security: The development of a "Rad/NucCTEC nuclear implementation plan" should not serve as an excuse to preclude a full-blown NEPA derived EIS process. NEPA does not provide for such exemptions.

L-5-14

2.2 - Alternative Actions: The final EA should name the contractor that did the "rigorous site evaluation process," should list the report involved and should cite the pages devoted to each site. In addition, rather than briefly noting the sites that were rejected, the final EA should

L-5-15

devote more space to describing why the seven alternative sites were rejected.

The draft EA failed to address the potential use of alternative sites or facilities that lie beyond the NTS boundary. The proposal involves construction of a large mock land border crossing facility (Port of Entry--Primary), a large truck inspection facility (Port of Entry--Secondary), portions of an international airport including a mock wide-body aircraft fuselage section (Airport Inspection Facility), a large remote cargo handling area (Active Interrogation Facility), a large environmental testing lab (Environmental Test Facility), a 400 foot remote controlled operations area (Sensor Test Track), and a greater than two-mile long - 2-lane paved highway section (High-Speed Road). Future expansion may include a short length of full-scale railroad line adjacent to the High-Speed Road and other facilities. Also envisioned is a mock seaport facility including shipping containers, a gantry crane, and a mock cargo ship. Even a mock urban area has been envisioned by the NNSA/NTS site development planners. This proposal goes well beyond the early atmospheric testing days when a small mock Japanese village was built on site to test the effects of atomic explosions. L-5-16

The proposed facility's construction and operating costs, could exceed $100 million. Alternatives should be considered such as the temporary use of existing port facilities. This would likely result in more realistic test conditions that could be readily implemented at a wide variety of existing port facilities. The present proposal paints a picture of a series of highly specialized, very expensive facilities which may not be practical to implement at scores of port facilities throughout this nation. L-5-17

During the past decade the DOE has spent over a billion dollars on many super-computer centers designed to computer-model a wide variety of situations including nuclear explosion processes. The final EA or EIS should consider the alternative of using these existing computer centers to model many of the aspects of the proposed TEC. L-5-18

The proposed mock port facilities are to be located in a remote desert area, approximately 60 miles from a major population area. Once the testing is terminated, due to deployment of the technology or due to termination of public funding, all the facilities will have no value as L-5-19

port facilities. Consideration should be given to DOE's extensive track record for getting very little monetary return for surplus facilities. A good example involves the terminated Superconducting Super Collider (SSC) project near Waxahachie, Texas. The Nevada Site Office has spent at least a decade trying to sell the NTS for commercial enterprises. The path is littered with failures which includes several plans for solar energy plants, wind turbine farms and space ports. The proposed TEC is situated near the Device Assembly Facility (DAF) which is an extremely costly facility that's been in search of a mission for well over a decade. The proposed TEC could help justify the up-keep of this property.

L-5-19 (cont'd)

CEQ regulation Section 1500.2(e) - Policy, only mentions the human environment. The policy was established before there was an awareness of things like global climate change. The past narrow focus on the human environment is rapidly destroying the natural environment for all creatures. It would make better sense to consider the natural environment, first and foremost.

L-5-20

Section 3.0 - Affected Environment

3.1 - Land Use: The NTS consist of public lands which were withdrawn from most public uses for the sole purpose of atomic weapons testing. At the conclusion of the testing, which occurred almost 12 years ago, the land was supposed to be returned to the public domain. The failure to do so is a mark of lack of accountability driven by zero enforcement and no serious penalties. The draft EA failed to mention this issue. The State of Nevada has requested efforts to resolve the use issue and the NSO stated it would make an effort, beginning almost a decade ago. Evidence of this effort claim exist in the NTS ROD which contains the statement "DOE commits to continuing its informal consultation with BLM as to whether the four major land withdrawals that comprise the NTS need to be updated." (61 FR 65557, 3rd column, middle). The term 'informal' often is a reference to no evidence represented by a failure to generate a paper trail. The implementation of severe penalties for inaction might be in order to get managers, who claim to be public servants, to initiate some real action.

L-5-21

After the final EIS was issued in 1996 a Record of Decision (ROD) was published in the Friday, December 13, 1996 edition of the Federal Register (61 FR 65551). In response

L-5-22

to comments from the U.S. EPA, the DOE stated that "when possible; new facilities will be sited in, or as close as possible to, previously disturbed lands in order to preserve and protect undisturbed land." (61 FR 65554, 3rd column, middle) It appears this provision was largely ignored for this proposed TEC facility since the EA states "(t)he proposed location is in undisturbed habitat." A serious lack of accountability may explain this disregard for the EPA's recommendations. It also appears to constitute a blatant violation the NNSA's Nevada Site Office NTS Resource Management Plan (RMP) goals. The ROD and follow-up RMP are not listed in the draft EA reference section. The selective omissions, of such important background documents, should be rectified in the final EA, or EIS.

L-5-22 (cont'd)

L-5-23

3.3.1 - Groundwater: The final TEC EA should provide more than bland pabulum for this section. The draft EA serves as a fine example of how government officials can employ omission to justify an existing agenda.

The NTS hosted 824 underground nuclear explosion tests. Of those about a third were conducted below the local water table or just above it. The result is that large amounts spent nuclear fuel like debris is buried near the blast centers. Recent estimates lists the level of buried radioactive debris at 132,100,000 Curies. There are no plans to remove this debris due to numerous impracticalities. The proposed TEC lies down-gradient of the major Yucca Flat testing area and near the Frenchman Flat testing area. The final EA, or EIS should list the following two DOE reports in the reference section.

"Focused Evaluation of Selected Remedial Alternatives for the Underground Test Area" (DOE/NV--465), April 1997, Environmental Restoration Division, Nevada Operations Office, U.S. Department of Energy, North Las Vegas, Nevada, 89030-4134.
http://www.osti.gov/servlets/purl/469154-I18yqP/webviewable/469154.pdf
See Table 8-1 on paper page 8-3 (PDF page 137 of 153).

L-5-24

"Nevada Test Site Radionuclide Inventory, 1951--1992" (LA-13859-MS), September 2001, Los Alamos National Laboratory, Los Alamos, New Mexico 87545.
http://www.nv.doe.gov/news&pubs/publications/envm/pdfs/LA13859MS.pdf
See Table V on paper page 21 (PDF Page 22 of 29).

Mention should also be made to the primary mission of the NTS - to remain ready to resume experiments with full-scale underground nuclear explosion testing. This is not unlikely given the fact of a strong political force, exist in this country to restart the test program. This is all part of the affected environment of the proposed TEC. L-5-25

Section 4.0 - Environmental Effects

4.1.1.2 - Infrastructure / Power and Communications: The estimated operational power consumption, of the expanded TEC, is given as 1,000,000 kilowatt hours/year. This indicates that expansion planning has already taken place. The final EA, or EIS, should assess the entire expanded facility concept. Converting the above figure indicates that the operational facility would consume energy at an average rate of 114 kilowatt hours. Considering the effort DOE makes in telling our children that it strongly supports use of alternative energy sources, DOE should make an example by powering this facility with a solar electric, or a wind turbine farm. The 1996 NTS ROD mentions that such farms were planned for the NTS, but after the ROD was issued they were canceled. DOE also reminds the public about the importance of conserving energy. A good example of that would involve canceling the proposed TEC and turning much of the task over to its numerous super computer centers which already consume many megawatt hours of electricity. L-5-26

The final EA, or EIS, should include figures for the estimated quantities of fuel needed for construction and annual operation of the completed facilities, including the expanded version. It should also provide an estimate of the fuel that would be consumed by the commute transport busses as well as by workers and trainees that might chose to commute in company and private vehicles. With DOEs claimed concern about global climate change and carbon dioxide emissions the impact of these 140 miles commutes are important. L-5-27

4.1.7 - Air Quality: This section should be broken into at least two sections, 4.1.7.1 for particulates and 4.1.7.2 for radioactive emissions. Reference to the use of a approved EPA-approved computer modeling tool, CAP-88, is insufficient. In order for the public and various agencies to evaluate NNSA's assessment, they need key pieces of data such as what data was feed into the computer model and what L-5-28

was the output. If all the sources to be used are sealed sources then what type of emissions were fed into the computer model? Another factor is what was the target population set to? Was it a member of the public, outside the NTS boundary, at a distance of six miles? A more scientifically ethical approach would be to implement a rigorous TEC monitoring program that would be under the full control of Nevada State agencies, not NNSA's traditional contractors.

L-5-28 (cont'd)

Section 5.0 - Cumulative Effects

The final EA, or EIS. for the TEC should clearly state the cumulative impacts already rendered to the loaned public lands known as the Nevada Test Site (NTS). A DOE NTS remediation study estimated that partial remediation of the underground test areas could cost up to $7.29 trillion. Due to various impracticalities the high cost options were rejected in favor of a monitoring program costing about 800 times less. If the $7.29 trillion represents the level of environmental damage rendered to this land then it could be said that huge liabilities are being passed on to future generations. With such massive liabilities in place one must ask, why are more costly NTS projects about to built there? One answer is that the liabilities have been successfully swept under the rug and people's memories tends to be short.

L-5-29

Section 6.0 - Mitigation Measures

The final EA should contain a detailed plan for ongoing monitoring of radiation and radiological emissions/exposures at the proposed TEC. In addition, all operating power should be derived from a solar electric plant constructed at the NTS. The offer to pay money for loss of animal habitat demonstrates the level of understanding NNSA has for the planet's biosphere.

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L-5-31

Section 7.0 - Accident Analysis

The draft EA contained only vague references to an accident analysis process without any details concerning what was studied or the basis behind the NNSA conclusion that little probability existed of a serious accident. The reference section contained nothing that appeared to be an accident analysis for this proposed project. This demonstrates contempt for the NEPA law. The final EA, or EIS, should provide a full set of details concerning what was analyzed,

L-5-32

who performed the analysis, and whether the analysis was reviewed by an institution which has no interest in NNSA's projects. The report should include a full set of conclusions, including the data figures that led to the conclusions. The NNSA contractors who design, construct and operate the facility, should be required to sign a statement indicating that they will take full responsibility for all accidents that occur at the facility including making payments for personnel and property impacted by such accidents. This should include all cleanup and disposal costs. The agreement should insure that the contractor does not charge the NNSA for its expenses or that it later be reimbursed for these costs. If an accident is judged to be the responsibility of the NNSA then the costs should not be borne by present or future tax payers but, instead, be handled by cuts in other NNSA programs.

L-5-32 (cont'd)

L-5-33

What assurances, will the public have, that measures will be taken to prevent target sources from being removed from regulated safety containment structures so as to present a more realistic example of the sort of improvised device a smuggler would use? If test target analysis is to be done realistically then those targets will not be enclosed in their regulatory shipping containers. In such cases, accident analysis which are based on properly packaged materials, are moot. In such cases, a new, extensive, accident analysis will need to be conducted.

L-5-34

Section 8.0 - Regulatory Requirements

The single sentence reads "(T)his section briefly describes some of the major federal and state laws and regulations, executive orders, and DOE Orders that may apply to the proposed action and alternative." Its followed by no description, only a list of reference documents, some of which may have little to do with the proposed TEC. Since it list only "some" of the documents, the draft EA reader has to assume that many holes remain. This is an insult to reviewers. The omission of key DOE/NV driver documents such as the FAACO and the Agreement in Principle demonstrates contempt for a federal court mediated settlement agreement.

L-5-35

Conclusion

The No Action Alternative of Section 2.2.1 should be chosen and this expensive EA process ended. Most of the planned

L-5-36

activities can be conducted through brief requisitions of existing port facilities and through the use of computer modeling utilizing a half-dozen super computer centers located throughout this nation.

L-5-36 (cont.)

Response to comment L5-1. NNSA/NSO is responsible for the content and accuracy of this EA.

Response to comment L5-2. Section 1.2 of this EA addresses the purpose and need for the proposed project. The proposed project is funded by the U.S. Department of Homeland Security.

Response to comment L5-3. Comment noted.

Response to comment L5-4. The analysis for this EA addressed impacts to the full 100 acres that represent the full development of the Rad/NucCTEC, including potential venues. The figures provided in the EA are adequate for purposes of describing the location of the proposed project. A precise map of venue locations within the project area would not enhance the impact analysis; There is no requirement to send the suggested detailed information to EPA. NNSA/NSO completed the analysis necessary to determine if an application for approval of construction or modification would be required by EPA under 40 CFR 61.07 and 40 CFR 61.96. Following EPA guidelines in Appendix D to Part 61, "Methods for Estimating Radionuclide Emissions," an EPA CAP-88 model evaluation of the proposed facility was conducted and determined to be below 0.1 mrem/yr, the limit above which an application to the EPA would be necessary. No emissions are anticipated from the proposed facility under normal operations. Copies of the preapproval draft EA were provided to three offices of the Bureau of Land Management, including the State Director. The same offices will also receive a copy of the final EA and NNSA/NSO's determination that either an EIS is necessary or that a finding of no significant impact is supported.

Response to comment L5-5. NNSA does not make public announcement of the presence or movement of special nuclear materials or nuclear weapons in order to ensure absolute safeguarding of such materials. Pursuant to DOE Order 470.1, *Safeguards and Security Program*, NNSA/NSO will perform a security (vulnerability) assessment for the Rad/NucCTEC and all operations connected to it and implement adequate security measures to protect any type of material at the facility. The results of that security assessment are classified. DOE Order 470.1, establishes general program requirements and there are series of orders, policies, and guides tiered from that order. Safeguards and Security program elements include: Program Management, DOE Order 470 series; Personnel Security, DOE Order 472 series; Protection Operations, DOE Order 5632 and DOE Order 473 series; Materials Control and Accountability, DOE Order 5633 and DOE Order 474 series; and Information Security, DOE Order 5639 and DOE Order 471 series.

Response to comment L5-6. Machine and personnel safety measures fall into two main categories: engineered components and administrative controls. Engineered barriers at the Active Interrogation Facility would include the building itself and a fence that would be extended out in the direction of potential beam dispersion at a sufficient distance calculated by staff health physicists to preclude personnel outside the fence from getting a significant exposure. Other engineered components would include safety interlocks on doors and equipment panels that preclude the energizing of generation devices while workers are inside the area of concern. Large movable concrete barriers would be placed in critical locations for shielding, the mass and configuration of which would depend on the experiments being performed. Administrative controls would include a comprehensive training program for workers; access control at both the entrance to the Rad/NucCTEC complex (the whole facility is fenced) as well as at the Active Interrogation Facility itself. During the conduct of experiments, a detailed step-by-step checklist procedure would be used that includes verification and functionality of engineered controls prior to energizing any sources. Operations would be conducted remotely during experimentation with higher flux sources.

Typically, the high energy beams used at the facility would shine upwards. Because a small percentage of the incident beam can be diffracted and reflected in many directions by the atmosphere (a phenomenon termed "sky-shine"), modeling was performed to calculate the significance of this phenomenon to workers and the environment. Conclusions indicated that there were no occupational or wildlife issues associated with this effect. However, because detection systems used in the other venues are so sensitive, the Active Interrogation Facility would be located some distance away from other venues in the Rad/NucCTEC to minimize any interference.

Any time a material is exposed to neutron flux, a very small quantity of nuclei in the atoms of the material will absorb, or "capture" a neutron, converting that atom to a radioactive isotope. The term for this phenomenon is called neutron activation. This phenomenon is significant in regions of extremely high neutron flux with lengthy exposure durations, such as inside a nuclear reactor. In that environment, components of the reactor become highly activated, and therefore the components themselves become highly radioactive. In the activities identified to be performed at the Active Interrogation Facility, it is true that some atoms of collateral materials exposed to the beams would be activated (i.e., crates, cargo containers, truck trailers). However, insufficient neutron flux and exposure duration would occur to activate these materials to any level of concern.

Response to comment L5-7. As indicated in section 2.1.2.1 of this EA, the entire proposed project area is undisturbed. The High Speed Road will not intersect or overlap any existing roads.

Response to comment L5-8. To minimize the risk should an accident occur, all SNM would remain in its shipping container when in use on the High-Speed Road. Section 2.1.1 has been revised to clarify this point.

Response to comment L5-9. Inclusion of the requested information in a sidebar in the EA would not enhance the analysis of environmental impacts of the proposed action.

Response to comment L5-10. If this EA analysis indicates the necessity of doing so, NNSA will prepare an EIS.

Response to comment L5-11. The term used in the EA, "processed, altered or modified" is used in a macroscopic sense to describe to the public that the materials would not be dismantled, used in chemical reactions, or removed from their cladding. Although materials at the Active Interrogation Facility would be subjected to neutron and high energy photon beams, the quantity of activation products would be so slight that those levels would be well below free release limits. See response L5-6.

Response to comment L5-12. While radiological materials are in use at the Rad/NucCTEC, the materials will be used in several configurations depending on the types of testing being performed. Sometimes the material will be removed from shipping containers so that they can be placed in real-life configurations that would emulate the illicit transport of such materials. However, in no case would SNM be removed from its shipping container when used on the High-Speed Road venue.

Response to comment L5-13. See response L5-11.

Response to comment L5-14. Pursuant to NEPA, an environmental impact statement is prepared by the federal agency proposing an action that may significantly impact the human environment. Under Council on Environmental Quality *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR 1500-1508), an environmental assessment is used to determine whether to prepare an

environmental impact statement. NNSA/NSO will, based on the analysis in this EA and comments received, determine if an EIS is required for the proposed Rad/NucCTEC project. Also see response L1-10.

Response to comment L5-15. Based upon a site selection process and extensive coordination with NTS stakeholders, it was determined that the proposed project location would best meet mission requirements. The proposed location reduces security risks; takes advantage of existing NTS infrastructure, including proximity to the Device Assembly Facility; and represents a final consensus of optimization of all the parameters that were the basis of the evaluation. Section 2.2.2 has been revised to more fully describe the site selection process.

Response to comment L5-16. See response L3-2 above.

Response to comment L5-17. The use of existing operating facilities, which the Rad/NucCTEC venues would simulate, is not feasible. It would not be possible or would be very difficult to achieve the controlled conditions required for much of the testing and evaluation that would occur at Rad/NucCTEC. Attempting to conduct testing and evaluation at existing operating facilities would cause disruptions to those operations, expose non-involved workers, and potentially the public to exposure to radioactivity, and present unacceptable security risks. In addition, it would not be feasible to conduct tests and evaluations using SNM at existing operating facilities. Providing security for such activities would be inordinately difficult and expensive. The facilities that comprise the venues at Rad/NucCTEC would be designed to accurately emulate "real world" facilities. For example, designs of the Port of Entry—Primary and Port of Entry—Secondary venues would be based on GSA standard designs. The High Speed Road venue would be constructed to existing highway design standards of the State of Nevada.

Response to comment L5-18. The use of computer models would not meet the purpose and need for the proposed project.

Response to comment L5-19. The NTS is not a commercial venture and its value is not measured in terms of monetary return. The Device Assembly Facility is a multi-mission facility used for a variety of critical missions. For example, sub-critical experiment packages and target assemblies for the Joint Actinide Shock Physics Experimental Research facility are assembled at DAF. A number of critical assemblies for use in conducting tests and experiments involving nuclear criticality and the mission work they support are being moved to a portion of the DAF. Although DAF would provide substantial support for Rad/NucCTEC, it is not dependent on that work.

Response to comment L5-20. The human environment includes all aspects of the natural environment. This EA addresses all potentially affected aspects of the natural environment.

Response to comment L5-21. Although the last underground nuclear weapon test occurred in September 1992, a preeminent mission of NNSA/NSO is to maintain readiness to conduct a nuclear test if so directed by the President of the United States. The NTS lands continue to be needed for the purposes for which they were withdrawn. Also see response L1-12.

Response to comment L5-22. As noted in the NTS EIS ROD, the U.S. Environmental Protection Agency "recommended that future developments be sited in already-disturbed areas unless other overriding factors require placing such facilities in undisturbed areas." Based upon the siting evaluation described in section 2.2.2 of this EA, the decision to site the proposed Rad/NucCTEC in a previously undisturbed area was based upon "overriding

factors."

Response to comment L5-23. The ROD and RMP have been added to the list of references in the EA.

Response to comment L5-24. Based on the analysis in this EA, the proposed project would not adversely impact groundwater resources. Therefore, the two listed documents are not relevant to evaluating the potential environmental impacts of the proposed Rad/NucCTEC.

Response to comment L5-25. The Rad/NucCTEC would not pose a conflict with NNSA/NSO's primary mission of maintaining readiness to conduct underground nuclear testing nor would it conflict with conducting a test, should that become necessary.

Response to comment L5-26. Neither solar nor wind generated electric power sources are available at the NTS. DOE did decide to cooperate in the construction and operation of up to 100 megawatts of solar powered electrical generation in Area 22 of the NTS; however, the project proponent, Corporation for Solar Technology and Renewable Resources, found that such a project would be economically unfeasible and abandoned the project. In addition, NNSA/NSO supported the concept of a wind-powered electrical generation facility that would have been constructed and operated at the NTS by a private corporation. Consideration of that project was terminated due to potential adverse impacts to critical national security projects and training on the Nevada Test and Training Range.

Response to comment L5-27. Section 4.1.7 has been modified to include the estimated fuel use during construction of the Rad/NucCTEC. The vast majority of Rad/NucCTEC workers would travel to the facility on buses that currently transport workers from various locations in the Las Vegas Valley and Pahrump to the NTS and to facilities in forward areas, thus would not cause an increase in fuel use. The few workers that would choose to drive personal vehicles would not add an appreciable amount to fuel usage in southern Nevada.

Response to comment L5-28. Because there would be no radioactive emissions anticipated from the Rad/NucCTEC, there is no need to make the suggested change to the format of the EA. Section 4.1.7 indicates that the CAP-88 model was used in accordance with EPA guidelines in Appendix D to Part 61, "Methods for Estimating Radionuclide Emissions," to comply with the requirements of 40 CFR 61.07 and 40 CFR 61.96. The NTS presently operates an EPA-approved site compliance air monitoring network for radionuclides that would include the proposed facility.

Response to comment L5-29. Section 5.0 of this EA addresses cumulative effects of the proposed Rad/NucCTEC and other ongoing, proposed and reasonably anticipated actions.

Response to comment L5-30. See response L1-22.

Response to comment L5-31. The *Final Programmatic Biological Opinion for Nevada Test Site Activities* (Biological Opinion)(U.S. Fish and Wildlife Service, 1996), provides two methods to mitigate loss of desert tortoise habitat due to activities at the NTS. The first method is to reclaim previously disturbed areas within the range of the desert tortoise on the NTS. The second method is to pay a mitigation fee to compensate for the loss of tortoise habitat. NNSA/NSO's preferred method of mitigating for loss of desert tortoise habitat is to reclaim previously disturbed tortoise habitat on the NTS. Section 6.0 has been revised to clarify this point.

Response to comment L5-32. See response L1-32.

Response to comment L5-33. All issues concerning legal liability must be addressed in accordance with applicable Federal law, including statutory requirements, contractual terms, and indemnification authorities.

Response to comment L5-34. See responses L5-8_ and L5-12.

Response to comment L5-35. Section 8.0 of this EA has been revised.

Response to comment L5-36. Comment noted.

TRI-CITY INDUSTRIAL DEVELOPMENT COUNCIL

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July 6, 2004

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National Nuclear Security Administration
Nevada Test Site
P.O. Box 98518
Las Vegas, NV 89193

"PREAPPROVAL DRAFT ENVIRONMENTAL ASSESSMENT FOR RADIOLOGICAL/NUCLEAR COUNTERMEASURES TEST AND EVALUATION COMPLEX, NEVADA TEST SITE, (DOE/EA-1499)"

Dear Mr. Schmidhofer:

The Tri-City Industrial Development Council (TRIDEC) is a strong advocate for homeland security and recognizes the national need to protect radioactive and nuclear materials from use by terrorists. The Draft Environmental Assessment (EA) discusses some facilities and capabilities that are not currently available within the United States. TRIDEC does not oppose these facilities and capabilities.

However, TRIDEC is concerned that some of the proposed facilities and capabilities may duplicate those that exist at DOE's Volpentest Hazardous Materials Management and Emergency Response (HAMMER) Training and Education Center and the Pacific Northwest National Laboratory, both in Richland, Washington. It would not be a prudent use of public funds to duplicate existing facilities and capabilities.

TRIDEC requests that DOE specifically evaluate these existing facilities and capabilities as an alternative in the EA. Currently, the EA evaluates only the "no action alternative" and alternate sites at the Nevada Test Site. TRIDEC believes this is not in full compliance with the National Environmental Policy Act of 1969, as amended, and its implementing regulations.

Thank you for the opportunity to comment on this EA of national importance.

Sincerely,

Sam Volpentest

Copy to: Senator Patty Murray
Senator Maria Cantwell
Congressman Doc Hastings

TRIDEC COMMENT ON
PREAPPROVAL DRAFT ENVIRONMENTAL ASSESSMENT FOR
RADIOLOGICAL/NUCLEAR COUNTERMEASURES TEST AND EVALUATION
COMPLEX, NEVADA TEST SITE
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The National Environmental Policy Act of 1969, as amended, requires in section 102(2) that all agencies of the Federal Government shall: "(C) include in every recommendation or report on proposals for...other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on...alternatives to the proposed action" and "(E) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources".

L-6-1

This requirement is codified by the Council on Environmental Quality in Title 40 of the Code of Federal Regulations, section 1500.2 which requires that Federal agencies shall to the fullest extent possible: "(e) Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment" and "(f) Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment."

40 CFR 1508.9 requires that an Environmental Assessment: "(b) Shall include brief descriptions of...alternatives as required by section 102(2)(E)". DOE regulation 10 CFR 1021.321 requires that: "A DOE EA shall comply with the requirements found at 40 CFR 1508.9."

Therefore, it appears that evaluating existing facilities and capabilities, particularly those within the DOE complex, is a reasonable alternative to the proposed action and is required to be addressed in the EA.

Response to comment L6-1. The Department of Homeland Security requested NNSA/NSO to construct, operate, and maintain the proposed Rad/NucCTEC at the NTS. Therefore, non-NTS locations are not considered reasonable alternatives.

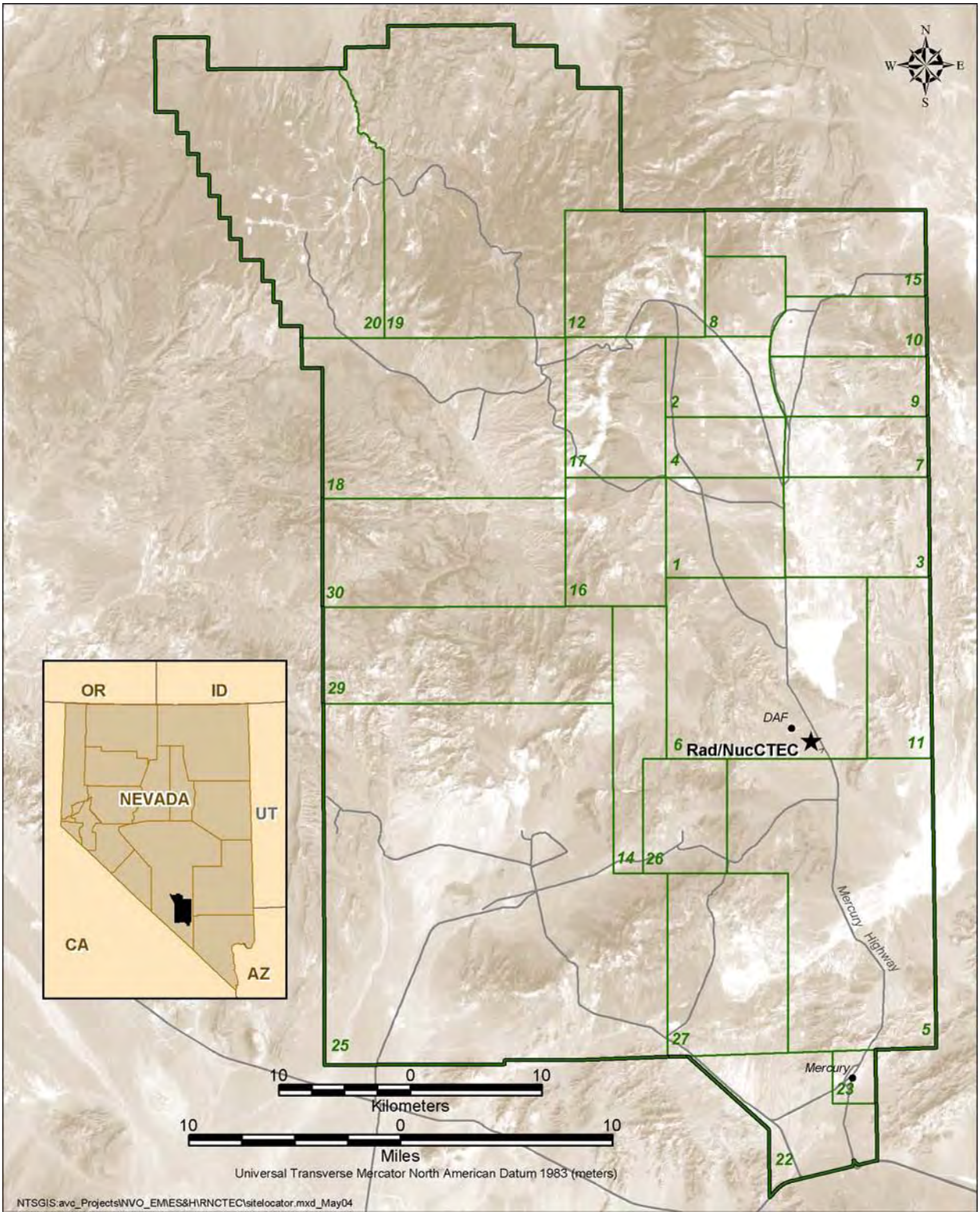

Figure 1 Map of NTS

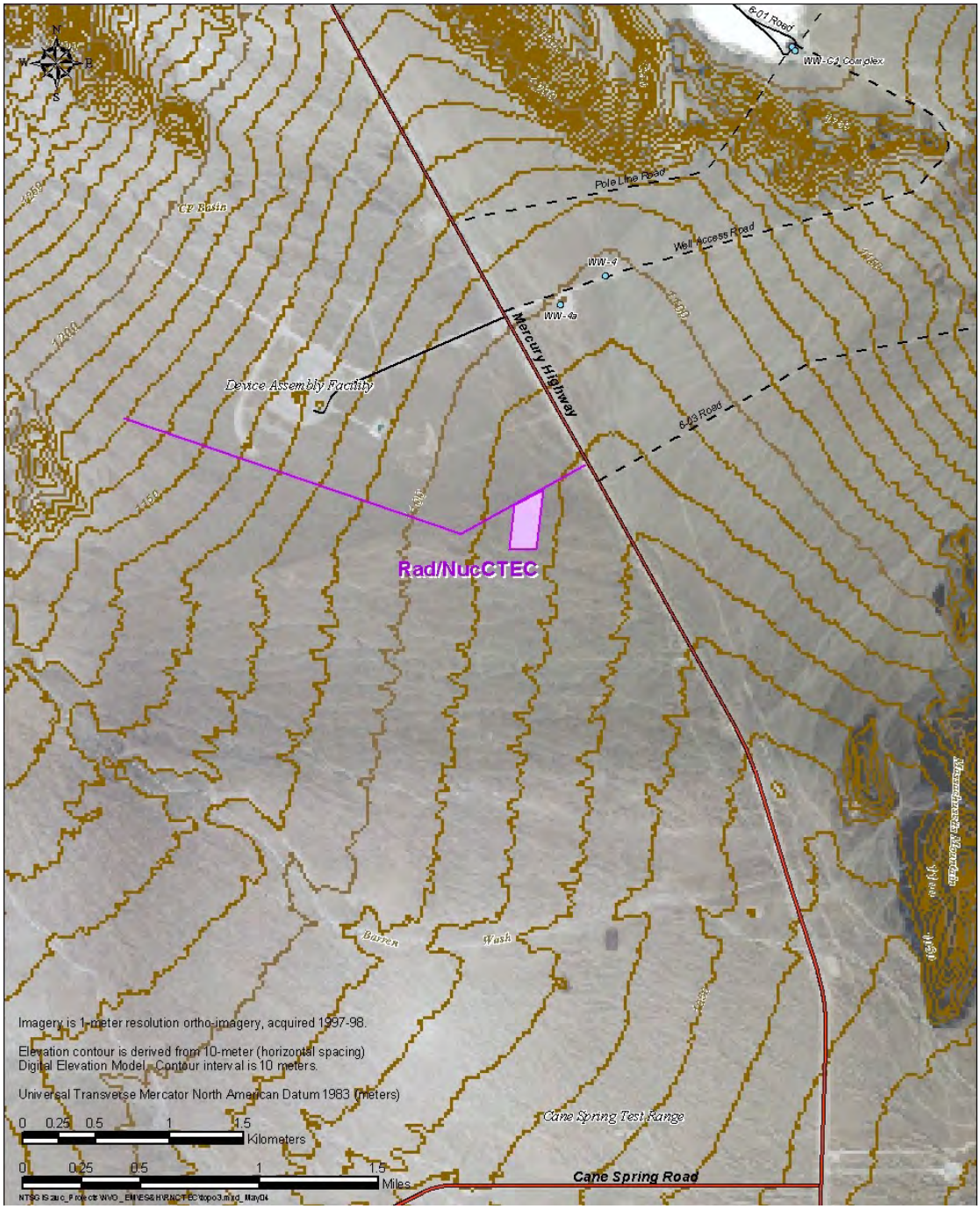

Figure 2 Vicinity Map

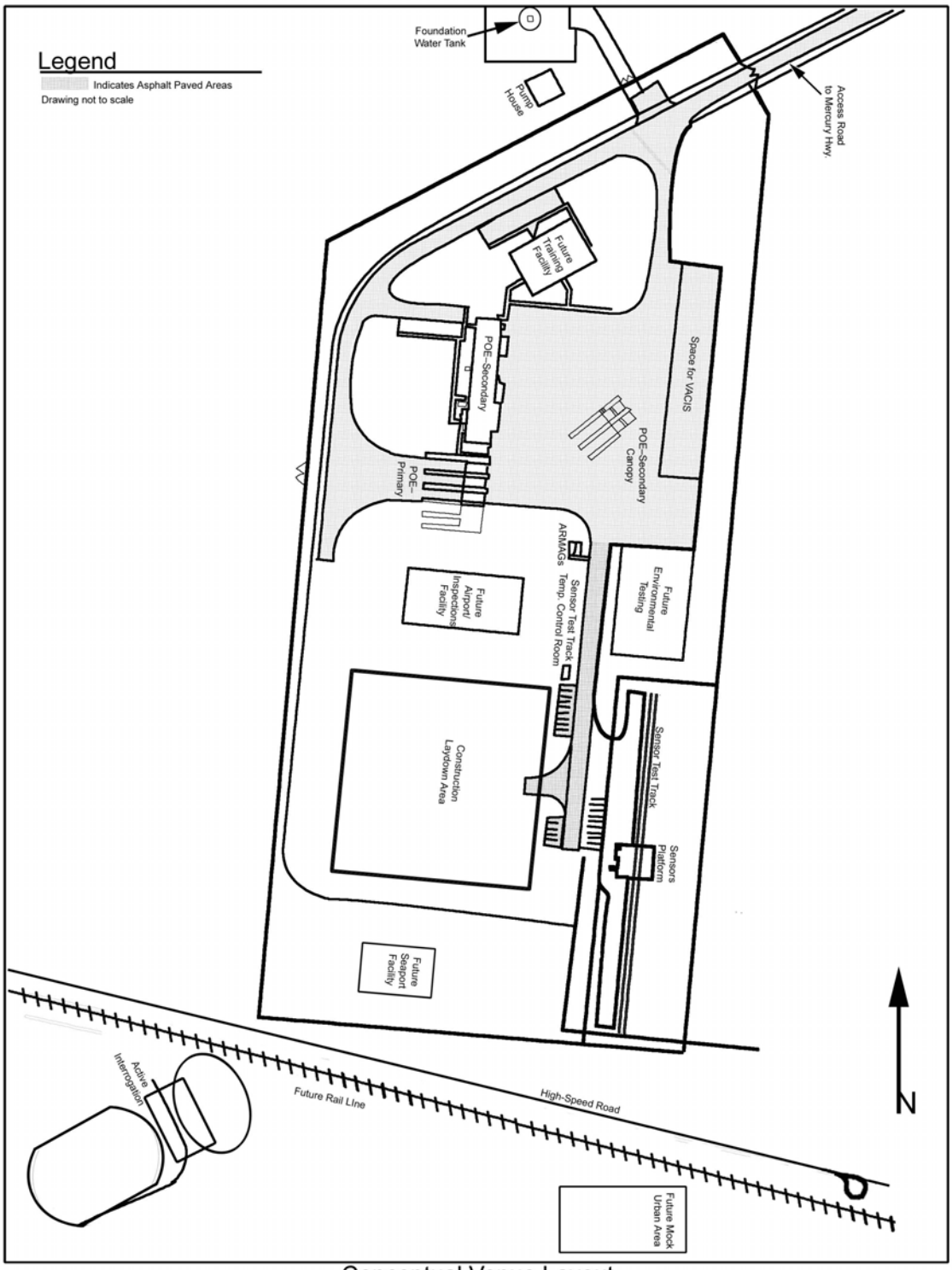

Figure 3 – Conceptual Site Layout of Rad/NucCTEC

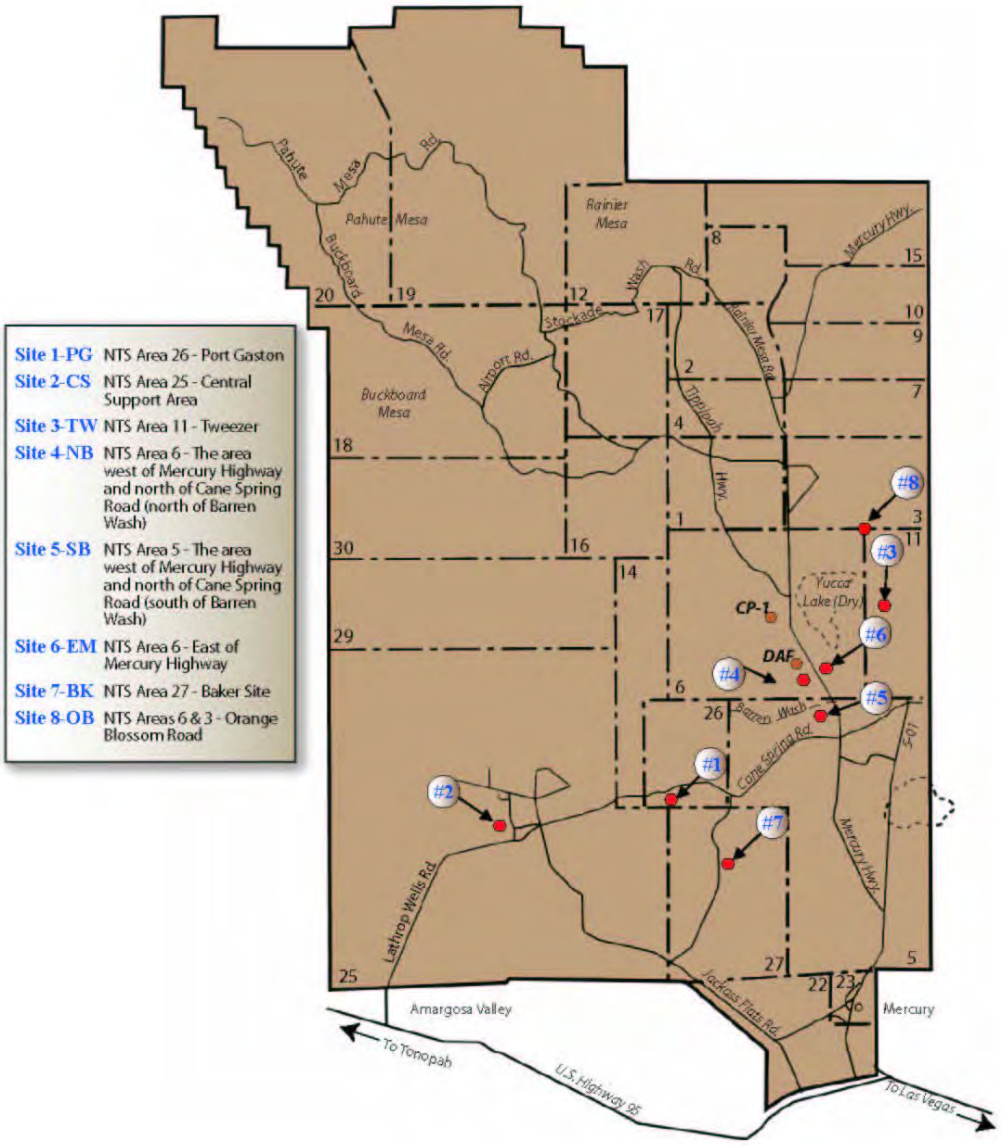

Figure 4 Alternate Locations Considered for the RadNucCTEC