

**Final  
Environmental Assessment  
Nevada Test and Training Range:  
Northern Hub Development, Tolicha Peak Water Facility  
Nellis Air Force Base, Nevada**

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August 2025



**Prepared for:  
Department of the Air Force  
Nevada Test and Training Range**



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### **PRIVACY ADVISORY**

This Environmental Assessment (EA) is provided for public comment in accordance with the *National Environmental Policy Act (NEPA)*, as amended by the *Fiscal Responsibility Act of 2023* (Public Law 118-5); the US Department of Defense (DoD) NEPA implementing procedures; and Executive Order 14154, *Unleashing American Energy*. The DoD implementing procedures, which provide an opportunity for public input on DoD decision-making, allows the public to offer inputs on alternative ways for the DoD to accomplish what it is proposing, and solicits comments on the analysis of environmental effects.

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## COVER SHEET

### Final Environmental Assessment for

#### Nevada Test and Training Range: Northern Hub Development, Tolicha Peak Water Facility Nellis Air Force Base, Nevada

*Responsible Agency: Department of the Air Force (DAF)*

*Location: Nevada Test and Training Range (NTTR), Nevada*

*Designation: Final Environmental Assessment (EA)*

*Point of Contact: Sirin Toksoz Jewell, NEPA Manager, 99 CES/CENPP*

#### **Abstract:**

This EA has been prepared in accordance with the *National Environmental Policy Act of 1969* ([42 United States Code § 4321](#) et seq.) (NEPA), as amended by the *Fiscal Responsibility Act of 2023* ([Public Law 118-5](#)); the United States (US) Department of Defense (DoD) NEPA implementing procedures issued 30 June 2025; and Executive Order [14154](#), *Unleashing American Energy* (20 January 2025).<sup>1</sup> The DoD implementing procedures inform decision-makers, regulatory agencies, and the public about a proposed action before any decision is made on whether to implement the action.

The purpose of the Proposed Action is to provide adequate access to a consistent and safe supply of water at the Tolicha Peak Electronic Combat Range (TPECR) Operations and Maintenance (O&M) compound within the Northern Hub of the NTTR in compliance with state water draw limitations. The Proposed Action would provide redundancy and security for water access at both the TPECR O&M compound and salvage yard and would ensure that the new treatment facility is modernized for remote operations into the future. The Proposed Action is needed because the water system at the TPECR O&M compound lacks sufficient capacity to support future mission requirements. Currently, there is no water source located nearby to support the salvage yard. Further, the action is needed because the current system has a single point of failure because there is only one on-site well.

The analysis of the affected environment and environmental consequences of implementing the Proposed Action and No Action Alternative concluded that by implementing standing environmental protection measures and best management practices, there would be no significant adverse impacts from the action at the NTTR on the following resources: air quality (including greenhouse gases), cultural resources, biological resources, water resources, hazardous materials and waste, infrastructure, including utilities and transportation, earth resources, and safety and occupational health. Impacts associated with development would be minor; therefore, significant cumulative impacts are not anticipated from activities associated with the Proposed Action and Alternatives when considered with past, present, or reasonably foreseeable future actions.

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<sup>1</sup> Title 32 CFR Part 989 was rescinded after the Draft EA was released; references to these regulations have been removed from the Final EA accordingly.

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## ACRONYMS AND ABBREVIATIONS

ACAM	Air Conformity Applicability Model
ACC	Air Combat Command
ACM	asbestos-containing materials
ADP	Area Development Plan
AFA	acre-foot-per-year allowed
AFB	Air Force Base
AFFF	aqueous film-forming foam
AFMAN	Air Force Manual
AMSL	above mean sea level
APE	Area of Potential Effects
AST	aboveground storage tank
BCC	Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
BSDW	Bureau of Safe Drinking Water
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO <sub>2e</sub>	carbon dioxide-equivalent
CWA	Clean Water Act
cy	cubic yards
DAF	Department of the Air Force
DAFI	Department of the Air Force Instruction
DCNR	Nevada Department of Conservation and Natural Resources
DES	Clark County Department of Environmental and Sustainability
DoD	United States Department of Defense
DoDI	Department of Defense Instruction
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESQD	explosive safety quantity distance
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FRA	Fiscal Responsibility Act
ft	feet/foot
ft <sup>2</sup>	square feet/foot
GHG	greenhouse gases
HAZMAT	hazardous materials
HWMP	Hazardous Waste Management Plan
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
lf	linear feet
LBP	lead-based paint
lbs	pounds
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MOA	Military Operations Area
MRTFB	Major Range Test Facility Base
MSS	Mission-sensitive Species

NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAGPRA	Native American Graves Protection and Repatriation Act
NDEP	Nevada Division of Environmental Protection
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIAQCR	Nevada Intrastate Air Quality Control Region
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRS	Nevada Revised Statute
NTTR	Nevada Test and Training Range
O&M	Operations & Maintenance
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
PFAS	polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PIF	Partners in Flight
PM <sub>2.5</sub>	particulate matter less than or equal to 2.5 microns in diameter
PM <sub>10</sub>	particulate matter less than or equal to 10 microns in diameter
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
RHA	residue holding area
ROI	Region of influence
SHPO	State Historic Preservation Office
SGCN	Species of Greatest Conservation Need
SPCC	Spill Prevention, Control, and Countermeasures
SWAP	State Wildlife Action Plan
TBD	to be determined
TCP	Traditional Cultural Property
TECR	Tonopah Electronic Combat Range
TPECR	Tolicha Peak Electronic Combat Range
tpy	tons per year
TSCA	Toxic Substances Control Act
US	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
UXO	unexploded ordnance

## CHAPTER 1 PURPOSE AND NEED FOR THE PROPOSED ACTION

### 1.1 INTRODUCTION

The Nevada Test and Training Range (NTTR), formerly known as the Nellis Air Force Range, is a Major Range Test Facility Base (MRTFB) located in southern Nevada. Nellis Air Force Base (AFB) is the center for Air Combat Command (ACC) training and testing activities at NTTR, providing logistical and organizational support for the Range. The United States (US) Department of the Air Force (DAF) is proposing a development project to construct a new well and water treatment facility at the Tolicha Peak Electronic Combat Range (TPECR) Operations and Maintenance (O&M) compound, located within the NTTR Northern Range. The proposed water treatment facility would support O&M, construction, and fire suppression on the northern ranges of NTTR. The DAF prepared this Environmental Assessment (EA) to evaluate the potential environmental and cultural effects of the proposed development on approximately 200 acres of undisturbed land situated north of the O&M compound.

This EA provides sufficient information to analyze potential environmental impacts associated with the development activities of the NTTR TPECR O&M compound, including construction of a new location well, underground utilities, monitoring systems, water treatment facilities, access roads, storage tanks, and sewer. These projects are further described throughout this EA and collectively referred to as the “Proposed Action.”

This EA has been prepared in accordance with the *National Environmental Policy Act of 1969* ([42 United States Code § 4321](#) et seq.) (NEPA), as amended by the *Fiscal Responsibility Act of 2023* ([Public Law 1185](#)); the US Department of Defense (DoD) NEPA implementing procedures issued 30 June 2025; and Executive Order [14154](#), *Unleashing American Energy* (20 January 2025).<sup>2</sup> The DoD implementing procedures inform decision-makers, regulatory agencies, and the public about a proposed action before any decision is made on whether to implement the action. If analyses in the EA determine that potentially significant adverse effects would be likely to occur, the DAF would publish a notice of intent in the *Federal Register* to prepare an Environmental Impact Statement (EIS).

These federal regulations establish both the administrative process and substantive scope of the environmental impact analysis designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action. The Proposed Action at the NTTR would only commence upon satisfactory completion of this EA and issuance of a Finding of No Significant Impact (FONSI). To render this document more concise, links are provided to online data sources to which the reader can refer for more information.

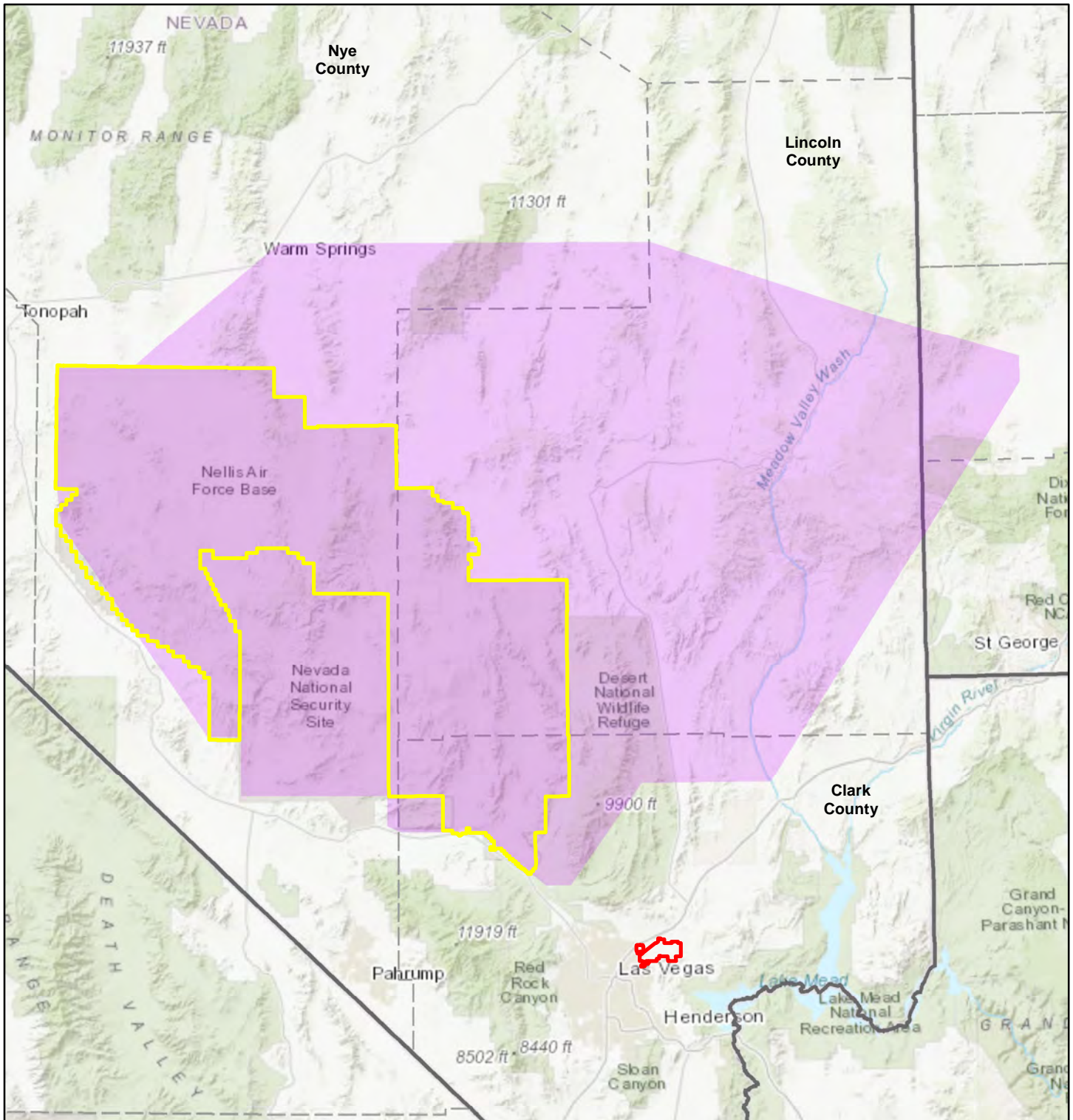
### 1.2 LOCATION

#### 1.2.1 Nevada Test and Training Range




The NTTR is located in southern Nevada within Clark, Lincoln, and Nye counties, and it includes both the land and overlying airspace (**Figure 1-1**). The NTTR occupies 2.9 million acres of land, 5,000 square miles of restricted airspace, which is restricted from civilian air traffic over-flight, and another 7,000 square miles of Military Operations Area (MOA), which is shared with civilian aircraft. A MOA is a type of special-use airspace outside of Class A airspace to separate or segregate certain nonhazardous military activities from Instrument Flight Rules traffic. Activities in MOAs include, but are not limited to, air combat maneuvers, air intercepts, and low-altitude-tactics.

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<sup>2</sup> Title 32 CFR Part 989 was rescinded after the Draft EA was released; references to these regulations have been removed from the Final EA accordingly.

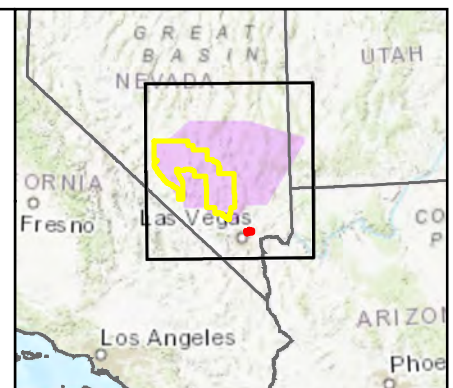


**FIGURE 1-1**  
 Regional Overview

-  Nellis Air Force Base Boundary
-  Nevada Test and Training Range Boundary
-  Nevada Test and Training Range Airspace Boundary



Imagery: ESRI, 2021  
 Coordinate System: NAD 83 UTM Zone 11N



The NTTR provides a realistic arena for operational testing and training aircrews and ground forces to improve combat readiness. The Range was originally established in 1940 as the Las Vegas Bombing and Gunnery Range. The *Military Lands Withdrawal Act of 1999* extended the land withdrawal until 2021 and superseded any former land withdrawals. The *National Defense Authorization Act of 2021* included status-quo extensions for the next 25 years (until 2046) for the NTTR withdrawal. The Range provides the warfighter a flexible, realistic, and multidimensional battle space to conduct testing tactics development and advanced training in support of US national interests.

The NTTR is split into Northern and Southern Ranges to aid with the overall management of test and training operations. The Northern Range spans 1.8 million acres and contains multiple facilities and roads that support operations. The TPECR is located within the Northern Range approximately 28 miles north of Beatty, Nevada. The TPECR compound provides critical support functions that maintain joint training and test operations on the NTTR Northern Range.

### 1.2.2 Nellis AFB

Nellis AFB, located in Clark County in the southeast corner of the state of Nevada, lies 5 miles northeast of the city of Las Vegas (see **Figure 1-1**). The Installation itself encompasses more than 14,000 acres, while the total land area occupied by Nellis AFB and its restricted ranges, including the NTTR, is about 5,000 square miles. Nellis AFB is the center for ACC training and testing activities at the NTTR, providing logistical and organizational support, aircraft training, and personnel for the NTTR.

## 1.3 PURPOSE AND NEED

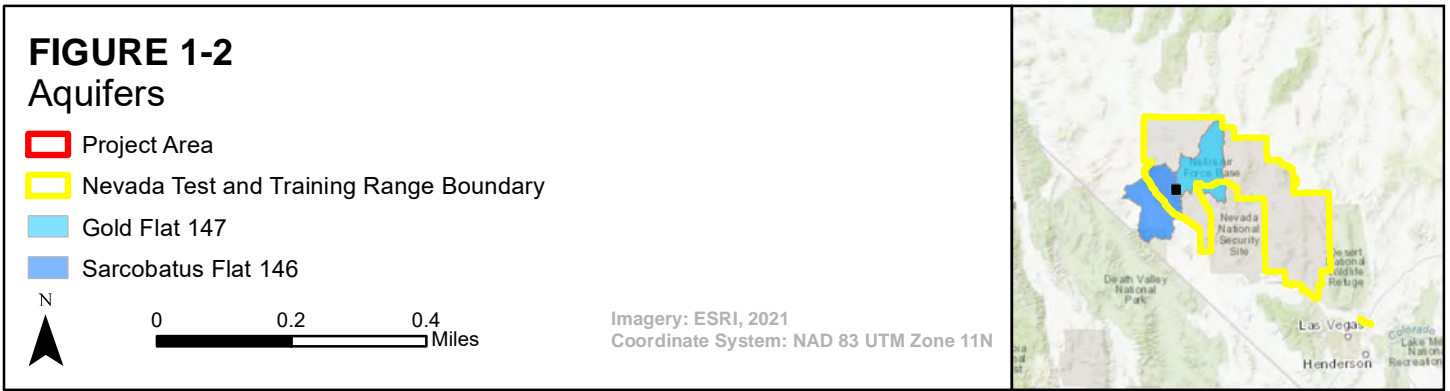
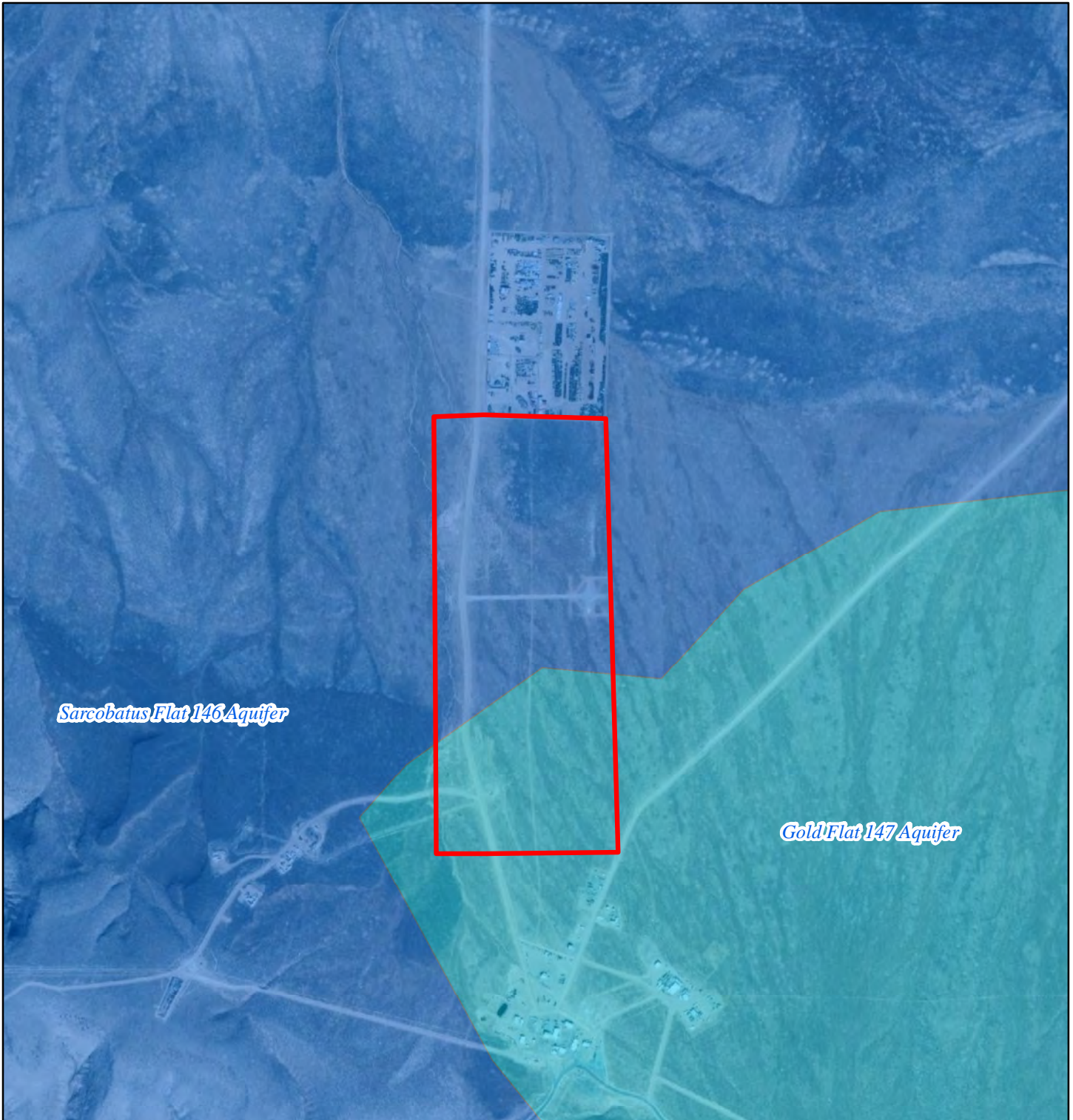
The purpose of the Proposed Action is to provide adequate access to a consistent and safe supply of water at the TPECR O&M compound in compliance with state water draw limitations. The Proposed Action would provide redundancy and security for water access at both the TPECR O&M compound and salvage yard and would ensure that the new treatment facility is modernized for remote operations into the future.

The Proposed Action is needed because the water system at the TPECR O&M compound lacks sufficient capacity to support future mission requirements. Currently, there is no water source located nearby to support the salvage yard. Trucking water for potable use would require transport from DAF wells either located in the Tonopah Electronic Combat Range (TECR) O&M (41 miles from proposed well site) or Point Bravo O&M (112 miles from proposed well site). TECR transport to TPECR also requires range scheduling because vehicles must transit through active bombing ranges. Further, the action is needed because the current system has a single point of failure because there is only one on-site well.

The current well at the TPECR O&M compound was permitted by the State Water Engineer in the Sarcobatus Flat 146 aquifer (**Figure 1-2**). The acre-foot-per-year allowed (AFA) for the Sarcobatus Flat 146 aquifer is 13.93 AFA, or 4,539,110.45 gallons per year. **Table 1-1** summarizes the amount of water extracted per year from the aquifer for the past 5 years, demonstrating an upward trend in demand. Demand has reached 75 to 79 percent of total aquifer capacity during the two most recent years and is expected to continue to rise.

**Table 1-1**  
**Yearly Water Draw from the Sarcobatus 146 Aquifer**

Year	Water Extracted (gallons)
2020	3,020,011
2021	3,245,600
2022	3,044,965
2023	3,403,909
2024	3,590,230



The existing well was installed approximately 40 years ago and is susceptible to failure. Failure of the well means that trucks of water must be brought to the Range for both construction and domestic use because no alternative means of drawing water currently exists. This creates a health hazard until emergency drinking water and portable toilet facilities can be transported to the TPECR O&M compound. Trucking water for potable use would require additional bacteriological testing for safety. The groundwater is known to have a high baseline level of arsenic that requires treatment prior to use, and a functional well with arsenic filtration is the only long-term solution. The new water system facility would support the additional development projects within the TPECR O&M compound and the salvage yard.

## 1.4 INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION

The DoD implementation procedures, in compliance with NEPA guidance, include public and agency review of information pertinent to a proposed action and alternatives. The DAF's compliance with the requirement for intergovernmental coordination and agency participation begins with the scoping<sup>3</sup> process. Accordingly, and in accordance with [EO 12372](#), *Intergovernmental Review of Federal Programs*, the DAF notified federal, state, and local agencies and Tribal governments with jurisdiction that could potentially be affected by the Proposed Action and Alternatives via written correspondence throughout the development of this EA. A mailing list of the recipients of this correspondence as well as a sample of the outgoing letters and all responses are included in **Appendix A**.

### 1.4.1 Government-to-Government Consultation

The *National Historic Preservation Act* ([54 USC § 300101](#), et seq.) (NHPA) and its implementing regulations at [36 CFR § 800](#) direct federal agencies to consult with federally recognized Native American Tribes when a proposed action or alternatives may have an effect on Tribal lands or on properties of religious and cultural significance to a Tribe. Consistent with the NHPA, the *Native American Graves Protection and Repatriation Act* ([25 USC § 3001](#) et seq.) (NAGPRA), DoD Instruction (DoDI) [4710.02](#) (September 2018), *DoD Interactions with Federally Recognized Tribes*, and Department of the Air Force Instruction (DAFI) [90-2002](#) (March 2025), *Department of the Air Force Interactions with Federally Recognized Tribes*, the DAF invited federally recognized Tribes that are historically affiliated with lands in the vicinity of the Proposed Action and Alternatives to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the Tribes. The Tribal consultation process is distinct from NEPA consultation and requires separate notification to all relevant Tribes. The timelines for Tribal consultation are also distinct from those of the other consultations. The Nellis AFB and NTTR point of contact for federally recognized Tribes is the Nellis AFB Base Commander. The point of contact for consultation with the Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation is the Nellis AFB Cultural Resources Manager.

### 1.4.2 Agency Consultations and Coordination

Implementation of the Proposed Action involves coordination with several organizations and agencies. Compliance with Section 7 of the *Endangered Species Act of 1973*, as amended ([16 USC § 1531](#) et seq.) (ESA), and implementing regulations ([50 CFR Part 402](#)) requires communication with the US Fish and Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration National Marine Fisheries Service. On 28 January 2025, the DAF initiated Section 7 consultation under the ESA for the Proposed Action using USFWS's Information for Planning and Consultation (IPaC) tool to obtain an official species list from the USFWS. The list identified threatened and endangered species and other protected species (e.g., migratory birds) with potential to be affected by the Proposed Action. The DAF notified the USFWS via letter dated 23 May 2025 of its determination that the Proposed Action would have no effect

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<sup>3</sup> Scoping is a process for determining the extent of issues to be addressed and analyzed in a NEPA document.

on threatened or endangered species or other protected species. The DAF did not receive a response or further comments from USFWS. Therefore, consultation with the USFWS on this matter is complete.

The DAF also coordinated with state agencies regarding potential effects from the Proposed Action and Alternatives. Compliance with Section 106 of the NHPA and implementing regulations (36 CFR Part 800) was accomplished through the Nellis AFB Cultural Resources Program. Consultation with the State Historic Preservation Office (SHPO) began on 20 January 2023. The DAF continued to coordinate with the Nevada SHPO throughout the completion of a Class III Cultural Survey, transmitted 4 February 2025. There are three sites within the project footprint that would be avoided entirely during ground-disturbing activities and monitored during such activities by a qualified archaeologist: two National Register of Historic Places (NRHP)-eligible sites and one unevaluated site. Consequently, the DAF determined that implementation of the Proposed Action would result in no adverse effects to cultural resources. The Nevada SHPO concurred with the site eligibility determinations within the Class III Cultural Survey and concurred with the DAF's effects determination on 10 March 2025. Therefore, consultation with the SHPO on this matter is complete.

The DAF also coordinated with the following state and local government agencies:

- Air and water quality effects – Nevada Division of Environmental Protection (NDEP) and Clark County Department of Environmental and Sustainability (DES)
- Habitat and species of concern – Nevada Department of Wildlife (NDOW) and Nevada Department of Conservation and Natural Resources (DCNR)

Agency consultation and coordination information is included in **Appendix A** and incorporated in this EA where applicable.

## 1.5 PUBLIC AND AGENCY REVIEW

The DAF invited the Tribes, the public, and other interested stakeholders to review and comment on the Draft EA and Draft FONSI. Accordingly, a notice of availability of the Draft EA and Draft FONSI was published on 23 May 2025 in the following local newspapers to commence a 30-day public comment period (**Appendix C**).

- *Las Vegas Review-Journal*
- *Desert Lightning News*

During the public comment period, the Draft EA and Draft FONSI were available online for view or download at <https://www.nellis.af.mil/Public-Affairs/Community-Engagement/Partnerships/Environment/>. In addition, printed copies of the Draft EA and Draft FONSI were available by request and were placed at the following area libraries for review:

- Beatty Library District, 400 North 4th Street, Beatty, NV 89048
- Centennial Hills Library, 6711 N. Buffalo Drive, Las Vegas NV 89131

The public comment period concluded on 25 June 2025. The DAF did not receive any comments on the Draft EA or Draft FONSI.

## 1.6 DECISION TO BE MADE

Should the DAF choose to implement the Proposed Action, this EA will assist in determining an appropriate scope of action to minimize potential adverse environmental impacts and allow for additional, project-specific environmental review in compliance with NEPA. The decision-making framework for this EA (see also **Section 3.1**) is described as follows:

1. Determine the potential environmental impacts associated with the Proposed Action and Alternatives and sign a FONSI if all environmental impacts are less than significant;
2. Initiate preparation of an EIS if it is determined that significant impacts would occur through implementation of the Proposed Action or Alternatives, or
3. Select the No Action Alternative, whereby the Proposed Action would not be implemented.

## **1.7 SCOPE OF THE ENVIRONMENTAL ASSESSMENT**

In accordance with NEPA, the DAF determined the appropriate level for this analysis is an EA. An EA is a concise public document that briefly discusses the purpose and need, alternatives, and potential environmental impacts of a proposed federal action. It aids in agency planning and decision-making, or facilitates the preparation of an EIS, as necessary.

NEPA and the DoD NEPA implementing procedures require federal agencies to consider alternatives to the Proposed Action and to analyze potential impacts of alternative actions. Potential impacts of the Proposed Action and Alternatives described in this EA were assessed to analyze the potentially affected environment and degree of the effects of the action. To help the public and decision-makers understand the implications of potential impacts, the impacts are described in terms of direct effects (those which occur at the same time and place), indirect effects (those which occur at a later time or farther removed in distance but are still reasonably foreseeable), and cumulative effects (those resulting from the incremental effects when added to other past, present, and reasonably foreseeable actions).

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## CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

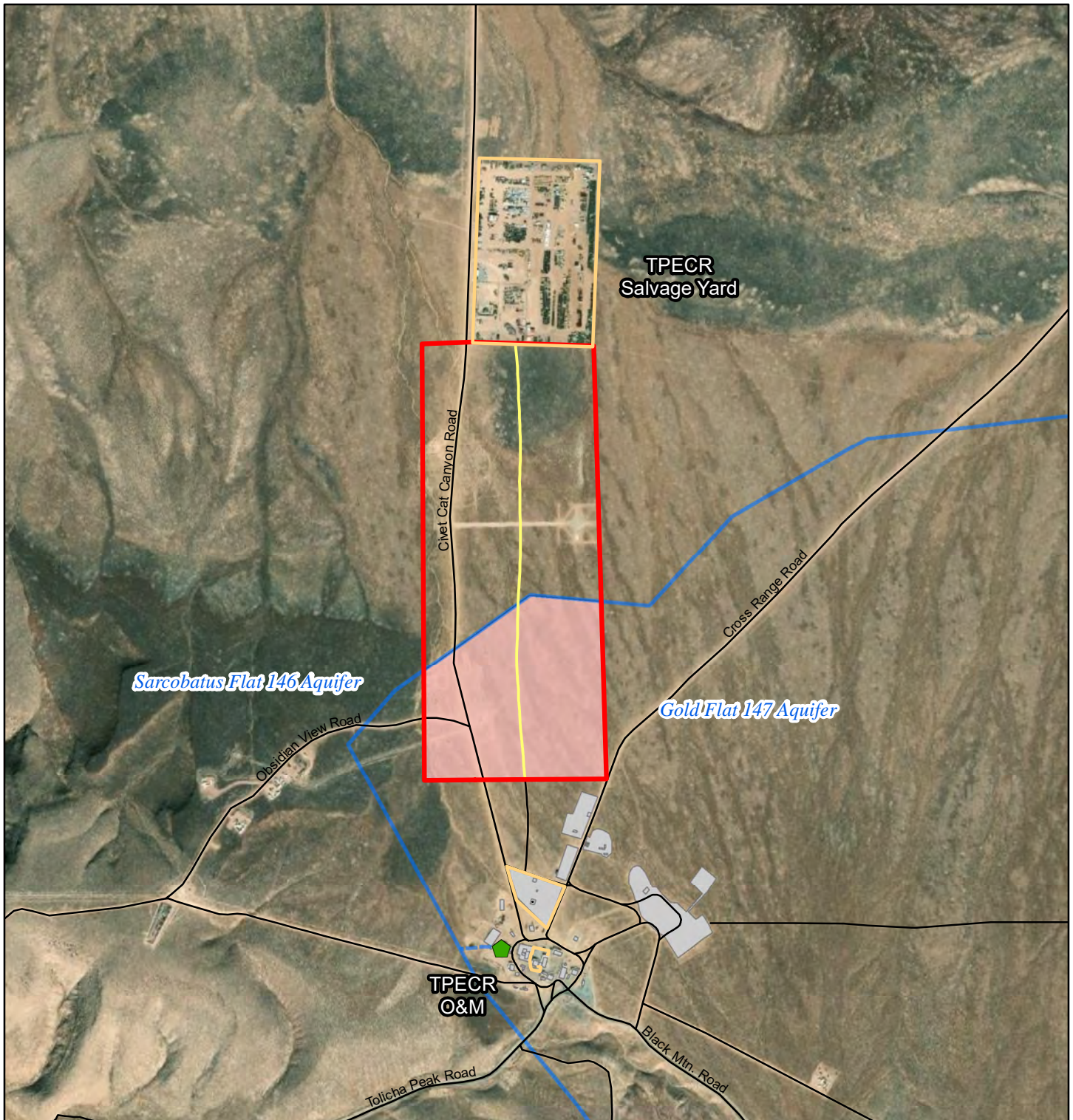
### 2.1 INTRODUCTION

The NTTR TPECR O&M compound currently faces challenges with maintaining a consistent, safe, and adequate water supply for current and future mission requirements. Presently, the TPECR O&M compound relies on a single well, located on the border of the Sarcobatus Flat 146 aquifer, to provide water for both construction and domestic uses. The Sarcobatus Flat 146 aquifer has a maximum allowable water draw of 13.93 AFA, with current regional draw on the aquifer at approximately 75-79 percent of total capacity. The Gold Flat 147 aquifer has a larger allowable water draw capacity of 361.98 AFA with a current regional draw from the existing two wells at approximately 6 percent of the total capacity. Installation of an additional well within the Gold Flat 147 aquifer would provide additional water draw capacity to meet the current and future mission needs of the TPECR O&M compound. The existing well currently supports a combination of domestic and construction usage at the TPECR O&M compound with a water draw of approximately 250,000–300,000 gallons per month from the Sarcobatus Flat 146 aquifer. The existing well, shown in **Figure 2-1**, appears to physically be located within the boundary of Gold Flat 147; however, the well driller's report confirms that the water drawn from this location originates from the Sarcobatus Flat 146 aquifer (State of Nevada, 1984). Construction of an alternative water source from the adjacent Gold Flat 147 aquifer would reduce the demand from the existing aquifer and provide additional water capacity to support the military mission. The proposed well would be used primarily for domestic purposes, while the existing well would be utilized exclusively for construction purposes. Construction of a new well within the Gold Flat 147 aquifer would also provide redundancy and backup for the existing well, reducing the potential for failure of the water system. Existing water rights allow for construction of a new well within Gold Flat 147 due to two previously established wells within this aquifer. Implementation of the Proposed Action would support the overall purpose of and need for the construction of additional water treatment infrastructure, as outlined in **Section 1.3**.

### 2.2 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would construct a new well and water treatment facility at the TPECR O&M compound within the Gold Flat 147 aquifer. The proposed facilities would be located within an approximately 200-acre parcel north of the TPECR O&M compound and south of the salvage yard (**Figure 2-1**). The Proposed Action comprises three primary components: drilling and construction of the well, construction of the treatment facility and infrastructure, and the connection of supporting utilities. The Proposed Action would include installation of the following per the Nellis and Creech AFBs Installation Facilities Standards:

- one well;
- underground water and electrical lines;
- revenue-grade water and electric meters in National Electrical Manufacturers Association type 4 enclosures;
- fiber and communication lines;
- septic tank and sewer lines;
- remote monitoring system;
- water storage tanks;
- unpaved access road; and
- multiple structures including the well house, arsenic filtration facility, pump house, fuel tank, and generator.



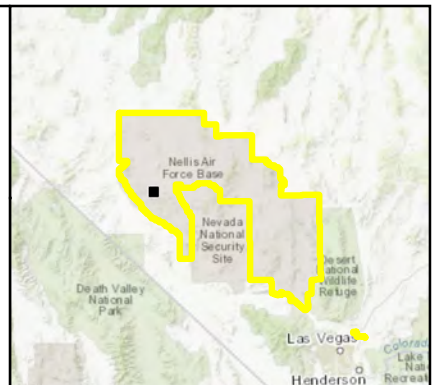
**FIGURE 2-1**  
Project Location

- ◆ Existing TPECR Well
- Access\_Road
- Fencelines
- Roads
- - - Well Draw - Sarcobatus 146
- Hydrobasins Boundary
- Project Area
- Proposed Well Location
- TPECR O&M Compound



0 0.2 0.4 Miles

Imagery: ESRI, 2021  
Coordinate System: NAD 83 UTM Zone 11N



The proposed well would be located in the southern half of the project area within the Gold Flat 147 aquifer (**Figure 2-1**). An exploratory well permit and test drilling would be required to determine the exact location within the project area for the new well within this aquifer. The final location of the new well would determine the location of the water treatment facility and utility connections. These additional construction actions would be implemented to support the new well and would have the potential to occur throughout the entire project area. Supporting water treatment infrastructure would be constructed within the project area after the successful installation of the new well. The Proposed Action would be constructed in four successive stages.

### **Stage 1 – Construction of the New Well, Pump House, and Infrastructure**

During Stage 1, the DAF would obtain an exploratory well permit to allow a survey team to drill and test groundwater within the Gold Flat 147 aquifer and determine the most suitable location for the new well. While the exact location of the proposed well within the Gold Flat 147 aquifer would be unknown until exploratory drilling is complete, locating the well as far north as possible within the aquifer would be preferred. The dividing line between the two aquifers acts as a midpoint between the salvage yard and TPECR O&M compound, allowing the new well to serve locations to both the north and south of the project area. The new well would be constructed with a minimum 8-inch bore diameter, approximately 1,100 feet (ft) deep, with approximately 800 ft of casing pipe and 300 ft of well screen. The physical location of the supporting infrastructure would depend on the final well location.

The pump house would be located in direct proximity to the location of the well. The pump house, containing the pump, valves, and piping, would be constructed as a prefabricated 12-ft x 12-ft steel building on a concrete pad foundation measuring approximately 144 square feet (ft<sup>2</sup>). The well house and pump house would be constructed on concrete pads and entered into Base real property records.

An unpaved access road that runs north to south between the TPECR O&M compound and the salvage yard would be graded during this initial stage. The road would be approximately 0.9 mile in length and connect the new well location to the TPECR O&M compound and the salvage yard. Culverts for stormwater management would be installed along this access road.

Underground water and electrical utilities would be necessary to support operation of the new well and would be installed during Stage 1. Trenching to a depth of 3–4 ft would be required as a construction method for the two underground water pipelines. Installation would include a pipeline running east to west measuring approximately 2,000 linear feet (lf) and another pipeline running north to south beneath the unpaved access road measuring approximately 4,800 lf. Construction of a new water distribution system will require plans approval from the NDEP Bureau of Safe Drinking Water (BSDW), which has an approval timeframe for new plans of 90 to 120 days. Approximately 6,800 lf of underground electrical utility lines connecting to the well and pumphouse would be installed using trenching to a depth of 3 ft from north to south along Civet Cat Canyon Road during this stage.

### **Stage 2 – Installation of Communications Lines**

Stage 2 would occur within approximately one fiscal year of well construction. During Stage 2, the DAF would install approximately 2,400 lf of underground fiber and communication lines as part of the well monitoring system. The well monitoring system would connect the TPECR O&M compound to the new well and pump house, allowing DAF personnel to remotely monitor the facility operations. NTTR does not currently have this capability, and personnel are required to be on site to manage the water system. During Stage 2, additional underground electrical lines measuring approximately 4,800 lf would be installed along the access road, which would be graded during Stage 1. All utility lines would be installed via trenching to a depth of 3 ft.

### **Stage 3 – Installation of Well Operating Equipment**

Stage 3 would be implemented within approximately one to two fiscal years of well construction. During Stage 3, the DAF would install a generator, fuel tank, and sewer system at the well location. A 100-kilowatt generator, constructed on a concrete pad occupying approximately 33.06 ft<sup>2</sup>, would be installed to provide

redundancy in electrical service to the system. If electrical service fails, the generator would allow the TPECR O&M compound to continue to receive water from the system. A 250-gallon fuel tank, constructed on a concrete pad occupying approximately 23.26 ft<sup>2</sup>, would be installed to support the generator. Both the generator and fuel tank would be entered into Base real property records. The sewer system would consist of a 4-inch pipe, trenched to a depth of 3–4 feet, and would be constructed in Stage 3 in anticipation of the arsenic filtration facility, which would be constructed during Stage 4; however, the size and extent of the sewer system would be determined by future analysis. The frequency and volume of backwash would be determined by the type of filtration media used in the arsenic system and in compliance with state regulations at the time of construction.

Three 50,000-gallon water storage tanks would be constructed and installed during Stage 3 to better support fire suppression efforts. Each tank would be approximately 7 feet tall and have a footprint of approximately 855 ft<sup>2</sup>; the three tanks would collectively occupy 2,565 ft<sup>2</sup>. The storage tanks would include the use of ultraviolet bacteriological disinfection to limit the accumulation of disinfection byproducts in the water. The 99th Operational Medical Readiness Squadron/Bioenvironmental Engineering Flight will be informed and involved during the testing of the filtered water.

#### **Stage 4 – Construction of Arsenic Filtration Facility**

Stage 4 would occur within approximately three to four fiscal years of well construction. During Stage 4, the DAF would construct an arsenic filtration facility at the proposed well site. The arsenic levels within the groundwater in this area are known to be elevated, and arsenic treatment would be required to make the water drawn from the new well potable. The facility would be constructed on a concrete pad measuring approximately 100 ft<sup>2</sup> and would be entered into Base real property records.

### **2.3 SELECTION STANDARDS FOR ALTERNATIVE SCREENING**

Selection standards were developed to establish a means for determining the reasonableness of an alternative to the Proposed Action and whether an alternative should be carried forward for further analysis in the EA. Potential alternatives to the Proposed Action were evaluated based on universal selection standards, which were applied to all alternatives. The following selection standards meet the purpose of and need for the Proposed Action and were used to identify reasonable alternatives for analysis in the EA. Reasonable alternatives

- must be located between the TPECR O&M compound and salvage yard (approximately 1 mile) to effectively convey water to both sites without requiring the assistance of booster pumps;
- must draw water from outside of the Sarcobatus 146 aquifer;
- must provide at least 4 million gallons per year (approximately 12.28 AFA) of additional water draw capacity to support existing and future development actions at the TPECR O&M compound and the salvage yard; and
- must provide safe, consistent access to water for use at the TPECR O&M compound and surrounding sites.

Based on the screening criteria, the DAF determined that there are no reasonable alternatives to the Proposed Action that would meet the purpose of and need for action. **Section 2.4** describes the alternatives retained for detailed analysis.

## **2.4 ALTERNATIVES RETAINED FOR DETAILED ANALYSIS**

### **2.4.1 Proposed Action**

The Proposed Action, as described in **Section 2.1**, represents the DAF's Preferred Alternative. As described above, the Proposed Action is the only reasonable alternative that would meet the DAF's purpose of and need for action. Therefore, the Proposed Action is retained as an alternative for more detailed analysis in this EA.

### **2.4.2 No Action Alternative**

Under the No Action Alternative, water draw limitations at the TPECR O&M compound would continue as described. The Proposed Action would not be implemented, and over time, the reliability of the existing water access and infrastructure would diminish. The ability of NTTR to implement future planned projects at both the TPECR O&M compound and the salvage yard would decrease, impacting the ability to support the military mission. There would be continued risk to the operations and missions at NTTR without additional water infrastructure to account for limitations and failures of the existing well.

While the No Action Alternative would not satisfy the purpose of and need for the Proposed Action, this alternative is retained to provide a comparative baseline against which to analyze the effects of the Proposed Action. The No Action Alternative reflects the status quo and serves as a benchmark against which the effects of the Proposed Action can be evaluated.

## **2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS**

The DAF considered additional locations along Civet Cat Canyon Road within the Sarcobatus 146 aquifer for the construction of the proposed water facility. None of these locations were determined suitable because they are located within the Sarcobatus Flat 146 aquifer, which does not have adequate capacity to support future water requirements at the TPECR O&M compound. There is only one well permitted within this aquifer, and the entire AFA is allocated to this well. Installing a second well within the Sarcobatus 146 aquifer would effectively split the permitted AFA between the two wells and would not add additional extraction capacity. These locations did not satisfy the alternatives selection criteria and, if implemented, would not satisfy the purpose of and need for the Proposed Action. This issue requires the installation of a well within the neighboring Gold Flat 147 aquifer, which has a capacity of 361.98 AFA, or 117,951,701.32 gallons per year.

## **2.6 SUMMARY OF ENVIRONMENTAL CONSEQUENCES**

The potential impacts under the Proposed Action and No Action Alternative are summarized in **Table 2-3**. The summary is based on information discussed in detail in **Chapter 3** of this EA and includes a concise definition of the issues addressed and the potential environmental impacts associated with each alternative.

**Table 2-1  
Summary of Environmental Consequences**

<b>Resource</b>	<b>Proposed Action</b>	<b>No Action Alternative</b>
Air Quality (including Greenhouse Gases)	There would be negligible impacts to air quality and greenhouse gases under the Proposed Action.	There would be no impact to regional air quality or greenhouse gases from current conditions.
Cultural Resources	There would be no adverse effects to cultural resources under the Proposed Action. Two National Register of Historic Places-eligible archaeological sites and one unevaluated site are located in the project area and would be avoided entirely during construction and monitored during ground-disturbing activities by a qualified archaeologist as appropriate.	There would be no change to cultural resources from current conditions.
Biological/Natural Resources	There would be minor, short-term and long-term impacts to vegetation and wildlife, negligible impacts to migratory birds, and no effect on threatened or endangered species.	There would be no change to biological and natural resources from current conditions.
Water Resources	There would be minor, negligible impacts to stormwater during construction. The Proposed Action would not impact surface waters or known floodplains. Groundwater resources would have minor, short-term, impacts during the construction of the well, and minor, long-term impacts as a result of future water extraction.	There would be no change to water resources from current conditions. The total water drawn from the Sarcobatus Flat 146 aquifer to service the TPECR O&M compound would continue to encroach upon the allowable capacity for this single source.
Hazardous Materials and Waste, Toxic Substances, and Contaminated sites	There would be no adverse impacts to the management of hazardous materials and waste, toxic substances, and contaminated sites under the Proposed Action.	There would be no change to hazardous materials and waste, toxic substances, and contaminated sites from current conditions.
Infrastructure and Utilities (Including Transportation)	There would be minor, beneficial impacts to transportation and utilities through roadway grading and underground water, communication, and electrical line installation. There would be moderate, long-term, beneficial impacts to potable water infrastructure through the added redundancy of the water pump, treatment facility, and electrical support infrastructure.	There would be no improvements to the infrastructure or utilities at the TPECR O&M compound beyond current conditions. Improvements to the roads, drainage, and utilities would not occur. Redundancy would not be established for potable water or electrical service to power water extraction and treatment.
Earth Resources	There would be minor, short-term impacts to geology, topography, and soils under the Proposed Action.	There would be no change to earth resource from current conditions.
Safety and Occupational Health	There would be long-term, beneficial impacts to safety and occupational health due to the availability of additional water for both firefighting purposes and human consumption.	There would be no change to safety and occupational health. Additional water supply and storage would not be constructed, nor would it be available for firefighting purposes.

O&M = Operations & Maintenance; TPECR = Tolicha Peak Electronic Combat Range

## CHAPTER 3 EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES

### 3.1 FRAMEWORK FOR ANALYSIS

To provide a framework for the analyses in this EA, the DAF defined a study area specific to each resource or sub-resource area. Referred to as a Region of Influence (ROI), these areas delineate a boundary where possible effects from the considered alternatives would have a reasonable likelihood to occur. Beyond these ROIs, potential adverse effects on resources would not be anticipated. For the purposes of analysis, potential effects are described as follows:

- **Beneficial** – positive effects that improve or enhance resource conditions
- **Adverse** – negative or harmful results
- **Negligible** – effects likely to occur but at levels not readily observable by evaluation
- **Minor** – observable, measurable, tangible effects qualified as below one or more significance threshold(s)
- **Moderate** – tangible effects that are readily apparent, qualified as below one or more significance threshold(s)
- **Significant** – obvious, observable, verifiable effects qualified as above one or more significance threshold(s); not mitigable to below significance

When relevant to the analyses in this EA, potential effects are further defined as direct or indirect; short or long term; and temporary, intermittent, or permanent. Based upon the nature of the Proposed Action and the affected environment, both qualitative and quantitative thresholds were used as benchmarks to qualify effects. Further, each resource analysis section (i.e., **Sections 3.4–3.11**) concludes with a cumulative effects analysis considering the effects on the environment that result from the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions within the project area. **Table 3-1** briefly describes the proposed or planned projects identified for consideration of potential cumulative impacts when combined with the effects of the Proposed Action on a regional scale.

### 3.2 RESOURCES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

In accordance with NEPA, the DAF considered but eliminated from further analysis the following environmental resources:

- **Airspace** – The Proposed Action does not involve airspace or aircraft operations; therefore, this resource area will not be discussed or evaluated within this EA.
- **Land Use** – The Proposed Action would not involve a change the current land use at NTTR TPECR and would have no bearing on future land uses.
- **Noise** – Noise generated from construction activities associated with the Proposed Action would remain confined to the immediate vicinity of the project area, which is approximately 11 miles from the boundary of the NTTR and not located near any sensitive noise receptors. There would be no change to existing operations. Accordingly, noise is not carried forward for detailed analysis in this EA. Potential impacts from noise on wildlife are discussed in **Section 3.6.3.2**.
- **Socioeconomics** – All land use actions of the NTTR support military training and testing requirements and would have no potential to affect socioeconomics because there would be no changes to population, housing, schools, or major employment sectors. While some temporary construction jobs may be generated, the scale and duration of construction activities under the Proposed Action would not meaningfully alter local employment or economic conditions. Therefore, this resource area is not discussed or evaluated within this EA.

**Table 3-1  
Past, Present, and Reasonably Foreseeable Environmental Trends and Planned Actions**

Name	Description	Timeframe	Approximate Distance from Project Area
Nellis AFB and NTTR Integrated Natural Resources Management Plan (Nellis AFB, 2024)	The actions include projects on Nellis AFB and the NTTR that align with established INRMP goals and objectives. These projects would include, but not be limited to, conducting survey work for identified taxa; installing and maintaining equipment such as cameras and acoustic monitors; treating invasive species with approved herbicides; monitoring water parameters; trapping and releasing species according to state and federal permit requirements; conducting habitat restoration projects for the benefit of special-status species; installing and monitoring exclusionary fences around sensitive areas; maintaining permits for flight safety; conducting hazardous fuel reduction projects to reduce the threats of wildland fire; updating the Natural Resources Management Database to inform management decisions; and conducting educational outreach.	Active NEPA (timeframe 5–10 years)	Multiple locations within NTTR and Nellis AFB
Nellis AFB and NTTR Area Development Plan (ADP)	An ADP is currently being created by Nellis AFB to implement various construction, demolition, and infrastructure development actions across multiple locations at Nellis AFB and the NTTR.	Fiscal year 2026–2031	Multiple locations within NTTR and Nellis AFB
TPECR O&M Compound Infrastructure Improvements	The project would include various projects with the goal of modernization and infrastructure improvements within the TPECR O&M compound to the south of the Proposed Action.	Fiscal Year 2025	0.5 mile
TPECR Target Yard Infrastructure Improvements	The project would include modernization and infrastructure improvements for the Target Yard located to the north of the Proposed Action.	Fiscal Year 2025	0.5 mile
TPECR Salvage Yard RHA Pad Extension	The project would include construction actions to support and expand the TPECR salvage yard residue holding area.	Fiscal Year 2025	0.5 mile
TPECR O&M Construction and Demolition	The proposed construction and demolition actions would include the construction of a new Engineering Depot Building, Administrative/ Security building, and the demolition of the existing administrative building at the TPECR O&M compound south of the Proposed Action.	TBD	0.5 mile
Tolicha Peak Road Rehabilitation and Access Road	The project would include rehabilitation and resurfacing of Tolicha Peak Road, which provides connectivity to the TPECR O&M compound from the south, as well as construction of an additional access road within the TPECR O&M compound.	TBD	1 + mile

ADP = Area Development Plan; AFB = Air Force Base; INRMP = Integrated natural Resources Management Plan; NEPA = *National Environmental Policy Act*; NTTR = Nevada Test and Training Range; O&M = Operations and Maintenance; RHA = residue holding area; TBD = to be determined; TPECR = Tolicha Peak Electronic Combat Range

### 3.3 RESOURCES CARRIED FORWARD FOR DETAILED ANALYSIS

Based on the results of internal and external scoping (see **Section 1.4**), the following resources were carried forward for analysis: air quality (including greenhouse gases); cultural resources; biological/natural resources; water resources; hazardous materials and waste, toxic substances, and contaminated sites; infrastructure/utilities (including transportation); earth resources; and safety and occupational health.

## 3.4 AIR QUALITY (INCLUDING GREENHOUSE GASES)

### 3.4.1 Definition of the Resource

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutant in a specified volume of air) that occurs at a particular geographic location. The ambient air quality levels measured at a particular location are determined by the interaction of emissions, meteorology, and chemistry. Meteorological considerations include wind and precipitation patterns affecting the distribution, dilution, and removal of pollutant emissions. Chemical reactions can transform pollutant emissions into other chemical substances.

Air pollution is a threat to human health and damages trees, crops, other plants, waterbodies, and animals. It creates haze or smog that reduces visibility in national parks and cities and interferes with aviation. To improve air quality and reduce air pollution, Congress passed the *Clean Air Act* (CAA) and its amendments in 1970 and 1990, which set regulatory limits on air pollutants and help to ensure basic health and environmental protection from air pollution.

The United States Environmental Protection Agency (USEPA) has divided the country into geographical regions known as air quality control regions to evaluate compliance with the National Ambient Air Quality Standards (NAAQS). The NTTR is located in Clark, Esmeralda, Lincoln, and Nye counties within the Nevada Intrastate Air Quality Control Region (NIAQCR) ([40 CFR § 81.276](#)) which serves as the ROI.

#### 3.4.1.1 Criteria Pollutants

Air quality is defined by ambient concentrations of specific air pollutants that the USEPA has determined may affect the health or welfare of the public (USEPA, 2024a). The CAA requires USEPA to set NAAQS for commonly found air pollutants known as criteria air pollutants. These are pollutants the USEPA determined can affect the health or welfare of the public (USEPA 2024a) and include ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead.

Ozone is not usually emitted directly into the air but is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants, or “ozone precursors.” These ozone precursors consist primarily of nitrogen oxides and volatile organic compounds that are directly emitted from a wide range of emission sources. For this reason, regulatory agencies limit atmospheric ozone concentrations by controlling volatile organic compound pollutants (also identified as reactive organic gases) and nitrogen oxides.

**Table 3-2** shows the specific concentration limits (primary and secondary) for each of the criteria pollutants that have been determined to impact human health and the environment. The primary NAAQS provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary NAAQS provides public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings (USEPA, 2024b).

On 7 February 2024, USEPA strengthened the NAAQS for particulate matter. Specifically, the USEPA set the level of the primary annual PM<sub>2.5</sub> standard at 9.0 micrograms per cubic meter to provide increased public health protection, consistent with the available health science. The USEPA did not change the current primary and secondary 24-hour PM<sub>2.5</sub> standards, secondary annual PM<sub>2.5</sub> standard, or the primary and secondary PM<sub>10</sub> standards (USEPA, 2024c).

**Table 3-2  
National Ambient Air Quality Standards**

Pollutant	Primary/Secondary <sup>a,b</sup>	Averaging Time	Level
Carbon monoxide	Primary	8 hours	9 ppm
Carbon monoxide	Primary	1 hour	35 ppm
Nitrogen dioxide	Primary	1 hour	100 ppb
	Primary and Secondary	Annual	53 ppb
Ozone	Primary and Secondary	8 hours	0.070 ppm
PM <sub>2.5</sub>	Primary	1 year	9.0 µg/m <sup>3</sup>
	Primary	Annual	12 µg/m <sup>3</sup>
	Secondary	Annual	15 µg/m <sup>3</sup>
	Primary and Secondary	24 hours	35 µg/m <sup>3</sup>
PM <sub>10</sub>	Primary and Secondary	24 hours	150 µg/m <sup>3</sup>
Sulfur dioxide	Primary	1 hour	75 ppb
	Secondary	3 hours	0.5 ppm
Lead	Primary and Secondary	Rolling 3-month average	0.15 µg/m <sup>3</sup>

Source: USEPA, 2024b

- a Primary Standards: the levels of air quality necessary, with an adequate margin of safety, to protect public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.
- b Secondary Standards: the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; PM<sub>2.5</sub> = fine inhalable particles with diameters of 2.5 micrometers or smaller; PM<sub>10</sub> = inhalable particles with diameters of 10 micrometers or smaller; ppm = parts per million; ppb = parts per billion

### 3.4.1.2 Greenhouse Gas Emissions

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions are generated by both natural processes and human activities. The accumulation of GHGs in the atmosphere helps regulate the earth's temperature. GHGs include water vapor, carbon dioxide, methane, nitrous oxide, ozone, several hydrocarbons and chlorofluorocarbons. Each GHG has an estimated global warming potential, which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the earth's surface. The global warming potential of a particular gas provides a relative basis for calculating its carbon dioxide-equivalent (CO<sub>2e</sub>) or the amount of CO<sub>2e</sub> to the emissions of that gas. Carbon dioxide has a global warming potential of 1 and is therefore the standard by which all other GHGs are measured. The GHGs are multiplied by their global warming potential, and the resulting values are added together to estimate the total CO<sub>2e</sub>.

The USEPA regulates GHG primarily through a permitting program known as the GHG Tailoring Rule. This rule applies to GHG emissions from larger stationary sources. Additionally, the USEPA promulgated a rule for large GHG emission stationary sources, fuel and industrial gas suppliers, and carbon dioxide injection sites if they emit 25,000 metric tons or more of CO<sub>2e</sub> per year ([40 CFR § 98.2\(a\)\(2\)](#)).

### 3.4.1.3 General Conformity and Attainment

When a region or area meets NAAQS for a criteria pollutant, that region or area is classified as in "attainment" for that pollutant. When a region or area fails to meet NAAQS for a criteria pollutant, that region or area is classified as "nonattainment" for that pollutant. In cases of nonattainment, the affected state, territory, or local agency must develop a state implementation plan for USEPA review and approval. The state implementation plan is an enforceable plan developed at the state level that lays out a pathway for how the state will comply with air quality standards. If air quality improves in a region that is classified as nonattainment, and the improvement results in the region meeting the criteria for classification as attainment, then that region is reclassified as a "maintenance" area.

Under the CAA, the General Conformity Rule requires proposed federal agency activities in designated nonattainment or maintenance areas (i.e., attainment areas reclassified from a prior nonattainment designation) to demonstrate conformity with the state implementation plan for attainment of NAAQS. Agencies are required to show that the net change in emissions from a federal proposed action would be below applicable *de minimis* threshold levels.

#### **3.4.1.4 New Source Review**

Per the CAA, the USEPA's Prevention of Significant Deterioration (PSD) New Source Review permit program regulates criteria and certain non-criteria air pollutants for air quality control regions designated as unclassified or in attainment status with respect to the federal standards. In such areas, a PSD review is required for new "major source" or "major modification of existing source" emissions that exceed 100 or 250 tons per year (tpy) of a regulated CAA pollutant, dependent on the type of major stationary source. For "minor source" emissions, a PSD review is required if a project increases a "major source" threshold.

#### **3.4.1.5 Operating Permits**

The State of Nevada has adopted the federal NAAQS. Pursuant to Nevada Revised Statute (Nevada Revised Statute [NRS] [445B.155](#)), the NDEP administers a permit program for stationary source emissions generated at federal facilities. Permitting requirements for federal owners and operators are largely based on a "potential to emit," defined as the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design or configuration. Calculations are used to determine whether a federal facility is defined as a "major source" under the CAA requiring a Title V operating permit; however, some "non-major" or "minor source" federal owners or operators are subject to permit-by-rule requirements. Permits-by-rule authorize stationary source emissions for individual or specific operations.

### **3.4.2 Existing Conditions**

The NIAQCR, in which the ROI for projects within the NTTR is located, is designated as in attainment for all criteria air pollutants ([40 CFR § 81.329](#)).

The NTTR maintains a Class II Air Quality Operating Permit from NDEP's Bureau of Air Pollution Control for its northern ranges, which includes the TPECR O&M. A Class II permit is typically for facilities that emit less than 100 tons per year for any one regulated pollutant, less than 25 tons per year total hazardous air pollutants, and less than 10 tons per year of any one hazardous air pollutant.

### **Regional Climate**

Nevada lies on the eastern side of the Sierra Nevada Mountain range, which blocks moisture from the Pacific Ocean. Locally, average annual precipitation varies from 4 inches to more than 50 inches on high mountain peaks of the Sierra Nevada Mountains. The southern Nevada areas where the NTTR resides vary from 0 to 15 inches of precipitation annually.

NTTR is in a semi-arid-to-arid region. Average annual precipitation at NTTR ranges from 4 inches on the desert floor to about 16 inches in mountain areas. The Great Basin is a collection of terminal lake basins that lie between north-to-south-trending mountain ranges. Most of the precipitation that falls, the bulk of which is snow, remains in the region until it is absorbed into the ground or evaporated, but is not drained from the region. Though the region is warm in the summer and has low relative humidity throughout the year, low temperatures and typically strong winds during the winter make this one of the coldest desert regions in the US. Almost the entire NTTR lies within the hydrographic Great Basin.

During the cold season (late autumn through early spring), southward migration of the subtropical high-pressure zone brings mid-latitude depressions to the southwestern US. Winter precipitation results from either frontal-cyclonic (Pacific-type storms) or non-frontal-cyclonic circulation (Great Basin lows). In both instances, the Sierra Nevada to the west is a major barrier to moist air moving inland from the Pacific

Ocean. Summer precipitation is rarely the product of large-scale frontal activity; instead, it occurs as localized thunderstorms that are caused by intense vertical air currents over heated terrain. At the NTTR, about 25 percent of the annual precipitation falls during the summer (June–early September). In the late summer (mid-July through mid-September), most of the precipitable water aloft in the Mojave Desert appears to originate from low-level northern flow, rather than from upper-level southeasterlies originating over the Gulf of Mexico. Tropical storms occurring August–October produce a different kind of warm-season precipitation event (Spaulding, 1985).

### 3.4.3 Environmental Consequences

#### 3.4.3.1 Evaluation Criteria

The environmental impact methodology for air quality impacts presented in this EA is derived from Air Force Manual (AFMAN) [32-7002](#), *Environmental Compliance and Pollution Prevention* (February 2020). The Proposed Action is broken down into basic units. For example, a basic development project that consists of replacing a building with a new building could be broken down into demolition (ft<sup>2</sup>), grading (ft<sup>2</sup>), building construction (ft<sup>2</sup> and height), architectural coatings (ft<sup>2</sup>), and paving (ft<sup>2</sup>). These data are then input into the Air Force's Air Conformity Applicability Model (ACAM), which models emissions based on the inputs and estimates air emissions for each specific criteria and precursor pollutant, as defined in the NAAQS. The calculated emissions are then compared against the applicable threshold based on the attainment status of the ROI. If the annual net increase in emissions from the project are below the applicable thresholds, then the Proposed Action and Alternatives are not considered significant and would not be subject to any further conformity determination. Assumptions of the model, methods, and detailed summary results are provided in **Appendix B** of this EA.

The ROI is in attainment for all NAAQS; therefore, the PSD value is used as a threshold for all other criteria pollutants other than lead. Due to the toxicity of lead, the use of the PSD threshold as an indicator of potential air quality impact insignificance is not protective of human health or the environment. Therefore, the *de minimis* value is used instead.

#### Assumptions

ACAM modeling for the Proposed Action and Alternatives assumes an estimated area that would be involved in construction activities. The areas of paving actions were estimated based on the square footage of the proposed structures. For construction and grading actions, the estimated areas are assumed to be greater than the existing structures to allow for construction area accessibility, utilities improvements, and laydown storage.

#### Schedule

For the purpose of the ACAM model, grading, paving, and construction activities have been spread out over four stages. Stages 1 and 2 occur entirely within the first year, Stage 3 occurs within years 1 and 2, and Stage 4 occurs within years 3 and 4. Project staging is the timeline for recommended construction start and completion. The model assumes that Stage 1 and 2 projects would occur from 2026 to 2027, Stage 3 projects from 2026-2027, and Stage 4 projects from 2028–2029.

#### 3.4.3.2 Proposed Action

**Table 3-3** summarizes the results of the ACAM analysis annualized over the course of implementation of the Proposed Action. The difference in the ACAM results between years reflects the implementation of the construction staging approach. The greatest increase in emissions would occur during 2026 when most of the grading and paving would occur for the well and pump house, as well as the road grading and improvements. All of the trenching for the proposed underground utility lines would occur during 2026, which is reflected in the increased PM<sub>10</sub> emissions relative to the following years. Emissions from the installation of the water tanks and the emergency generator were also split between 2026 and 2027. Half of the site grading actions from the construction of concrete pads are captured within 2027, demonstrated

by the elevated PM<sub>10</sub> emissions. Construction actions associated with the arsenic filtration facility are distributed across the two-year period 2028–2029 to capture the potential for emissions across the uncertain construction timeframe. **Table 3-4** summarizes the highest annual ACAM emissions for each pollutant compared to their respective thresholds for the Proposed Action.

**Table 3-3**  
**Air Emissions and Annual PSD Thresholds, NIAQCR – Proposed Action**

Pollutant	2026	2027	2028	2029
Volatile organic compound	0.292	0.232	0.228	0.223
Nitrogen oxides	2.421	1.901	1.845	1.760
Carbon monoxide	3.196	2.456	2.459	2.452
Sulfur oxides	0.005	0.008	0.008	0.008
PM <sub>10</sub>	17.835	0.279	0.096	0.091
PM <sub>2.5</sub>	0.096	0.082	0.078	0.074
Lead	0.000	0.000	0.000	0.000
Ammonia	0.003	0.002	0.002	0.002
Carbon dioxide-equivalent	455	365	365	365

PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PSD = Prevention of Significant Deterioration

**Table 3-4**  
**Air Emissions and Annual PSD Thresholds, NIAQCR – Proposed Action**

Pollutant	Highest Annual Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	0.292	250	No
Nitrogen oxides	2.421	250	No
Carbon monoxide	3.196	250	No
Sulfur oxides	0.008	250	No
PM <sub>10</sub>	17.835	250	No
PM <sub>2.5</sub>	0.096	250	No
Lead	0.000	25	No
Ammonia	0.003	250	No

NIAQCR = Nevada Intrastate Air Quality Control Region; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PSD = Prevention of Significant Deterioration

**Table 3-5** represents “steady-state” emissions, which measure the net annual increase in emissions that would be expected to continue in perpetuity after the construction phase is completed. The only steady-state emissions that would occur under the Proposed Action would be associated with heating the newly constructed buildings. As seen in **Table 3-5**, the steady-state emissions would be below applicable thresholds.

**Table 3-5  
Steady-State Air Emissions and Annual PSD Thresholds, NIAQCR – Proposed Action**

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	0.006	250	No
Nitrogen oxides	0.023	250	No
Carbon monoxide	0.016	250	No
Sulfur oxides	0.005	250	No
PM <sub>10</sub>	0.005	250	No
PM <sub>2.5</sub>	0.005	250	No
Lead	0.000	25	No
Ammonia	0.000	250	No
Carbon dioxide-equivalent	2.7	N/A	N/A

N/A = not applicable; NIAQCR = Nevada Intrastate Air Quality Control Region; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PSD = Prevention of Significant Deterioration

Implementation of the Proposed Action would result in short-term, negligible impacts to air quality during construction, and a long-term, negligible increase in steady-state emissions. The annual net increase in steady-state emissions would occur because of a negligible increase in heating square footage and would also be below applicable thresholds. For all criteria pollutants, the Proposed Action would result in an increase in emissions that would not exceed applicable thresholds.

### 3.4.3.3 Cumulative Impacts

The Proposed Action would result in negligible impacts to air quality. The proposed natural resource management actions under the NTTR Integrated Natural Resources Management Plan (INRMP) would also occur within the NIAQCR. NEPA analysis for that project is ongoing; however, annual air emissions for that project would be below the PSD threshold. Proposed actions within the TPECR O&M compound and the larger NTTR, such as infrastructure improvements and road work, would temporarily contribute to emissions within the region during construction. The demolition and replacement of buildings within the TPECR O&M compound may impact steady-state emissions due to building heating requirements; however, modern construction provides greater energy efficiency and would mitigate increases in steady-state emissions as a result. The cumulative emissions among all of the projects would also be below the PSD threshold in the NIAQCR. When considered in conjunction with the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions as presented in **Table 3-1**, no significant cumulative effects to air quality would be anticipated to occur with implementation of the Proposed Action.

### 3.4.3.4 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no impacts to air quality beyond baseline conditions. The NTTR would continue to operate under current conditions, and the facility and infrastructure assets of the Range would continue to degrade. Over time, the reliability of the existing water access and supporting infrastructure would diminish. The ability of NTTR to implement future planned projects at both the TPECR O&M compound and the salvage yard would decrease, impacting the ability to support the military mission.

## 3.5 CULTURAL RESOURCES

### 3.5.1 Definition of the Resource

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture or community for scientific, traditional, religious, or other purposes. These resources

are protected and identified under several federal laws and EOs including the *Archaeological and Historic Preservation Act of 1960*, as amended ([54 USC §§ 312501-312508](#)), the *American Indian Religious Freedom Act of 1978* ([42 USC § 1996](#)), the *Archaeological Resources Protection Act of 1979*, as amended ([16 USC §§ 470aa-470mm](#)), the *Native American Graves Protection and Repatriation Act of 1990* ([25 USC §§ 3001-3013](#)), the NHPA, as amended through 2016, and associated regulations ([36 CFR Part 800](#)). The NHPA requires federal agencies to consider effects of federal undertakings on historic properties prior to deciding or taking an action and integrate historic preservation values into their decision-making process. Federal agencies fulfill this requirement by completing the NHPA Section 106 consultation process, as set forth in 36 CFR Part 800. NHPA Section 106 also requires agencies to consult with federally recognized American Indian Tribes with a vested interest in the undertaking. NHPA Section 106 requires all federal agencies to seek to avoid, minimize, or mitigate adverse effects to historic properties ([36 CFR § 800.1\(a\)](#)).

Cultural resources include the following subcategories:

- Archaeological (i.e., prehistoric or historic sites where human activity has left physical evidence of that activity, but no structures remain standing);
- Architectural (i.e., buildings, structures, groups of structures, or designed landscapes that are of historic or aesthetic significance); and
- Traditional Cultural Properties (TCPs) (resources of traditional, religious, or cultural significance to American Indian Tribes).

Significant cultural resources are those listed on the NRHP or determined to be eligible for listing. To be eligible for the NRHP, properties must be 50 years old and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. They must possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to convey their historical significance and meet at least one of four criteria for evaluation:

1. Associated with events that have made a significant contribution to the broad patterns of our history (Criterion A);
2. Associated with the lives of persons significant in our past (Criterion B);
3. Embody distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); and/or
4. Have yielded or be likely to yield information important in prehistory or history (Criterion D).

Properties that are less than 50 years old can be considered eligible for the NRHP under criteria consideration G if they possess exceptional historical importance. Those properties must also retain historic integrity and meet at least one of the four NRHP criteria (Criteria A, B, C, or D). The term “historic property” refers to National Historic Landmarks, NRHP-listed, and NRHP-eligible cultural resources.

For cultural resources analyses, the ROI is defined by the Area of Potential Effects (APE). The APE is defined as the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist,” (36 CFR § 800.16(d)) and thereby diminish their historic integrity. For this EA, Nevada SHPO has concurred with DAF that the APE includes the 200-acre project area where all construction activities and ground disturbance would occur, as well as a 0.5-mile radius from the footprint of physical disturbance to account for visual, auditory, atmospheric, and cumulative effects.

### 3.5.2 Existing Conditions

A comprehensive discussion of the prehistoric and historic record of the NTTR is beyond the scope of this EA. The following discussion is intended to be general in nature and does not address the differing opinions and interpretations of other specialists.

Evidence of human occupation in southern Nevada first occurred around 10,000 years ago, consisting largely of nomadic hunter gatherers. European settlement of the area began approximately 200 years ago as Spanish/Mexican exploration, then European fur trader exploration approximately 175 years ago. European settlement of the area occurred approximately 100 years ago and was followed by Southern Nevada Infrastructure Development at the advent of the automobile through to current day.

Nellis AFB has an Integrated Cultural Resources Management Plan (ICRMP) which encompasses the NTTR. The ICRMP provides direction for the protection and management of cultural resources on the Installation and Range in compliance with the NHPA and other legal requirements (Nellis AFB, 2019) and describes cultural surveys undertaken by Nellis to identify historic properties. In addition to reviewing the ICRMP, information on cultural resources and surveys within the APE was acquired by searching the Nevada SHPO's Nevada Cultural Resources Inventory System.

#### 3.5.2.1 Historic Architectural Properties

Approximately 364 locations across the NTTR have been identified as historic or historic with prehistoric components. This number accounts for only 13 percent of the cultural features identified on the Range. The historic use of the Range was limited by water availability for agriculture and limited travel routes. Features of the limited settlements can be found located within the NTTR. Many of these features include remnants of abandoned mines and historic towns with architectural features. There are no NRHP-eligible or -listed historic architectural resources within the APE for the Proposed Action; therefore, this resource is not further discussed in this EA.

#### 3.5.2.2 Archaeological Properties

To date, 32 archaeological sites have been identified within the APE as a result of 15 previous archaeological surveys covering the entirety of the APE (**Table 3-6**). Sixteen sites are located within the 200-acre project footprint and an additional 16 sites are located within the greater 0.5-mile buffer. During the 2023 survey of the project footprint portion of the APE, nine new sites were identified, seven previously identified sites were revisited, and two sites were not relocated (Environmental Assessment Services, LLC [EAS], 2024). All 16 sites within the project footprint were evaluated or reevaluated for NRHP eligibility; of these sites, 13 were determined not eligible for NRHP listing. For the purposes of this EA, unevaluated sites are treated as eligible for NRHP listing.

Within the APE, four archaeological sites (NY1399, NY9122, NY9137, and NY9138) are recommended eligible for the NRHP under Criterion D, and five sites remain unevaluated (NY9301, NY11469, NY11471, NY11488, and NY11489) (**Table 3-7**). Of these resources, two eligible sites (NY9122 and NY9137) and one unevaluated site (NY9301) are located within the project footprint portion of the APE. NY9122 is a large prehistoric lithic reduction site dating to the Late Archaic period. Approximately 35 percent (1.45 acres) of NY9122's total area is within the project footprint. NY9137 is also a large prehistoric lithic reduction site, and it dates to the Middle Archaic period. Approximately 8 percent (2.54 acres) of NY9137's total area is within the physical APE. NY9301 represents a 2.42-acre prehistoric lithic scatter site. Approximately 17 percent (0.41 acre) of the NY9301's total area is within the project footprint.

The DAF initially submitted its NRHP eligibility recommendations for the 16 sites within the project footprint to the Nevada SHPO via mail on 18 September 2024. The Nevada SHPO reviewed the subject documents in accordance with Section 106 of the NHPA. On 10 March 2025, the SHPO concurred with Nellis AFB's determination of "no adverse effect" on historic properties, contingent on monitoring of construction near eligible or unevaluated sites by a qualified archaeologist (see **Appendix A**).

**Table 3-6  
Archaeological Surveys Conducted within the Area of Potential Effects**

SHPO Report Number	Report Author(s)	Report Name	Year
36095	Hanley, David (EAS, LLC)	Class III Intensive Cultural Resources Survey of Approximately 200 Acres at Nellis Air Force Base – Nevada Test and Training Range: Northern Hub Development, Tolicha Peak Water Facility, Nye County, Nevada	2024
24495	Edwards, Susan R. and Jeffery R. Wedding	A Class III Cultural Resources Inventory for a Buried Utility Run on Tolicha Peak Electronic Combat Range (TPECR), Nye County, Nevada	2018
19203	Wedding, Jeffrey R. and Susan R. Edwards	A Class III Cultural Resource Inventory of Approximately 61 Miles for a Proposed Fiber Optic Line from the Tolicha Peak Facility (TPECR) to the North End of Range 74B, Nevada Test and Training Range, Nye County, Nevada	2014
8847	Pippin, Lonnie C. and Jeffrey R. Wedding	Class III Cultural Resources Survey for Thirty Proposed System Pads on the Nevada Test and Training Range, Nye County, Nevada	2012
6988	Baker, Jeffrey I. and Annette J. Thompson	A Class III Cultural Resources Survey of Valley Electric Distribution Lines from Beatty to Tolicha Peak, Nye County, Nevada	2011
6268	Pippin, Lonnie C.	Class III Cultural Resources Survey in Support of a Proposed Fiber Optic Line From the Tolicha Peak Compound to Black Mountain, Nevada Test and Training Range, Nye County, Nevada	2010
16706	Edwards, Susan	A Class III Cultural Resources Reconnaissance for the TPK-49 Bypass Road Improvement, Nellis Air Force Range, Nye County, Nevada	1998
16648	Pippin, Lonnie C. and Harold Drollinger	Class III Cultural Resources Reconnaissance for the Proposed TPK-38 Facility, Tolicha Peak Electronic Combat Range, Nye County, Nevada	1996
16629	Pippin, Lonnie C.	A Cultural Resources Survey for a Proposed Fiber Optic Line Between the Tonopah Test Range and The Tolicha Peak Electronic Combat Range, Nellis Air Force Range, Nye County, Nevada: Phase II- Site 50 To TPK-40	1996
16610	Pippin, Lonnie C.	Class III Cultural Resources Surveys for a Proposed Expansion of Systems and Utility Lines on the Tolicha Peak Electronic Combat Range, Nellis Air Force Range, Nye County, Nevada	1995
16547	Drollinger, Harold	Class III Cultural Resources Reconnaissance of a Proposed Fiber Optic System for Tolicha Peak, Nellis Air Force Range, Nye County, Nevada	1995
16582	Pippin, Lonnie C.	Class III Cultural Resources Reconnaissance of a Proposed Buried Fiber Optic Line to the FAC Alpha Location, Nellis Air Force Range, Nye County, Nevada	1994
16572	Drollinger, Harold	A Class III Cultural Resources Reconnaissance of a Weather Station Near the Tolicha Peak Main Compound, Nellis Air Force Range, Nye County, Nevada	1994
16505	Drollinger, Harold	A Class III Cultural Resources Reconnaissance of a Proposed Above Ground 34.5 Kv Powerline and Two Associated Underground 12 Kv Powerlines from NTS Area 20 to the Tolicha Peak Compound on Nellis Air Force Range, Nye County, Nevada	1994
16243	Reno, Ronald L. and Katherine Cheryl Dojaquez	A Class III Cultural Resources Reconnaissance of Radiological Monitoring Stations for the Yucca Mountain Project, Clark and Nye Counties, Nevada	1988

Source: NV SHPO, 2024

**Table 3-7  
NRHP-Eligible Archaeological Sites within the Area of Potential Effects**

Site Number	Temporal Affiliation	Description	NRHP Status	Location (within project footprint or surrounding buffer)
NY1399	Prehistoric	Lithic scatter and prospect pit	Eligible (D)	0.5-mile buffer
NY9122	Prehistoric: Late Archaic	Lithic scatter	Eligible (D)	project footprint
NY9137	Prehistoric: Middle Archaic	Lithic scatter	Eligible (D)	project footprint
NY9138	Prehistoric	Lithic scatter	Eligible (D)	0.5-mile radius
NY9301	Prehistoric	Lithic scatter	Unevaluated	project footprint
NY11469	Prehistoric	Lithic scatter and possible storage pit	Unevaluated	0.5-mile buffer
NY11471	Prehistoric	Habitation site	Unevaluated	0.5-mile buffer
NY11488	Prehistoric	Lithic scatter	Unevaluated	0.5-mile buffer
NY11489	Possible Prehistoric	Possible Prehistoric burial	Unevaluated	0.5-mile buffer

Source: NV SHPO, 2024

D = NRHP eligible under Criterion D; NRHP = National Register of Historic Places

### 3.5.2.3 Traditional Cultural Properties

TCPs may include traditionally used plants and animals, trails, and certain geographic areas. Types of resources that have been specifically identified in recent studies include, but are not limited to, rock art sites; “power” rocks and locations; medicine areas; and landscape features such as specific peaks or ranges, hot springs, meadows, valleys, and caves. Sixteen federally recognized Native American Tribes have historical ties to Nellis AFB and the surrounding area. To date, no TCPs have been identified within the APE. All 16 Tribes were first notified of the Proposed Action on 24 January 2023 and were contacted again on 18 September 2024 as part of the Section 106 consultation process.

- Big Pine Paiute Tribe of the Owens Valley
- Bishop Paiute Tribe
- Chemehuevi Indian Tribe of the Chemehuevi Reservation, California
- Colorado River Indian Tribes of the Colorado River Indian Reservation, Arizona and California
- Duckwater Shoshone Tribe of the Duckwater Reservation, Nevada
- Ely Shoshone Tribe of Nevada
- Fort Independence Indian Community of Paiute Indians of the Fort Independence Reservation, California
- Fort Mojave Indian Tribe of Arizona, California, and Nevada
- Kaibab Band of Paiute Indians of the Kaibab Indian Reservation, Arizona
- Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony, Nevada
- Lone Pine Paiute-Shoshone Tribe
- Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Nevada
- Paiute Indian Tribe of Utah (Cedar Band of Paiutes, Kanosh Band of Paiutes, Koosharen Band of Paiutes, Indian Peaks Band of Paiutes, and Shivwits Band of Paiutes)
- Timbisha Shoshone Tribe
- Utu Utu Gwaitu Paiute Tribe of the Benton Paiute Reservation, California
- Yomba Shoshone Tribe of the Yomba Reservation, Nevada

Because no TCPs were identified in the APE, this resource is not discussed further in this EA.

### 3.5.3 Environmental Consequences

#### 3.5.3.1 Evaluation Criteria

Adverse impacts on cultural resources would occur if the Proposed Action:

- physically alters, damages, or destroys all or part of a resource;
- alters characteristics of the surrounding environment that contribute to the resource's significance;
- introduces visual or audible elements that are out of character with the property or alter its setting or feeling;
- neglects the resource to the extent that it deteriorates or is destroyed; and/or
- results in the sale, transfer, or lease of the property out of agency ownership (or control) without adequate enforceable restrictions or conditions to ensure preservation of the property's historic significance.

For the purposes of this EA, an impact is considered significant if it alters the integrity of a NRHP-listed, eligible, or potentially eligible resource or potentially impacts TCPs.

#### 3.5.3.2 Proposed Action

##### Archaeological Properties

There are four NRHP-eligible archaeological sites (NY1399, NY9122, NY9137, and NY9138) and five unevaluated sites (NY9301, NY11469, NY11471, NY11488, and NY11489) located within the APE. The four sites with eligibility determinations are eligible under Criterion D. The significance and integrity of resources eligible under Criterion D are dependent on the recovery of data that is important, or potentially important, to the past. Considering that all eligible sites qualify for nomination to the NRHP under Criterion D, visual, auditory, atmospheric, and cumulative impacts resulting from facilities and infrastructure construction would not adversely affect any aspects of integrity that communicate the historical or archaeological significance of eligible sites. Nor would such impacts preclude any unevaluated sites from potentially being determined NRHP eligible at a later date, as most sites would also qualify under Criterion D, if at all. The one unevaluated site that may qualify under a Criterion other than D is NY11489, the potential prehistoric burial. However, this site is already protected by a fence that was erected in 2001; it is also directly adjacent to the TPEC O&M compound, whereas the Proposed Action would be located at least 310 meters (about 1,000 ft) away. Therefore, any visual effects to NY11489 from the Proposed Action would be minimal and would not substantially change the current setting of the site. The two eligible sites (NY9122 and NY9137) and one unevaluated site (NY9301) within the project footprint would be avoided during all ground-disturbing activities and monitored during such activities by a qualified archaeologist, as appropriate. Consequently, implementation of the Proposed Action would result in no adverse effects to historic resources.

The DAF would avoid ground-disturbing work within, or in the immediate vicinity of, any unevaluated or eligible site to prevent impacts to the resources. The Proposed Action would require exploratory drilling for locating the site of proposed well within the Gold Flat 147 aquifer as shown in **Figure 2-1**. Approximately 1.45 acres from site NY9122, 2.54 acres from site NY9137, and 0.41 acre from site NY9301 overlap with the project footprint within Gold Flat 147; however, none of the areas in which eligible archaeological resources are located would be suitable for exploratory drilling or construction. The locations of these sites are on the perimeter of the project area, preventing the ability to effectively install supporting infrastructure. The overlap between the project footprint and these three sites comprises less than 5 acres (2.5 percent) of the Proposed Action area and would be completely avoided.

Approximately 6,800 lf of underground electrical utility lines connecting the well and pumphouse would be installed via trenching along Civet Cat Canyon Road during Stage 1 of the Proposed Action. The northernmost portion of site NY9137 is located to the west of Civet Cat Canyon Road, proximate to the existing overhead utility lines. Trenching the underground utility lines to the new facility would

occur alongside Civet Cat Canyon Road to the east due to the potential conflict between construction equipment and the existing aboveground power utility to the west. Site NY9137 would be completely avoided during the installation of underground utility lines. The site would be flagged by Nellis AFB Cultural Resources staff as an environmentally sensitive area, and measures would be taken to prevent equipment staging from encroaching into this area.

The DAF has submitted eligibility recommendations to Nevada SHPO for the sites within the APE; SHPO concurred with DAF's recommendations via letter dated 10 March 2025. Both NRHP-eligible archaeological sites and the unevaluated site within the Proposed Action area would be completely avoided during exploratory well drilling, as well as the construction of the supporting buildings, roads, and infrastructure described under the Proposed Action. SHPO also concurred that there would be no adverse effects to any sites located within the 0.5-mile buffer portion of the APE. Therefore, implementation of the Proposed Action would not adversely affect historic resources.

In accordance with federal and DAF regulations, should any previously unidentified cultural resources or human remains be encountered during ground-disturbing activities within the APE, all activities in the vicinity of the discovery must cease and a qualified archaeologist be consulted. Additionally, the Nevada SHPO and all appropriate stakeholders would be notified.

### **3.5.3.3 Cumulative Impacts**

The Proposed Action would have no adverse effect on cultural resources within the APE. None of the proposed natural resource management projects under the NTTR INRMP would result in adverse effects on cultural resources, per the ongoing NEPA analysis. The reasonably foreseeable actions within TPECR and the larger NTTR would occur around areas of existing development or involve the rehabilitation/improvement of existing infrastructure; therefore, these actions would be unlikely to disturb new or existing cultural resources. Some project locations are currently unknown, and if resources were identified near the Proposed Action area, the approach would be managed in accordance with the Nellis AFB and NTTR ICRMP. When considered in conjunction with the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions as presented in **Table 3-1**, no significant cumulative effects to cultural resources would be anticipated to occur with implementation of the Proposed Action.

### **3.5.3.4 No Action Alternative**

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no impacts to cultural resources beyond baseline conditions. The NTTR would continue to operate under current conditions, and the facility and infrastructure assets of the Range would continue to degrade. Over time, the reliability of the existing water access and supporting infrastructure would diminish. The ability of NTTR to implement future planned projects at both the TPECR O&M compound and the salvage yard would decrease, impacting the ability to support the military mission.

## **3.6 BIOLOGICAL/NATURAL RESOURCES**

### **3.6.1 Definition of the Resource**

Biological resources include native or invasive plants and animals; sensitive and protected floral and faunal species; and the associated habitats, such as wetlands, forests, grasslands, cliffs, and caves in which they exist. Habitat can be defined as the resources and conditions in an area that support a defined suite of organisms. The following is a description of the primary federal statutes that form the regulatory framework for the evaluation of biological resources.

The ROI for biological resources is a 1-mile buffer surrounding the project area (**Figure 2-1**).

### **3.6.1.1 Endangered Species Act**

The ESA established protection for threatened and endangered species and the ecosystems upon which they depend. Sensitive and protected biological resources include plants and animals in the codified list of threatened and endangered species at [50 CFR Part 17](#), which also includes species designated as special status by USFWS. Under Section 9 of the ESA, it is illegal to import, export, or take endangered species for any purpose. The term “take” means to harass, hunt, shoot, capture, trap, kill, collect, wound, harm, or pursue an ESA-listed species, or attempt any of these activities.

Under the ESA, an “endangered species” is defined as any species in danger of extinction throughout all, or a large portion, of its range. A “threatened species” is defined as any species likely to become an endangered species in the foreseeable future. USFWS maintains a list of candidate species being evaluated for possible listing as threatened or endangered under the ESA. Although candidate species receive no statutory protection under the ESA, USFWS has attempted to advise government agencies, industry, and the public that these species are at risk and may warrant protection in the future under the ESA.

The ESA also allows the designation of geographic areas as critical habitat for threatened or endangered species. Section 4(a)(3)(B)(i) of the ESA was amended by the *National Defense Authorization Act for Fiscal Year 2004* ([Public Law 108-106](#)) to preclude the Secretaries of Interior (e.g., USFWS) and Commerce (e.g., National Marine Fisheries Service) from designating critical habitat on any lands or other geographical areas owned or controlled by the DoD, or designated for its use, that are subject to an approved DoD INRMP developed under the *Sikes Act Improvement Act of 1997* ([16 USC § 670a](#)), provided that the appropriate Secretaries certify in writing that the INRMP benefits the federally listed species. According to the USFWS-approved 2024 INRMP for Nellis AFB, Creech AFB, and the NTTR, there is no critical habitat designated on the NTTR (Nellis AFB, 2024).

### **3.6.1.2 Migratory Bird Treaty Act**

The *Migratory Bird Treaty Act of 1918* ([16 USC 703–712](#)) (MBTA) makes it unlawful for anyone to take migratory birds or their parts, nests, or eggs unless permitted to do so by regulations. Per the MBTA, “take” is defined as “pursue, hunt, shoot, wound, kill, trap, capture, or collect” ([50 CFR § 10.12](#)). Birds protected under the MBTA include nearly all species in the US except for non-native/human-introduced species and some game birds.

[EO 13186](#), *Responsibilities of Federal Agencies to Protect Migratory Birds*, requires all federal agencies undertaking activities that may negatively impact migratory birds to follow a prescribed set of actions to further implement MBTA. EO 13186 directs federal agencies to develop a Memorandum of Understanding with USFWS that promotes the conservation of migratory birds.

The *National Defense Authorization Act for Fiscal Year 2003* ([Public Law 107-314, 116 Stat. 2458](#)) provided the Secretary of the Interior the authority to prescribe regulations to exempt the armed forces from the incidental take of migratory birds during authorized military readiness activities. Congress defined military readiness activities as all training and operations of the US Armed Forces that relate to combat and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use. Further, in October of 2012, the Authorization of Take Incidental to Military Readiness Activities was published in the *Federal Register* ([50 CFR § 21.15](#)), authorizing incidental take during military readiness activities unless such activities may result in significant adverse effects on a population of a migratory bird species.

In December 2017, the US Department of the Interior issued [M-Opinion 37050](#), which concluded that the take of migratory birds from an activity is not prohibited by the MBTA when the purpose of that activity is not the take of migratory birds, eggs, or nests. On August 11, 2020, the US District Court, Southern District of New York, vacated M-Opinion 37050. On 2 March 2021, the US Court of Appeals for the Second Circuit dismissed the Southern District of New York’s appeal. Consequently, the Principal Deputy Solicitor of the

Department of the Interior issued a memorandum on 8 March 2021, permanently withdrawing M-Opinion 37050. Thus, incidental take of migratory birds is again prohibited. The interpretation of the MBTA remains in flux, and additional court proceedings are expected.

### **3.6.1.3 Bald and Golden Eagle Protection Act**

The *Bald and Golden Eagle Protection Act of 1940* ([16 USC §§ 668–668d](#)) (BGEPA) prohibits actions to “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle [or any golden eagle], alive or dead, or any part, nest, or egg thereof.” Further, the BGEPA defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb,” and “disturb” is defined as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, injury to an eagle, a decrease in productivity by substantially interfering with the eagle’s normal breeding, feeding or sheltering behavior, or nest abandonment by substantially interfering with the eagle’s normal breeding, feeding, or sheltering behavior.” The BGEPA also prohibits activities around an active or inactive nest site that could result in disturbance to returning eagles.

### **3.6.1.4 Other Protected Species**

The Fish and Wildlife Conservation Act directs the USFWS to identify migratory bird species and populations that require additional conservation measures to prevent potential listing under the ESA. In response, the USFWS Birds of Conservation Concern (BCC) 2024 list identifies bird species that represent the highest conservation priorities. Species are not considered for inclusion in the BCC 2024 list if they occur only sporadically, or if they are not protected under the MBTA or ESA.

Through a comprehensive technical analysis, the DoD Partners in Flight (PIF) program has identified 15 bird species on DoD lands that may be at risk of being listed under the ESA. These species have been classified as Mission-sensitive Species (MSS) due to their potential to significantly impact military operations if an ESA listing is pursued. The MSS list is designed to assist DoD Natural Resources Managers in prioritizing efforts to monitor and manage these species and their habitats, with the aim of reversing declining trends and preparing installations for the possibility of ESA listings.

Certain fishes, birds, amphibians, and mammals are protected under the jurisdiction of Nevada per Nevada Administrative Code (NAC) [Chapter 503](#). A state-protected species is defined as: having a limited population; a distribution found only within Nevada; a significant ecological, scientific, educational, or other value; or a species that is considered to be threatened, endangered, or a candidate species by the USFWS. Nevada endangered species are categorized by danger of extinction throughout all or a significant portion of their range. Nevada has varying levels of state protection for wildlife.

The Nevada State Wildlife Action Plan (SWAP) is a comprehensive management guide released by the NDOW, most recently in 2022, identifying the state’s Species of Greatest Conservation Need (SGCN). Nevada SGCN are species in need of conservation that have the potential to become threatened or endangered due to population decline or habitat loss. The list includes both native species and migratory species that rely on Nevada’s diverse habitats.

The Bureau of Land Management (BLM) Sensitive Species are plant and animal species that are of concern to BLM due to their potential risk of becoming endangered or threatened. These species may not currently be listed under the ESA, but they are recognized as requiring special management or conservation efforts to prevent future listing.

### **3.6.1.5 Invasive Species**

Invasive species are non-native species in an ecosystem whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health. EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, requires federal agencies to identify actions that may affect

invasive species; use relevant programs to prevent introductions of invasive species; detect, respond, and control such species; monitor invasive species populations; and provide for restoration of native species. Invasive species damage native habitat and impede management by outcompeting native species.

Invasive species management at the NTTR is driven by the National Invasive Species Council Annual Work Plan; Federal Noxious Weed Act ([7 USC § 2814](#)); EO 13112; *Nevada Control of Insects, Pests, and Noxious Weeds* (NRS 555.005 to 555.201); and the *Nellis AFB Integrated Pest Management Program* (Nellis AFB, 2024).

### 3.6.2 Existing Conditions

The Proposed Action is located on the North Range of the NTTR in the southwest portion of the Great Basin Desert in southern Nevada. Approximately 5 percent of the land area of the NTTR is directly impacted by mission activities. Because of high security levels that allow little to no public access, about 2.7 million acres of the NTTR are largely undisturbed by human activities. As a result, the ecological communities within the NTTR are less affected by human activity than similar ones in the surrounding region, leading to a variety of healthy plant and animal communities that continue to be conserved within the NTTR's boundaries. The topography of the NTTR connects habitats, species, communities, and ecosystems without fragmentation, which frequently occurs in areas outside of the NTTR. The NTTR lacks major highways and agriculture and provides relatively uninterrupted north-south migration corridors in the Great Basin and Range Province. The topography of the area also allows the NTTR to provide protected, relatively undisturbed areas where plant and animal species can live without being affected by various human activities (Nellis AFB, 2024).

#### 3.6.2.1 Vegetation

The NTTR is within a vegetation transition zone encompassing both the Great Basin Desert and the Mojave Desert. The project area is located within the Great Basin Desert floristic region. Three types of Nevada Key habitat are found in the ROI: Sagebrush (76 percent), Intermountain Cold Desert Scrub (23.6 percent), and grassland/meadows (0.4 percent) (Nellis AFB, 2022a) (**Figure 3-1**).

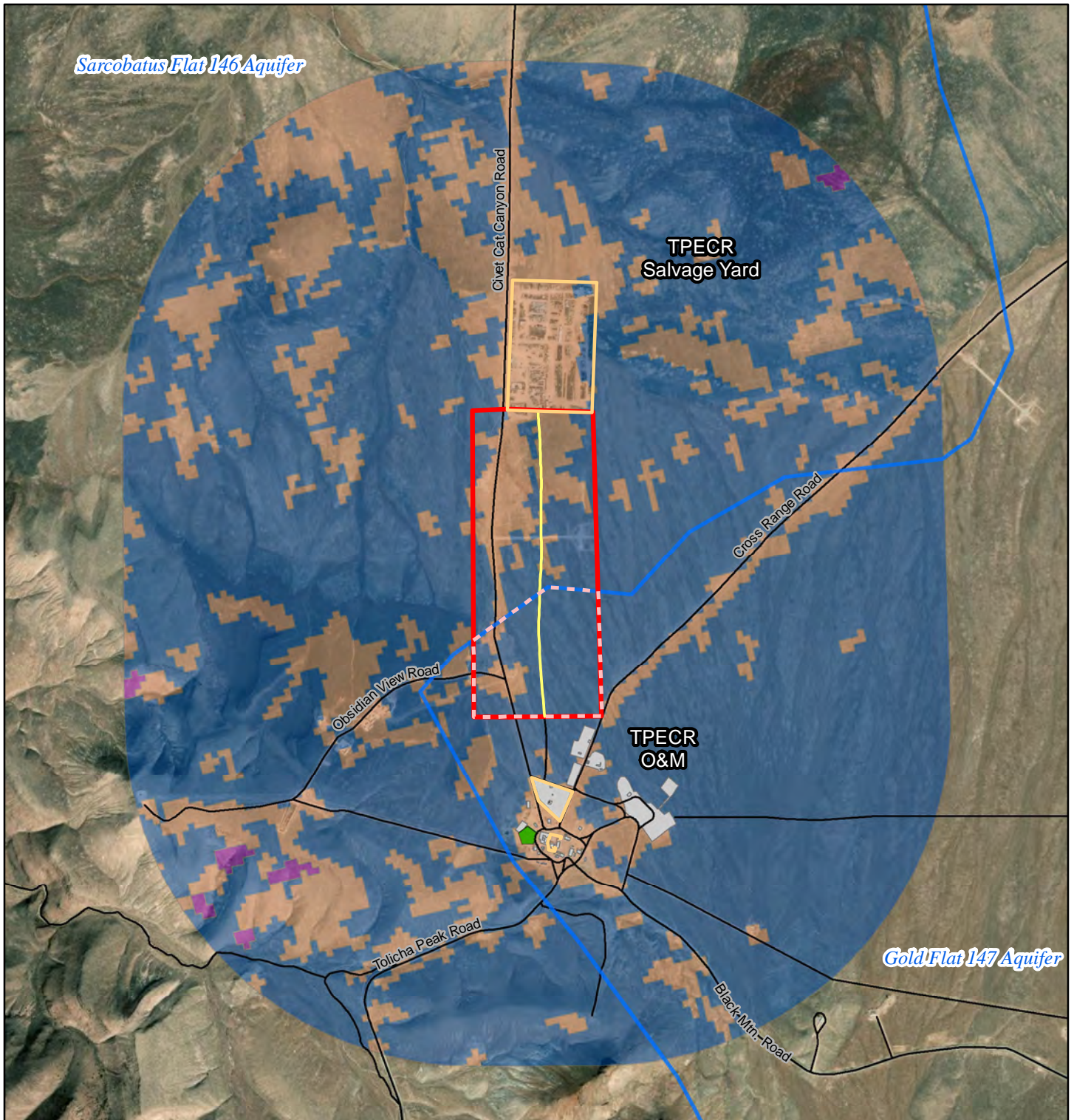
Species in the Sagebrush association include basin big sagebrush (*Artemisia tridentata* [A. t.]), mountain big sagebrush (*A. t. vaseyana*), Wyoming big sagebrush (*A. t. wyomingensis*), low sagebrush (*Artemisia arbuscula*), and black sagebrush (*Artemisia nova*), depending on the elevation (Nellis AFB, 2022a). This habitat also includes a variety of saltbush (*Atriplex* spp.).

Intermountain Cold Desert Scrub habitat is dominated by salt-tolerant shrubs, due in large part to the high soil, including shadscale (*Atriplex confertifolia*) and greasewood (*Sarcobatus vermiculatus*). Grasses include Indian ricegrass (*Achnatherum hymenoides*) (Nellis AFB, 2022a).

#### 3.6.2.2 Wildlife

The project area has been minimally disturbed and is sparsely vegetated; however, common wildlife species still have the potential to occur. Bird species typically found in sagebrush communities at lower altitudes include the sage thrasher (*Oreoscoptes montanus*), sage sparrow (*Amphispiza befiti*), and horned lark (*Eremophila alpestris*). Less frequently observed species include the mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), common nighthawk (*Chordeiles minor*), western meadowlark (*Stumella neglecta*), and common raven (*Corvus corax*).

Several bat species are known to inhabit NTTR, including the long-legged myotis (*Myotis volans*), fringe-tailed myotis (*M. thysanodes*), California myotis (*M. californicus*), pipstrelle (*Pipistrellus hesperus*), Townsend's big-eared bat (*Plecotus townsendii*), and pallid bat (*Antrozous pallidus*).

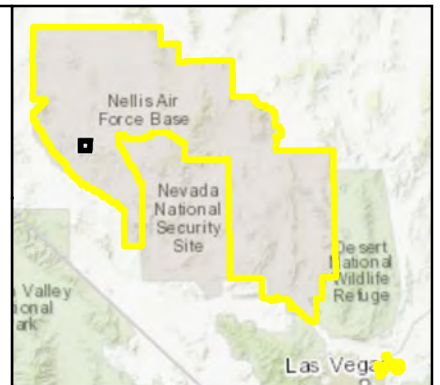


**FIGURE 3-1**  
 Key Habitat

- |             |                        |                                 |
|-------------|------------------------|---------------------------------|
| TPECR Well  | Proposed Well Location | Intermountain Cold Desert Shrub |
| Access Road | Hydrobasins Boundary   | Sagebrush                       |
| Fencelines  | Project Area           | TPECR O&M Compound              |
| Roads       | Grasslands and Meadows |                                 |



Imagery: ESRI, 2021  
 Coordinate System: NAD 83 UTM Zone 11N



Reptiles are common across the entire NTTR, while amphibians are scarce and only found in areas containing perennial sources of water. The most common amphibians found in NTTR are the Great Basin spadefoot toad (*Spea intermontana*) on the North Range and the western toad (*Bufo boreas*). Common reptiles found on NTTR include the desert tortoise (*Gopherus agassizii*), side-blotched lizard (*Uta stansburiana*), tiger whiptail (*Cnemidophorus tigris*), zebra-tailed lizard (*Callisaurus draconoides*), desert spiny lizard (*Sceloporus magister*), chuckwalla lizard (*Sauromalus obesus*), and the desert horned lizard (*Phrynosoma platyrhinos*). Common snakes include the coach whip (*Coluber flagellum*), western patch-nosed snake (*Salvadora hexalepis*), gopher snake (*Pituophis melanoleucus*), western shovel-nosed snake (*Chionactis occipitalis*), and the sidewinder rattlesnake (*Crotalus cerastes*). On the North Range, additional reptile species have been observed and include the Great Basin fence lizard (*Sceloporus occidentalis*), long-nosed leopard lizard (*Gambelia wislizenii*), and Great Basin rattlesnake (*Crotalus organus lutosus*) (Nellis AFB, 2022b). The desert tortoise is not likely to be found within or near the Proposed Action area due to lack of suitable habitat because topographic elevations in this area range from 5,500 to 5,700 feet above mean sea level (AMSL) where temperatures are cooler. Desert tortoises are typically recorded at lower elevations, below 4,200 AMSL, where temperatures are warmer (USFWS, 2022).

Mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), desert bighorn (*Ovis canadensis nelsoni*), and mountain lions (*Puma concolor*) are prominent large mammal species found on NTTR. Common small mammals found on NTTR include coyote (*Canis latrans*), red fox (*Vulpes fulva*), gray fox (*Urocyon cinereoargenteus*), badger (*Taxidea taxus*), black-tailed jackrabbit (*Lepus californicus*), desert kit fox (*Vulpes macrotis*), and bobcat (*Lynx rufus*) (Nellis AFB, 2022b).

### **Threatened or Endangered Species**

On 28 January 2025, basic information concerning the location and nature of the Proposed Action was input into the USFWS IPaC online tool to obtain an official species list. The list identifies threatened and endangered species, other protected species (e.g., migratory birds), and critical habitat with the potential to occur within the ROI. Only one threatened species, the yellow-billed cuckoo (*Coccyzus americanus*), and one candidate species, the monarch butterfly (*Danaus plexippus*), have the potential to be affected by the Proposed Action (USFWS, 2023a).

In the western US, the yellow-billed cuckoo uses habitat with dense cover and water nearby, including wooded areas with low, scrubby vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes (USFWS, 2023b). No critical habitat for the yellow-billed cuckoo exists within the ROI.

The monarch butterfly migrates seasonally in the spring and fall through Nevada, which is part of the butterfly's summer breeding area. The primary threat to the monarch includes habitat loss and degradation due to conversion of grasslands to agriculture, herbicide use, changes to the ecosystem and natural environment in overwintering areas due to human activity, drought, urban development, and insecticides. Additionally, as milkweed is a crucial part of their breeding habits, monarchs are threatened by a loss of this plant in their breeding areas, as well as by losses of nectar-producing plants ([87 Federal Register 26169](#), 3 May 2022). Because of the semi-arid and arid environment and vegetation and lack of surface water within the project area, there is no suitable habitat for the monarch butterfly within the ROI.

### **Migratory Birds**

A list of protected species that have been observed within the ROI over the last 10 years has been included in **Table 3-8**, along with their listing status under various state and federal conservation programs. Ferruginous hawk (*Buteo regalis*), Loggerhead shrike (*Lanius ludovicianus*), Brewer's sparrow (*Spizella breweri*), burrowing owl (*Athene cunicularia hypugaea*), prairie falcon (*Falco mexicanus*), and sage thrasher (*Oreoscoptes montanus*) are protected under the MBTA and have been observed within the ROI. Further, suitable habitat for these species exists within the ROI. The ferruginous hawk, loggerhead shrike, brewer's sparrow, burrowing owl, and prairie falcon prefer grasslands, and the ferruginous hawk utilizes flats with sagebrush. The burrowing owl also prefers short vegetation and sagebrush, uses vacant lots near areas

with people, and inhabits mammal burrows for nests, rarely digging its own. The sage thrasher prefers desert areas with scattered shrubs and sagebrush.

**Table 3-8  
Other Protected Species Observed Within the Region of Influence**

Species	State Status	SGCN	BLM Sensitive	BCC	DoD PIF MSS	MBTA
<b>Birds</b>						
Ferruginous hawk ( <i>Buteo regalis</i> )	N/A	Yes	Yes	Yes	No	Yes
Loggerhead shrike ( <i>Lanius ludovicianus</i> )	SB	Yes	Yes	Yes	Yes	Yes
Brewer's sparrow ( <i>Spizella breweri</i> )	SB	Yes	Yes	No	No	Yes
Burrowing owl ( <i>Athene cunicularia</i> )	N/A	Yes	Yes	Yes	Yes	Yes
Prairie falcon ( <i>Falco mexicanus</i> )	N/A	Yes	No	Yes	No	Yes
Sage thrasher ( <i>Oreoscoptes montanus</i> )	N/A	Yes	Yes	Yes	No	Yes
<b>Reptiles</b>						
Long-nosed leopard lizard ( <i>Gambelia wislizenii</i> )	N/A	Yes	Yes	N/A	N/A	N/A
Desert horned lizard ( <i>Phrynosoma platyrhinos</i> )	N/A	Yes	Yes	N/A	N/A	N/A
<b>Mammals</b>						
Mule deer ( <i>Odocoileus hemionus</i> )	N/A	Yes	No	N/A	N/A	N/A
Canyon bat ( <i>Parastrellus hesperus</i> )	PM	Yes	Yes	N/A	N/A	N/A
California myotis ( <i>Myotis californicus</i> )	PM	No	Yes	N/A	N/A	N/A
Brazilian (Mexican) free-tailed bat ( <i>Tadarida brasiliensis</i> )	PM	Yes	Yes	N/A	N/A	N/A
Fringed myotis ( <i>Myotis thysanodes</i> )	N/A	Yes	Yes	N/A	N/A	N/A
Pallid bat ( <i>Antrozous pallidus</i> )	PM	Yes	Yes	N/A	N/A	N/A
Long-legged myotis ( <i>Myotis volans</i> )	PM	Yes	Yes	N/A	N/A	N/A
Western small-footed myotis ( <i>Myotis ciliolabrum</i> )	PM	Yes	Yes	N/A	N/A	N/A

Sources: BLM, 2023; DoD, 2021; Department of the Interior, 2023; Nevada Division of Natural Heritage, 2024a, 2024b; NDOW, 2022  
BCC = Birds of Conservation Concern; BLM = Bureau of Land Management; MBTA = Migratory Bird Treaty Act Protected; MSS = Mission-sensitive Species; N/A = not applicable; PIF = Partners in Flight; PM = protected mammal; SB = Sensitive Bird; SGCN = species of greatest conservation need

### **Bald and Golden Eagle Protection Act**

Both bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) have been documented on the NTTR. However, bald eagles are typically only observed while passing over the area during migration and have not been observed since 2018 (Nellis AFB, 2024). The NTTR does not contain suitable bald eagle wintering habitat and is outside of their breeding range (Nellis AFB, 2024). Golden eagles are known to occur on the NTTR. Surveys as recent as 2020 identified two golden eagle nests along the southern border of the TPECR, approximately 4 miles to the south of the project area. No nests have

been observed within the ROI. Suitable habitat for nesting and foraging also occurs throughout Nevada and the surrounding states of California, Arizona, Utah, Idaho, and Oregon (Fink, 2023; Nellis AFB, 2022c).

### **Other Protected Species**

Survey efforts at NTTR have identified several wildlife species within the ROI that are classified as BLM Sensitive, Nevada SGCN, USFWS BCC, DoD PIF MSS, or protected by the MBTA. Such species that have been identified within the ROI within the last 10 years are listed **Table 3-8** (Nellis AFB, 2024).

The long-nosed leopard lizard and desert horned lizard prefer sandy areas, sandy soils, and/or areas with sparse vegetation, flats, low/desert shrubs, sagebrush, grasslands, and arid-to-semi-arid/desert environments, which are available within the project area. The long-nosed leopard lizard uses rodent and/or lizard burrows and underground areas to shelter and/or lay their eggs. The mule deer prefers open areas in arid-to-semi-arid environments. Suitable habitat for the canyon bat, California myotis, and pallid bat exists within the ROI, including desert scrub flats, sagebrush grasslands, shrubland, and open/dry areas for foraging. Bats typically use abandoned buildings, mines, caves, bridges, dead/dying trees, rock crevices, and cliffs for roosting and/or giving birth to young, none of which occur in the ROI. Although the Brazilian (Mexican) free-tailed bat and long-legged myotis have been observed within the ROI, they typically are associated with rock outcrops, lava flows, boulder piles/rocky areas, mountainous areas with brush vegetation/coniferous woodlands, and areas that are seasonally wet.

### **3.6.2.3 Invasive Species**

Euro-American settlement in the area now occupied by the NTTR led to the introduction of non-native annual and perennial plants, some of which overtake native vegetation and are considered invasive. The most prominent annual invasive species found in the North Range are Russian thistle (*Salsola tragus*), red brome (*Bromus rubens*), saltlover (*Halogeton glomeratus*), and cheatgrass (*Bromus tectorum*) (Nellis AFB, 2024). Cheatgrass is common in the North Range and specifically threatens native vegetation in both the Sagebrush and Intermountain Cold Desert Scrub habitats, which occur within the ROI. All spread rapidly and can out-compete native annual plant populations in areas where soil has been disturbed; however, Russian thistle usually does not persist if there is no further soil disturbance. The introduction of these species has increased the amount of flammable fuel in the vegetation communities and the potential spread of wildland fire has increased due to these species carrying fires between more widely spaced shrubs (Nellis AFB, 2024). Nuisance wildlife, both native and non-native, can be found on the NTTR as listed in **Table 3-9**. Projects for management of these species have been ongoing at NTTR and include annual monitoring, high-resolution imagery, and impact mitigation.

**Table 3-9  
Nuisance Wildlife on Nevada Test and Training Range**

<b>Common Name</b>	<b>Scientific Name</b>
Brown-headed cowbird	<i>Molothrus ater</i>
European starling	<i>Sturnus vulgaris</i>
House sparrow	<i>Passer domesticus</i>
Horned lark	<i>Eremophila alpestris</i>
Canada goose	<i>Branta canadensis</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Coyote	<i>Canis latrans</i>
Wild horse	<i>Equus caballus</i>
Wild burro	<i>Equus asinus</i>
Feral dog	<i>Canis familiaris</i>
Feral cat	<i>Felis catus</i>
Mediterranean house gecko	<i>Hemidactylus turcicus</i>
Rough-tailed bowfoot gecko	<i>Cytropodian scabrum</i>

### **3.6.3 Environmental Consequences**

#### **3.6.3.1 Evaluation Criteria**

The level of impact on biological resources is based on the following:

- importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource;
- proportion of the resource that would be affected relative to its occurrence in the region;
- sensitivity of the resource to the proposed activities; and
- duration of potential ecological impact.

A biological resources impact would be adverse if

- species or habitats of concern were affected over relatively large areas, or
- disturbances caused reductions in population size or distribution of a federally listed species.

A significant impact to biological resources within the ROI would occur if the Proposed Action

- negatively affects species or habitats of concern;
- causes reductions in population size or distribution of species of high concern;
- disturbs or destroys habitats of concern;
- removes or changes critical protections provided to species and habitats of concern;
- causes substantial amount of vegetation removal from riparian habitats;
- results in direct loss or substantial degradation of terrestrial (e.g., fragmentation) or aquatic (e.g., wetlands) habitats; and/or
- causes an adverse effect on the recovery of a federally listed or candidate species.

#### **3.6.3.2 Proposed Action**

##### **Vegetation**

The Proposed Action would disturb approximately 0.3 percent of the total area within the project area, although the exact location of construction has yet to be determined. Sagebrush habitat makes up approximately 65 percent of the project area, while the remaining 34 percent consists of Intermountain Cold Desert Scrub. Due to the availability of Sagebrush and Intermountain Cold Desert Scrub habitat both within the project area and the surrounding ROI, impacts to vegetation from the Proposed Action would be expected to be negligible. New construction and road grading would have the potential to clear established vegetation, but the utility work along existing roadways would be less likely to disturb longstanding brush. Implementation of the Proposed Action would result in minor, short-term impacts to vegetation given the availability of similar vegetation in the ROI.

##### **Wildlife**

The Proposed Action would disturb minor amounts of Sagebrush and Intermountain Cold Desert Scrub habitat areas within the ROI, which support a variety of common mammals, reptiles, and birds. It is likely that some of those species may use the ROI, and the vegetation found within, for foraging or nesting. Populations of small mammals and reptiles in the Proposed Action area would be impacted during vegetation removal as a result of mortality during land clearing. These effects are expected to be long term as the habitat would be removed. In addition, the temporary noise associated with construction activities could disturb wildlife in the immediate vicinity. Noise disturbances, while brief, may cause short-term disruptions to wildlife, particularly species sensitive to sound, like birds, bats, and some mammals, which

could experience changes in foraging or nesting behavior (Francis and Barber, 2013). Such disturbances are expected to be minor and temporary, with wildlife likely returning to the area after construction concludes. Because the construction period would be brief and noise would diminish over time, long-term impacts to wildlife populations are not anticipated. Areas of both Sagebrush and Intermountain Cold Desert Scrub habitats are commonly found across the NTTR, and wildlife would relocate to similar nearby areas during construction. Therefore, impacts to wildlife would be minor and short term relative to noise, and impacts would be minor and long term as a result of habitat removal from land clearing.

### **Threatened or Endangered Species and Other Protected Species**

The ROI does not contain critical habitat, suitable habitat, or known occurrences for either the threatened yellow-billed cuckoo or the monarch butterfly. Therefore, implementation of the Proposed Action would not impact federally listed threatened or endangered species within the ROI. However, as with other wildlife, noise associated with construction activities could cause brief disturbances to individual species, particularly those species that may use the area intermittently during migration or seasonal foraging. Given the brief and temporary nature of the noise, no long-term impacts to the yellow-billed cuckoo or monarch butterfly are anticipated. The noise likely would be of short duration, and given the lack of suitable habitat for the monarch butterfly, no significant impacts are expected for this species. Likewise, the yellow-billed cuckoo's habitat preferences (dense, water-adjacent vegetation) are not present in the ROI.

*Migratory Birds/Bald and Golden Eagles* – There are no structures present in the ROI that migratory birds could use for roosting or nesting. No impacts to bald or golden eagles would be expected because suitable habitat for bald eagles does not exist within the ROI. While the type of habitat that golden eagles use for foraging is present, no golden eagle nests were observed within the ROI, and the habitat is widespread elsewhere across the NTTR. Therefore, implementation of the Proposed Action would not impact migratory birds or bald and golden eagles within the ROI. Noise generated by construction activities, while temporary, could disturb foraging birds or cause some avoidance behavior, particularly if the noise occurs during sensitive times, such as during migration or early nesting. However, the relatively short duration of noise impacts would limit any long-term behavioral changes for these species. Should golden eagle nests be encountered within the ROI prior to construction, DAF would immediately consult with USFWS to determine appropriate mitigation measures in compliance with the BGEPA.

*Other Protected Species* – The Proposed Action would disturb Sagebrush and Intermountain Cold Desert Scrub habitat. These habitats have the potential to support multiple species targeted for conservation either via habitat or foraging ground. The Proposed Action area would be inspected prior to the start of construction activities and examined for evidence of state-listed and/or state-protected species. Protection of state-listed/state-protected species is not required under federal regulations; however, it is DAF policy to protect state-listed species when that protection does not directly conflict with the military mission. In addition to vegetation removal, temporary noise from construction activities could disrupt the behavior of other protected species, such as small mammals and reptiles, which may temporarily relocate away from the construction area. Noise effects would be brief and likely not lead to long-term disruption of these species but could cause temporary displacement from the immediate area. The NTTR would actively avoid activities that negatively impact any sensitive species, and if these impacts are unavoidable, organizations would consult with the Nevada Division of Water Resources (NDWR), as appropriate. Therefore, implementation of the Proposed Action would result in minor, long-term impacts to other protected species.

The DAF has determined that the Proposed Action would have no effect on threatened or endangered species or other protected species. The DAF notified the USFWS via letter dated 23 May 2025 of its determination. The DAF did not receive a response or further comments from USFWS. Therefore, consultation with the USFWS on this matter is complete.

### **Invasive Species**

Soil disturbance associated with excavation and new construction could create ideal conditions for the establishment of invasive plant species, including cheatgrass, red brome, salt lover, and Russian thistle. Ground-disturbing activities associated with the Proposed Action would occur on previously undeveloped

land where invasive species are more likely to occur. Construction would have the potential to impact invasive species by enhancing established beds in disturbed areas, or by leading to the creation of new ones. Any invasive species found during development would be eliminated. Grading actions that leave bare soil may provide conditions favorable to the establishment of invasive plant species. During construction, crews would adhere to the following best management practices (BMPs) to minimize invasive species establishment:

- Clean and inspect all equipment before being brought on site to avoid dispersal of non-native invasive species.
- Monitor and control invasive plant species.

Although temporary construction activities would not directly contribute to the spread of invasive species, ground disturbance and vegetation removal could create conditions that favor their establishment. Invasive plant species that thrive in disturbed areas may capitalize on the temporary disruption of soil and native vegetation, potentially leading to localized increases in their presence. However, given the arid conditions of the region, the extent of invasive species establishment likely would be limited. Implementation of the Proposed Action would result in minor, long-term effects to the establishment of invasive and noxious weed species.

### **3.6.3.3 Cumulative Impacts**

The Proposed Action would result in no impacts to federally protected species; minor, short-term impacts to vegetation and wildlife; and minor, long-term impacts to invasive species management. Projects proposed as part of the updated NTTR INRMP would be considered essential to ensure long-term wildlife and ecosystem viability on the NTTR. The targeted surveys and monitoring for threatened, endangered, and sensitive species would inform all future management plans and development projects as to their effects on the species and habitat within the NTTR. The INRMP projects would support the military mission and avoid development or operational delays by maintaining required federal, state, and local plans and permits, such as biological opinions, the Wildland Fire Management Plan, Bird/wildlife Aircraft Strike Hazard Plan, Integrated Pest Management Plan, and associated permits. Implementation of the Wildland Fire Management Plan specifically would help to protect life, property, and resources from wildfire. The actions under the INRMP would improve knowledge of the status and locations of biological resources within the NTTR and Nellis AFB providing long-term, beneficial impacts to biological resources. Multiple construction actions are proposed within the TPECR O&M compound and across NTTR. Construction within the TPECR O&M compound and other developed areas within the Range would be unlikely to encounter sensitive wildlife or critical habitat. There are actions for which the locations are currently unknown, and efforts would be made to evaluate the presence of biological and natural resources, as well as federally threatened and endangered species prior to the start of work. When considered in conjunction with the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions as presented in **Table 3-1**, no significant cumulative effects to biological resources would be anticipated to occur with implementation of the Proposed Action.

### **3.6.3.4 No Action Alternative**

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no impacts to biological/natural resources beyond baseline conditions. The NTTR would continue to operate under current conditions, and the facility and infrastructure assets of the Range would continue to degrade. Over time, the reliability of the existing water access and supporting infrastructure would diminish. The ability of NTTR to implement future planned projects at both the TPECR O&M compound and the salvage yard would decrease, impacting the ability to support the military mission.

## **3.7 WATER RESOURCES**

### **3.7.1 Definition of the Resource**

Water resources include surface water, wetlands, stormwater, groundwater, and floodplains. The *Federal Water Pollution Control Act of 1948*, as amended by the *Clean Water Act* ([33 USC § 1251](#) et seq.) (CWA), was enacted to protect water resources vulnerable to contamination and quality degradation. The CWA provides the authority to establish water quality standards, control discharges into surface and subsurface waters (including groundwater), develop waste treatment management plans and practices, and issue permits for discharges. A National Pollutant Discharge Elimination System (NPDES) permit under Section 402 of the CWA is required for discharges into navigable waters. USEPA oversees the issuance of NPDES permits at federal facilities as well as water quality regulations (CWA, Section 401) for both surface- and groundwater.

The ROI for water resources is the project area. An expanded ROI is used to evaluate groundwater, which includes the Sarcobatus Flat 146 and Gold Flat 147 aquifers.

#### **3.7.1.1 Surface Water**

The USEPA defines surface waters as waters of the US, which are primarily lakes, rivers, estuaries, coastal waters, and wetlands. Jurisdictional waters, including surface water resources, as defined in [33 CFR § 328.3](#), are regulated under Sections 401 and 404 of the CWA and Section 10 of the *Rivers and Harbors Act*. Man-made features not directly associated with a natural drainage, such as upland stock ponds and irrigation canals, are generally not considered jurisdictional waters. The CWA regulates discharges of pollutants in surface waters of the US. Section 404 of the CWA established a program to regulate the discharge of dredged and fill material into waters of the US.

#### **3.7.1.2 Wetlands**

The US Army Corps of Engineers (USACE) defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions” (Environmental Laboratory, 1987). Wetlands generally include swamps, marshes, bogs, and similar areas ([33 CFR Part 328](#)). Federal protection of wetlands is also promulgated under EO 11990, *Protection of Wetlands*, the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands. This EO directs federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands.

#### **3.7.1.3 Stormwater**

Stormwater is surface water runoff generated from precipitation and has the potential to introduce sediments and other pollutants into surface waters. Stormwater is regulated under the CWA Section 402 NPDES program. Impervious surfaces such as buildings, roads, parking lots, and even some natural soils increase surface runoff. Stormwater management systems are designed to contain runoff on site during construction and to maintain predevelopment stormwater flow characteristics following development through either the application of infiltration or retention practices. *Energy Independence and Security Act* ([Public Law 110-140](#)) establishes stormwater design requirements for development and redevelopment projects. Under these requirements, federal facility projects larger than 5,000 ft<sup>2</sup> must maintain or restore, to the maximum extent feasible, the predevelopment hydrology of the property with respect to the water temperature, rate, volume, and duration of flow.

#### **3.7.1.4 Groundwater**

Groundwater is water that exists in the saturated zone beneath the earth’s surface in pore spaces and fractures and includes aquifers. Groundwater is recharged through percolation of water on the ground’s

surface (e.g., precipitation and surface water bodies) and upward movement of water in lower aquifers through capillary movement. Groundwater is an essential resource that can be used for drinking, irrigation, and industrial processes, and can be described in terms of depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations. Groundwater quality and quantity are regulated under several different programs. The federal sole source aquifer regulations, authorized under the *Safe Drinking Water Act*, protect aquifers that are critical to water supply.

Well water permitting in Nye County, Nevada, is managed by the NDWR. Before drilling a well, entities must obtain a permit from the NDWR, which ensures that water use is both legal and sustainable. The permitting process involves submitting an application that includes details about the well's purpose, location, and the projected usage for compliance with Nevada's water laws

### **3.7.1.5 Floodplains**

Floodplains are areas of low-level ground along rivers, stream channels, or coastal waters that provide a broad area to inundate and temporarily store floodwater. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body. Floodplains are subject to periodic or infrequent inundation due to rain or melting snow. The risk of flooding is influenced by local topography, the frequency of precipitation events, and the size and characteristics of the watershed upslope of the floodplain.

The Federal Emergency Management Act (FEMA) evaluates and maps flood potential, which defines the 100-year (regulatory) floodplain. The 100-year floodplain is the area that has a one-percent annual chance of inundation by floodwater. FEMA uses letter designations for flood zone classification. Zone A designates 100-year floodplains where flood depths (base flood elevations) have not been calculated and further studies are needed. Zone AE floodplains include calculated base flood elevations. Base flood elevations are minimum elevation standards for buildings. Zone X indicates areas outside of the FEMA 100-year regulatory floodplain and thus a low risk of flooding hazards (FEMA, 2020). Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to property and human health and safety. A Zone D designation includes areas with possible flood hazards, but no flood hazard analysis has been conducted to determine probability, and the flood risk in these areas is undetermined.

EO 11988, *Floodplain Management*, provides guidelines that agencies should carry out as part of their decision-making process on projects that have potential impacts to or within the floodplain. This EO requires that federal agencies avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and avoid direct and indirect support of floodplain development wherever there is a practicable alternative. EO 13690, *Establishing a Flood Risk Management Standard and Process for Further Soliciting and Considering Stakeholder Input*, established a Federal Flood Risk Management Standard and a process for further soliciting and considering stakeholder input; however, this EO was later revoked by Section 6 of EO 13807, *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure*. EO 13807 did not revoke or otherwise alter EO 11988.

## **3.7.2 Existing Conditions**

### **3.7.2.1 Surface Waters and Wetlands**

The NTTR is located in the northeast portion of the Las Vegas Valley, an intermountain basin of approximately 1,600 square miles within the Basin and Range Province of the US, extending to the southeast through the Las Vegas Wash into Lake Mead (Nellis AFB, 2024). The NTTR is located in a semi-arid-to-arid desert region but contains approximately 360 historic seep and spring sites within the Range boundary. The surface water present at NTTR typically consists of alluvial fans, valley collectors, and dry lake beds that may contain water during storm events.

There are no jurisdictional waters, streams, or wetlands located within the ROI; therefore, these topics are not further discussed in this EA.

### **3.7.2.2 Stormwater**

Stormwater conveyance occurs in the NTTR in the form of mountain runoff, piedmont plains, and/or base-level plains or alluvial valleys. While some powerful storms pass through the region, generating 4 to 16 inches of rainfall a year, most of the precipitation evaporates quickly. Flash floods are common when more intense storms occur because of the low infiltration potential of the soil. Some storms generate flash floods in higher elevations. Stormwater within the NTTR does not flow beyond lake beds and instead stays within closed basins (Nellis AFB, 2024). The ROI does not have any known areas of stormwater accumulation, and any stormwater is currently conveyed through natural channels to areas of lower elevation.

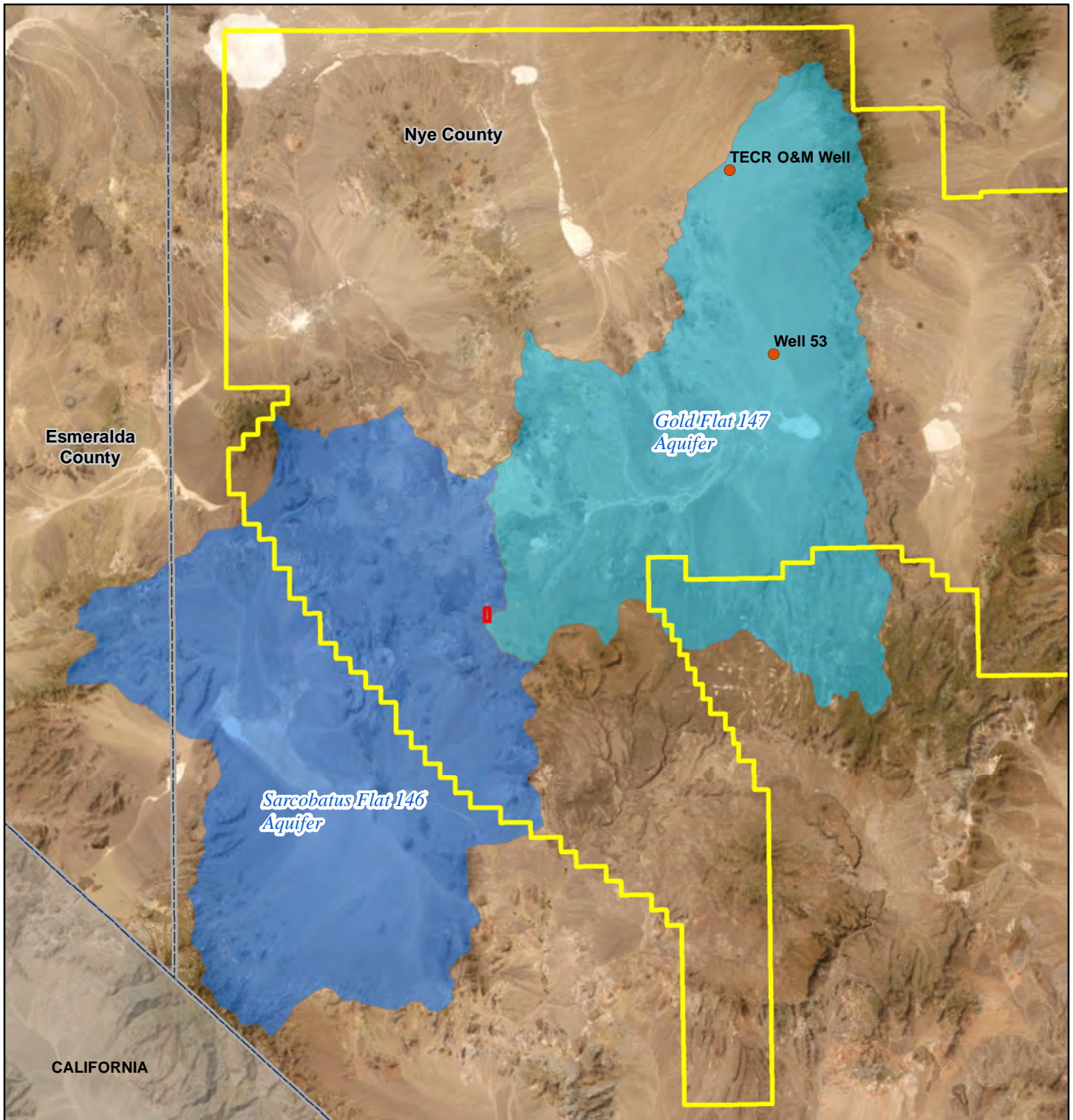
### **3.7.2.3 Groundwater**

The NTTR is located in a largely undisturbed area of the carbonate-rock province of the Great Basin (Nellis AFB, 2024). Carbonate rocks are highly permeable, supporting large groundwater and aquifer systems. The Sarcobatus 146 aquifer is a groundwater system located in western Nevada, primarily within Nye County to the west of the project area (**Figure 3-2**). The aquifer is part of the larger hydrological network that serves as a critical water source for the area. The groundwater in this aquifer is primarily stored in porous sediments, such as gravel, sand, and clay, which allow for the accumulation and movement of water. The water quality in the Sarcobatus 146 aquifer can vary depending on location, with some areas having higher salinity or mineral content. As with many aquifers in the region, the Sarcobatus 146 is sensitive to over-extraction and can be impacted by the surrounding landscape, including the area's natural geology and human activities and groundwater pumping. Sustainable management practices are essential to ensure long-term availability and quality of water from this resource. The existing well within the Sarcobatus 146 aquifer, NDWR Permit No. 48429, is constructed to a depth of 1,023 ft below ground surface (bgs) and is currently the only water source at the TPECR O&M compound. Static water levels at the proposed well site are estimated to be at 600 ft bgs, and a pumping water level of 700 ft to 800 ft bgs may be realized. In 2024, the existing well extracted 3,590,230 gallons over the course of the year, representing approximately 79 percent of the maximum allowable capacity of 4,539,110.45 gallons per year that NTTR as a whole is currently permitted to withdraw from the Sarcobatus Flat 146 aquifer. NTTR has no other permitted wells operating within the Sarcobatus 146 aquifer.

The Gold Flat 147 aquifer is also located within Nye County; primarily to the east of the project area, extending into the North Range of the NTTR. The Gold Flat 147 aquifer has an allowable water draw capacity of 117,951,524 gallons per year permitted to the NTTR. The NTTR currently operates two existing wells within the Gold Flat 147 aquifer, known as Well 53 and the TECR Well (**Figure 3-2**). The two wells currently have a combined draw of approximately 7,200,000 gallons, or 6% of the total capacity for which NTTR is permitted to draw from the aquifer.

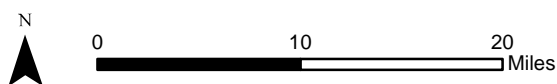
### **3.7.2.4 Floodplains**

FEMA floodplain data indicates that the entirety of the project area falls within Zone D, which is an area of undetermined risk. The nearest mapped FEMA Zone A floodplain is over 10 miles to the southwest of the project boundary (FEMA, 2020). Permanent streams are not located within the project boundary, and any flooding would occur as flash floods follow storm events. Shallow flooding can occur from impermeable surfaces such as pavements or poorly drained soils.

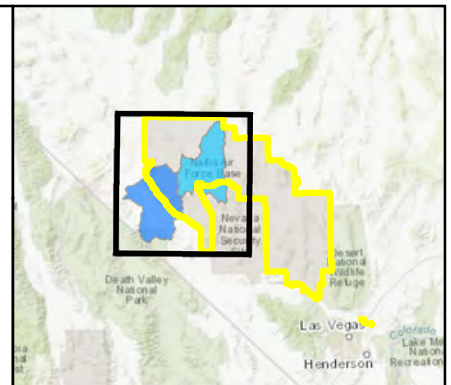


**FIGURE 3-2**  
 Aquifers (County Level)

- Existing Well
- ▭ County Boundary
- ▭ Installation Boundary
- ▭ Project Area
- ▭ Gold Flat 147 Aquifer
- ▭ Sarcobatus Flat 146 Aquifer



Imagery: ESRI, 2021  
 Coordinate System: NAD 83 UTM Zone 11N



### **3.7.3 Environmental Consequences**

#### **3.7.3.1 Evaluation Criteria**

Evaluation criteria for potential impacts on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. Potential adverse impacts to water resources would occur if the Proposed Action

- reduces water availability or supply to existing users,
- overdrafts groundwater basins,
- exceeds safe annual yield of water supply sources,
- adversely affects water quality,
- endangers public health by creating or worsening health hazard conditions, or
- violates established laws or regulations adopted to protect sensitive water resources.

Significant impacts to water resources would occur if the surface water, stormwater, floodplains, or groundwater were altered such that the function of these resources would change irreversibly, resulting in impacts to the broader environment.

#### **3.7.3.2 Proposed Action**

##### **Surface Waters**

The Proposed Action is located outside of a dry lakebed, valley connector, or location that might hold water for an extended time during rain events. Alluvial flow from storm events may be temporarily disrupted during construction, as discussed below; however, jurisdictional waters would not be impacted by the Proposed Action. Therefore, implementation of the Proposed Action would result in minor, short-term impacts to surface water.

##### **Stormwater**

Minor, short-term impacts to stormwater would occur during construction due to soil disturbance during all four phases of the Proposed Action. Construction of the well, pump house, utilities, storage tanks, unpaved access road, and multiple support structures would disturb more than 1 acre of land. In accordance with NPDES regulations, NTTR would obtain coverage under a State-issued Construction Stormwater General Permit from NDEP prior to implementing the Proposed Action.

In addition, minor, short-term impacts to stormwater during construction would occur from flash floods, which can occur during more intense storms because of the low infiltration potential of the soil. Any stormwater flow that occurs during construction would be managed through BMPs, such as the placement of hay bales and silt fences, would be used to minimize soil erosion and deposition in the runoff. As part of the Proposed Action, culverts for stormwater management would be installed beneath a newly graded access road, although the exact location of these structures has not yet been determined. Therefore, implementation of the Proposed Action would result in minor, short-term impacts to stormwater.

##### **Groundwater**

During exploratory drilling, pilot boreholes approximately 6-inches in diameter would be drilled to gather information about the depth, composition, and potential yield of the groundwater in specific locations. The well would be drilled to multiple depths to identify the most productive zone of the aquifer based on water flow rates. Anticipated depth to groundwater would be approximately 600 ft, based on the reported static water level at the well to the south. The proposed final drilling depth for the well is 1,100 ft. A productive well would need to find a thick enough layer of saturated basin-fill materials or permeable volcanic rock to allow for water flow. The proposed well would be estimated to penetrate approximately 500 ft into potentially

saturated material. Since pumps need to be placed 100–200 feet below the static water level, the anticipated pumping depth would be between 700 and 800 feet.

Exploratory drilling would be anticipated to occur within the southern portion of the Project Area as shown in **Figure 2-1**, and the final well would be located within this boundary. The NTTR would seek a waiver to drill the test wells once the water right transfer application is on file with NDWR, but this would not permit long-term water use from the well. Prior to confirming the final location of the permanent well, further tests would be conducted to determine water quality and confirm the source of the groundwater as the Gold Flat 147 aquifer. If conditions are acceptable, the borehole would be expanded to 16 inches in diameter, which would be large enough to contain the final 8-inch water supply well. Drilling equipment would be handled carefully so as not to introduce contaminants to the aquifer via spills or leaks.

When the assembled well casing is installed and centered in the final hole, gravel would be packed around the casing. Sand used for packing would be subject to DoD approval and would meet specifications on specific gravity, solubility, and heavy metal content, and gravel packing materials would follow [ASTM C136](#), *Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates*. This would maintain the appropriate size distribution of gravel to act as a media filter to keep fine sediments from entering the well through the screen. In addition, the gravel would be thoroughly sterilized with chlorine or sodium hypochlorite immediately before being placed within the well. A sanitary seal would be constructed within the top 100 feet of the well, consisting of a sand slurry cement mix and would prevent surface water infiltration.

The well would be completely sterilized with water and calcium hypochlorite in accordance with American [ANSI/AWWA C654-03](#), *Disinfection of Wells*, once the final flow rate testing has been performed. The sterilizing solution would be circulated throughout the entire depth of the well for approximately 12–24 hours before being pumped out. Due to the potential for contamination of the well, the construction within the Gold Flat 147 aquifer would result in minor, short-term impacts to groundwater resources during test hole drilling and final well installation, although these risks would be managed through the drilling and sterilization procedures outlined above.

The Gold Flat 147 aquifer, which lies entirely within the boundaries of the NTTR, has a yearly allowance of 361.95 AFA, or 117,951,701.32 gallons; no other permitted users of the aquifer exist. The current estimated usage from the TECR well and Well 53 is approximately 6 percent of the yearly allowance, or around 7,200,000 gallons per year. The remaining yearly allowable draw capacity from Gold Flat 147 would be estimated to be approximately 109,000,000 gallons. The remaining capacity would be more than sufficient to accommodate the estimated 2,400,000 gallons per year that would be extracted through the new well for domestic purposes.

NDWR rules allow for a portion of the existing water rights to be transferred from elsewhere within the Gold Flat 147 hydrographic basin to accommodate the construction of a new well. The total yearly water draw would continue to be distributed between the three wells, dictated by needs and demand. Using the water draw amounts from 2024, the increase in yearly water consumption from Gold Flat 147 would only increase by approximately 2.0 percent against the total capacity allotted to NTTR within this aquifer. Access to the Gold Flat 147 aquifer would be sufficient for the needs of the TPECR O&M compound, would not exceed the existing allowable capacity, and would allow for additional usage into the future.

The existing TPECR well within the Sarcobatus Flat 146 aquifer supports a combination of domestic and construction usage of approximately 250,000–300,000 gallons each month. The new well within Gold Flat 147 would be anticipated to draw from 150,000 to 200,000 gallons per month and would be intended primarily for domestic usage. The existing well within Sarcobatus Flat 146 would convert to construction-use only, reducing the immediate demand on this well; however, estimated usage from both aquifers would continue to increase both construction and personnel usage over time as the military mission expands. The establishment of an alternative water source from the adjacent aquifer would reduce the demand on the existing aquifer and provide additional water draw capacity to support the growing military mission.

In summary, implementation of the Proposed Action would result in minor, short-term impacts to groundwater resources.

### **Floodplains**

As indicated by the Zone D designation for undetermined risk, there are no confirmed FEMA floodplains within the project area; however, storm events would be anticipated to result in flash flooding and shallow flooding where impermeable surfaces or poorly drained soils exist. Additionally, during storm events, linear construction projects, such as access road grading, may impact stormwater runoff by catching debris and impeding flow. The impediment of stormwater flow would have the potential to increase the probability of flash flooding during severe storm events. Debris removal and construction site maintenance, as well as the installation of culverts as part of the Proposed Action to manage stormwater long term, would help to ensure water moves freely in these areas. Implementation of the Proposed Action would result in short-term, negligible impacts to floodplains due to the uncertainty of the Zone D designation.

#### **3.7.3.3 Cumulative Impacts**

The Proposed Action would have no adverse impacts to water resources. No floodplains or wetlands are present within the project area, and stormwater would be managed through the installation of culverts along the new access road. The NTTR INRMP projects would improve knowledge of the status and locations of water resources within the Range and result in long-term, beneficial impacts. Many of the planned construction projects would be located within existing areas of development and would not be expected to conflict with known water resources. The Zone D designation, of unknown floodplain risk covers the entirety of the TPECR O&M compound and much of the Northern Range. The Nellis AFB and NTTR Area Development Plan (ADP) project locations across NTTR have yet to be determined. Measures would need to be taken to consider the local hydrology and to secure construction sites with BMPs like hay bales or silt fencing to prevent unwanted runoff or obstructions. When considered in conjunction with the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions as presented in **Table 3-1**, minor, adverse cumulative impacts to water resources would be anticipated to occur with implementation of the Proposed Action through the growing water demands of the military mission at NTTR.

#### **3.7.3.4 No Action Alternative**

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no impacts to water resources beyond baseline conditions. NTTR would continue to operate under current conditions, and the facility and infrastructure assets of the Range would continue to degrade. Water usage from the TPECR O&M compound would continue to increase against the water draw limit within Sarcobatus Flat 146. Over time, the reliability of the existing water access and supporting infrastructure would diminish. The ability of NTTR to implement future planned projects at both the TPECR O&M compound and the salvage yard would decrease, impacting the ability to support the military mission.

### **3.8 HAZARDOUS MATERIALS AND WASTES, TOXIC SUBSTANCES, PETROLEUM PRODUCTS, AND CONTAMINATED SITES**

#### **3.8.1 Definition of the Resource**

Hazardous materials (HAZMAT) and hazardous wastes, toxic substances, and petroleum products are substances that, when released into the environment or handled incorrectly have the potential to cause harm to human health and the environment. These substances are evaluated together under a single topic because they all have the potential to cause harm. The definition of each type of substance is nuanced and, as such, each category of substance is regulated under different federal regulations and DAF policies. A more detailed definition of each category is presented in the following sections.

The ROI for HAZMAT, hazardous waste, toxic substances, petroleum products, and contaminated sites is the project area and the TPECR O&M compound.

### **3.8.1.1 Hazardous Materials and Wastes**

The *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* ([42 USC § 9601](#)) (CERCLA), as amended by the *Superfund Amendments and Reauthorization Act of 1986* ([Public Law 99-499](#)) and the *Toxic Substances Control Act* ([15 USC § 2601](#) et seq., as implemented by [40 CFR Part 761](#)) (TSCA), defines HAZMAT as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness, or that might pose a substantial threat to human health or the environment. The Occupational Safety and Health Administration (OSHA) is responsible for the enforcement and implementation of federal laws and regulations pertaining to worker health and safety under [29 CFR Part 1910](#). OSHA also includes the regulation of HAZMAT in the workplace and ensures appropriate training in their handling.

The *Solid Waste Disposal Act*, as amended by the *Resource Conservation and Recovery Act of 1976* ([42 USC § 6901](#)) (RCRA), which was further amended by the *Hazardous and Solid Waste Amendments of 1984*, defines hazardous wastes as any solid, liquid, contained gaseous, or semi-solid waste, or any combination of wastes, that pose a substantial present or potential hazard to human health or the environment. In general, both HAZMAT and hazardous wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, might present substantial danger to public health and welfare or the environment when released or otherwise improperly managed.

[AFMAN 32-7002](#), *Environmental Compliance and Pollution Prevention*, establishes procedures and standards that govern management of HAZMAT throughout the DAF. This manual applies to all personnel acting on behalf of the DAF who authorize, procure, issue, use, or dispose of HAZMAT, and to those who manage, monitor, or track any associated activities.

### **3.8.1.2 Toxic Substances**

Toxic substances are substances that might pose a risk to human health but are not regulated as contaminants under the hazardous waste statutes. Included in this category are asbestos-containing materials (ACMs), lead-based paint (LBP), radon, polychlorinated biphenyls (PCBs) and per- and polyfluoroalkyl substances (PFAS). The presence of special hazards or controls over them might affect, or be affected by, a proposed action. Information on special hazards such as locations, quantities, and conditions help in determining the significance of a proposed action.

#### **Asbestos**

[DAFI 32-1001](#), *Civil Engineering Operations* (February 2025), provides direction for asbestos management at DAF installations. This instruction incorporates by reference applicable requirements of [29 CFR Part 669](#), [29 CFR § 1910.1025](#), [29 CFR § 1926.58](#), [40 CFR § 61.140](#), CAA Section 112, and other applicable DAF Instructions and DoD Directives. DAFI 32-1001 requires bases to develop an asbestos management plan to maintain a permanent record of the status and condition of ACM in installation facilities, as well as to document asbestos management efforts. In addition, DAFI 32-1001 requires installations to develop an asbestos operating plan detailing how the installation manages known existing asbestos. USEPA regulates asbestos with the authority promulgated under OSHA at [29 USC § 669](#). CAA Section 112 regulates emissions of asbestos fibers to ambient air. USEPA policy is to leave asbestos in place if disturbance or removal could pose a health threat.

#### **Lead-Based Paint**

Human exposure to lead has been determined an adverse health risk by agencies such as OSHA and USEPA. Sources of exposure to lead are dust, soils, and paint. In 1973, the Consumer Product Safety Commission established a maximum lead content in paint of 0.5 percent by weight in a dry film of newly applied paint. In 1978, under the *Consumer Product Safety Act* ([Public Law 101-608](#), as implemented by

[16 CFR Part 1303](#)), the Commission lowered the allowable lead level in paint to 0.06 percent (600 parts per million [ppm]). The Act also restricted the use of LBP in nonindustrial facilities. DoD implemented a ban on LBP use in 1978; therefore, it is possible that facilities constructed prior to or during 1978 may contain LBP.

### **Radon**

The US Surgeon General defines radon as an invisible, odorless, and tasteless gas, with no immediate health symptoms, that comes from the breakdown of naturally occurring uranium inside the earth. Radon that is present in soil can enter a building through small spaces and openings, accumulating in enclosed areas such as basements. No federal or state standards are in place to regulate residential radon exposure at the present time, but guidelines were developed. [AFMAN 48-148, Ionizing Radiation Protection](#) (July 2020), provides direction for radon management at DAF installations. All installations must have radon assessments for structures supporting housing, child development centers, and DoD Education Activity schools. Although 4.0 picocuries per liter is considered an “action” limit, any reading over 2 picocuries per liter qualifies as a “consider action” limit. USEPA and the US Surgeon General have evaluated the radon potential around the country to organize and assist building code officials in deciding whether radon-resistant features are applicable in new construction. Radon zones can range from 1 (high) to 3 (low).

### **Polychlorinated Biphenyls**

PCBs are a group of chemical mixtures used as insulators in electrical equipment, such as transformers and fluorescent light ballasts. Chemicals classified as PCBs were widely manufactured and used in the US until they were banned in 1979. The disposal of PCBs is regulated under TSCA, which banned the manufacture and distribution of PCBs, with the exception of PCBs used in enclosed systems. Per DAF policy, all installations should have been free of PCBs as of 21 December 1998. In accordance with [40 CFR Part 761](#) and DAF policy, both of which regulate all PCB articles, PCBs are regulated as follows:

- Less than 50 ppm—non-PCB (or PCB free)
- 50 ppm to 499 ppm—PCB-contaminated
- 500 ppm and greater—PCB equipment

TSCA regulates and the USEPA enforces the removal and disposal of all sources of PCBs containing 50 ppm or more; the regulations are more stringent for PCB equipment than for PCB-contaminated equipment.

### **Per- and Polyfluoroalkyl Substances**

PFAS are a group of man-made chemicals that are very persistent in the environment and have the potential to lead to adverse human health impacts. PFAS include many individual chemical compounds, the most extensively studied of these are perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). These chemicals are not naturally occurring, but low levels can be found in soils, water, packaging, and many industrial and consumer products (Military Health System, 2019).

Popular for their ability to increase heat resistance and reduce friction, PFAS have been widely used since the 1950s. In the 1970s, the DoD utilized aqueous film-forming foam (AFFF) for fire suppression, which contains PFOS and PFOA. PFOS is a long-chain PFAS found in older stocks of AFFF and as a breakdown product of precursor compounds. PFOA is also a long-chain PFAS. PFOA is not an intended ingredient in AFFF but is a side product created during the manufacturing process. Many AFFF formulations contain other unintended PFAS side products that have similar health and environmental concerns (Alaska Department of Environmental Conservation, 2025).

AFFF is considered mission critical for its ability to effectively extinguish petroleum-based fires. Recently, the DoD has made efforts to phase out the use of PFAS-containing AFFF and transition to PFAS-free foams currently on the market. In 2016, the USEPA recognized the potential health risks associated with PFOS and PFOA accumulations in the human body and issued a lifetime health advisory for these compounds in drinking water (Military Health System, 2019).

### **3.8.1.3 Petroleum Products**

Section 311 of the CWA, as amended by the *Oil Pollution Act* ([Public Law 101-380](#)), defines petroleum oil as crude and refined petroleum products, such as gasoline, fuel oils, and asphalt. Uncontrolled release of petroleum products has the potential to threaten the health and wellbeing of wildlife species, botanical habitats, soil systems, and water resources.

The CWA establishes requirements to prevent, prepare for, and respond to oil discharges at specific types of facilities, including military installations. The goal of the *Oil Pollution Act* is to prevent oil from reaching navigable waters and adjoining shorelines and to contain discharges of oil. The Act established the Spill Prevention, Control, and Countermeasure (SPCC) rule under [40 CFR Part 112](#). The SPCC rule requires facilities with an aggregate aboveground petroleum storage capacity greater than 1,320 gallons or an aggregate underground storage capacity of 42,000 gallons to develop and implement an SPCC plan. The SPCC plan establishes procedures, methods, and equipment requirements for managing the storage, transfer, and potential release of petroleum products. These plans must be prepared by or under the supervision of a professional engineer and must be designed to prevent a release from reaching navigable waters.

Department of the DAF Manual 32-1067, *Water and Fuel Systems*, identifies compliance requirements for underground storage tanks (USTs) and aboveground storage tanks (ASTs), and associated piping, that store petroleum products and hazardous substances. Evaluation of HAZMAT and hazardous wastes focuses on USTs and ASTs as well as the storage, transport, and use of pesticides, fuels, oils, and lubricants.

### **3.8.1.4 Pesticides**

Pesticides, herbicides, and insecticides can be used to control pest populations. Pest management programs include measures to control health-related pests (e.g., mosquitoes, ticks and fleas, bees and wasps, scorpions, spiders, venomous snakes, lice, mites, and chiggers); structural pests (e.g., termites and powder post beetles); general household/nuisance pests (e.g., ants, cockroaches and flies); weed pests (e.g., mixed vegetation and turf diseases); vertebrate pests (e.g., bats, rodents, gophers, feral animals, coyotes, and foxes); and bird pests (e.g., pigeons). Chlordane was used as a pesticide until it was banned in 1988. It is a persistent bio accumulative and toxic pesticide that was often applied to the soil around building foundations to control termites (Agency for Toxic Substances and Disease Registry, 2018).

### **3.8.1.5 Environmental Restoration Program**

The *Superfund Amendments and Reauthorization Act* established cleanup mandates for the DoD and established the DoD Environmental Restoration Program (ERP), which comprises the Installation Restoration Program and the Military Munitions Response Program. Through the ERP, each DoD installation is required to identify, investigate, and clean up hazardous waste disposal or release sites. Remedial activities for ERP sites follow the Hazardous and Solid Waste Amendments under the RCRA Corrective Action Program. The ERP aims to reduce risk to human health and the environment by identifying, evaluating, and responding to a release or threat of a release into the environment from DoD activities or DoD facilities. ERP sites involve releases of hazardous substances, pollutants or contaminants, hazardous waste, and petroleum products. In accordance with [DoDI 4715.07](#), *Defense Environmental Restoration Program* (August 2018), the ERP goals are to facilitate compliance with applicable statutes, regulations, and other legal requirements and conduct environmental restoration activities.

## **3.8.2 Existing Conditions**

### **3.8.2.1 Hazardous Materials and Wastes**

Activities at the NTTR require the use and storage of a variety of HAZMAT that includes flammable and combustible liquids, acids, corrosives, caustics, anti-icing chemicals, compressed gases, solvents, paints,

paint thinners, and pesticides. Hazardous and toxic substances used at the NTTR are tracked by the HAZMAT dispensary through the procurement, handling, storage, and dispensing of hazardous substances for construction and operations. Chemicals used must be approved by Nellis AFB Environmental Office/Civil Engineering.

Hazardous and toxic substances disposal procedures are identified in the Nellis AFB Hazardous Waste Management Plan (HWMP) (Nellis AFB, 2015) and all waste is disposed of in compliance with all federal, state, and local regulations. This management plan covers NTTR and Creech AFB in addition to Nellis AFB. The NTTR manages waste generated at shops or facilities in initial accumulation points, which are later aggregated at one central accumulation point prior to disposal.

### **3.8.2.2 Toxic Substances**

Toxic substances can be present in the production, use, and disposal of specific chemicals. Nellis AFB maintains operation and procedure manuals for the NTTR that are in accordance with regulations and guidelines specific to toxic substances. Toxic substances such as asbestos, lead, and PCBs are being phased out of common materials, but are still present in some areas of the Installation.

#### **Asbestos and Lead-Based Paint**

The Proposed Action would not involve remodeling or demolition of existing facilities and there would be no potential to encounter asbestos or LBP. Therefore, asbestos and LBP are not discussed further in this EA.

#### **Radon**

The USEPA radon zone for Nye County, Nevada, is Zone 2 (moderate potential, predicted indoor average level between 2 and 4 picocuries per liter); however, radon potential throughout the County can vary (USEPA, 2020). Each zone designation reflects the average short-term radon measurement that can be expected in a building without the implementation of radon control methods. The Proposed Action would not involve remodeling or demolition; therefore, radon is not discussed further within the EA.

#### **Polychlorinated Biphenyls**

PCBs were commercially manufactured from 1929 until production was banned in 1979 via TSCA. Many of the products that contained PCBs have been removed from use; however, legacy equipment that contains PCBs at concentrations greater than 50 ppm are occasionally encountered. The Proposed Action would not involve remodeling or demolition; therefore, PCBs are not discussed further in this EA.

#### **Per- and Polyfluoroalkyl Substances**

Nellis AFB is currently undertaking an extensive study of PFAS and their past use on the Installation. Based on available data, it does not appear as though the project area has been included in any past PFAS assessments. This is likely due to a lack of AFFF storage or usage in the area. Because the ROI has not been evaluated for PFAS, the potential for PFAS/AFFF contamination cannot be ruled out. However, given that the property is undeveloped open desert, it is unlikely the project area has been impacted by PFAS. Therefore, PFAS is not discussed further in this EA.

### **3.8.2.3 Petroleum Products**

The use, storage, and transportation of petroleum products is vital to the mission of Nellis AFB. Petroleum products are used to heat buildings and provide fuel for emergency generators, vehicles, and operation of airborne assets across the Installation.

The Nellis AFB SPCC plan covers both Nellis AFB and NTTR (Oneida, 2021) and was prepared in accordance with [40 CFR Part 112](#). Operating procedures and controls for spill prevention are practiced under the guidelines of the SPCC and Section 311 of the CWA. There are no ASTs or USTs located in the project area.

### **3.8.2.4 Pesticide Management**

The Pest Management Program at Nellis AFB utilizes an integrated surveillance and control effort as implemented by [DoDI 4150.07](#), *DoD Pest Management Program* (December 2019), and [AFMAN 32-1053](#), *Integrated Pest Management Program* (August 2019). Pesticides are predominantly used in or near structures to prevent or treat pest infestations; there are no buildings in the project area so the use of pesticides is very unlikely. This subject will not be discussed further within this EA.

### **3.8.2.5 Environmental Restoration Program Sites**

There is one ERP site located within the project area and one located within the TPECR O&M compound approximately 0.5 mile to the south. The site within the project area consists of a series of former waste burial pits, and the site within the TPECR O&M compound is associated with a leaking underground storage tank (LUST). These sites are illustrated in **Figure 3-3** and described in more detail below.

DP-53 is an area measuring approximately 1 acre in size that contains several shallow former disposal pits and an area of surface disturbance. Material reported to have been disposed of at this site includes scrap metal, wood, trash, and construction debris; however, at least one observation stating the presence of an old lead acid battery was reported. A site investigation was initiated in 1994 and included a magnetometer survey and soil sampling (Dames & Moore, Inc., 1995a). The magnetometer survey revealed four distinct pit areas and two mounds of soil that were surmised to cover buried metal. Soil borings were taken in the areas of the former pits; however, the depth of the borings was limited to 5.5 ft bgs due to bedrock refusal. Four surface soil samples were collected along with three soil samples collected from borings. All seven total soil samples were analyzed for metals while the samples collected from borings were analyzed for a mixture of volatile organic compounds, semi-volatile organic compounds, explosives, and total petroleum hydrocarbons. The site investigation concluded that there is no evidence that there are contaminants at Site DP-53 which would adversely affect human health or the environment. The site was recommended for no further action and NDEP concurred on 15 October 1996 (NDEP, 1996).

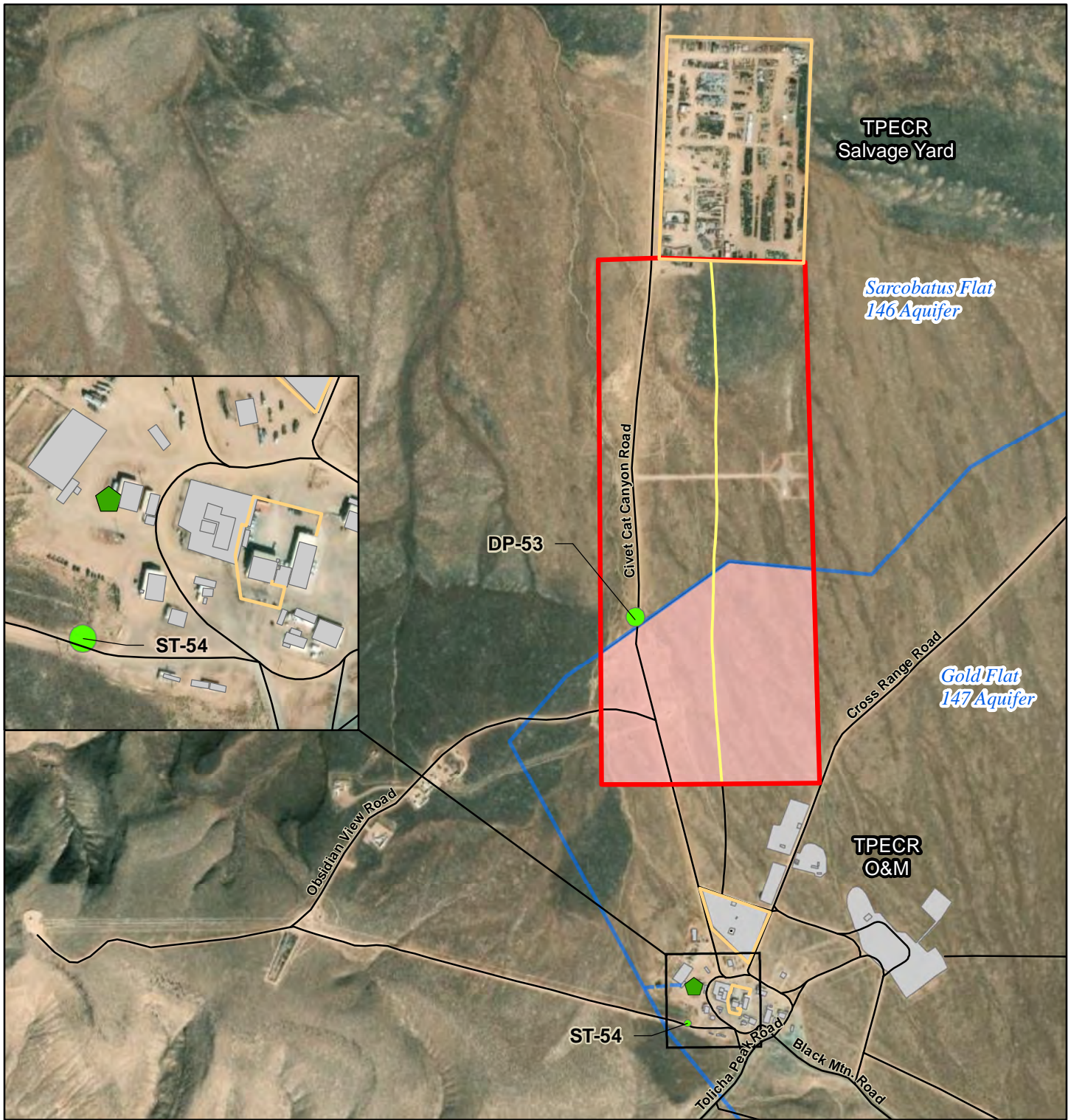
ST-54 is a fueling station located at the TPECR O&M compound. The site historically contained two steel USTs that were replaced with 15,000- and 10,000-gallon fiberglass USTs in the mid-1980s. While conducting upgrades to the tanks in the early 1990s, the diesel product line and pump were found to be leaking. The leaks were repaired at that time. An initial UST assessment was conducted in 1992 consisting of laboratory analysis of soil samples. Of the 28 samples collected, laboratory analysis indicated that only four samples contained total petroleum hydrocarbons above screening levels. A site investigation was conducted in 1995 that consisted of taking seven boring samples until bedrock refusal; the deepest boring reached 29 ft bgs (Dames & Moore, Inc., 1995b). Twelve samples were collected from the borings for analysis. Elevated levels of volatile organic compounds were detected in one sample at a depth of 29 ft bgs. The author of the site investigation concluded that contamination was likely directly below the tank and extended in a "roughly cone shaped" plume until it reached competent bedrock. Groundwater is reported to be at a depth of 650 ft bgs. The author recommended no further action because no receptors other than soil were likely to be impacted and the cost of active remediation would not be justified. The author suggested that some residual contamination may be able to be removed when the USTs are replaced. NDEP agreed with this determination in a letter dated 04 August 1995 (NDEP, 1995). The fueling station was remodeled in the mid-2000s, keeping the existing fiberglass USTs in place.

## **3.8.3 Environmental Consequences**

### **3.8.3.1 Evaluation Criteria**

Impacts from HAZMAT or hazardous wastes would be significant if the Proposed Action

- generates, uses, or stores HAZMAT or hazardous wastes in violation of federal or state regulations; or
- exposes construction workers to increased health risks from working in existing contamination without proper training and equipment.

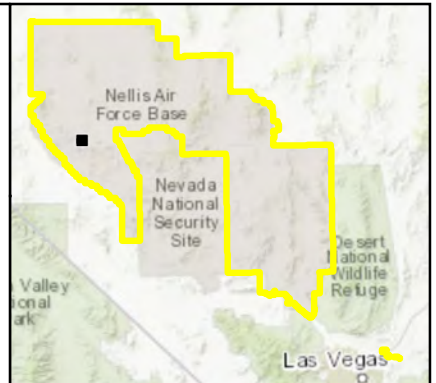


**FIGURE 3-3**  
 ERP Sites

- TPECR Well
- ERP Site
- Access Road
- Fenceline
- Road
- Hydrobasin Boundary
- Project Area
- Proposed Well Location
- TPECR O&M Compound



Imagery: ESRI, 2021  
 Coordinate System: NAD 83 UTM Zone 11N



Impacts to ERP sites would be considered adverse if the Proposed Action disturbs (or creates) contaminated sites resulting in adverse effects to human health or the environment. Physical development of contaminated sites could expose construction and maintenance workers, visitors, occupants, or ecological systems to potential hazards associated with contaminants.

A significant impact to HAZMAT and waste, petroleum/oil/lubricants, toxic substances, and contaminated sites within the ROI would occur if the Proposed Action results in the following:

- noncompliance with applicable federal and state regulations;
- increased the amounts of hazardous waste generated or procured beyond Nellis AFB's current waste management procedures and capacities; and/or
- disturbance or creation of contaminated sites resulting in negative effects on human health or the environment.

### **3.8.3.2 Proposed Action**

#### **Hazardous Materials and Waste**

Under the Proposed Action, there would be temporary increases in HAZMAT usage and hazardous waste generation. The Proposed Action would involve drilling and testing to place a new well, and ultimately the construction related to this well and needed infrastructure. This could include, but is not limited to, multiple attempts to drill and test exploratory locations, construction of a well pump and facility to house the pump, road grading, and utilities placement. Drilling would be anticipated to generate drill cuttings; drill cuttings consist of the material that is brought up out of the subsurface while advancing a boring. These cuttings are generally not considered to be hazardous unless the well is advanced through contaminated media.

There would be a small but temporary increase in hazmat usage and waste generation related to the construction of the new facilities or the operation of heavy equipment, although this increase would be minor, as waste procedures at the NTTR are established for a large-quantity generator of hazardous waste. There would be no procedural changes, and waste would be managed according to the existing Nellis AFB HWMP.

There would be a minor change in operations in relation to the addition of the 250-gallon fuel tank. A fuel tank with a volume of 55-gallons or more would necessitate listing within the existing Nellis SPCC Plan that also covers the NTTR. Inspections would occur as mandated by the SPCC plan. There would be a minor increase in risk for spills from the generator and associated tank. However, the tank would be constructed in secondary containment so the risk of spill would be minimal, with the highest risk of spill occurring during fuel transfer. Existing plans would be updated to reflect the installation of the generator.

The arsenic filtration system would require periodic back flushing in order to clean the filter media. The wastewater produced during back flushing would contain elevated levels of arsenic. The concentration of arsenic anticipated to be contained in the wastewater has not been determined, so it is unknown whether the water would be considered hazardous waste at this time. If the backflush water is not conveyed to a publicly owned treatment works, the water would need to be containerized for characterization and appropriate disposal. If the wastewater is determined to be hazardous, the waste would be managed in accordance with the existing Nellis HWMP.

In summary, implementation of the Proposed Action would result in minor, short-term impacts to HAZMAT.

#### **Environmental Restoration Program Sites**

Although DP-53 is located within the boundary for Gold Flat 147, the Proposed Action would have no impact to the management of the ERP site. The site has been deemed to require no further action, with soils determined to have no effect on human health or the environment. Given the size of the overall project site

and the relatively small footprint of both the Proposed Action and the ERP site, DP-53 would be avoided altogether.

ST-54 is a LUST site with a “no further action” determination. The distribution of the plume is predominantly vertical below the tank pit and, given the depth to water and extremely low likelihood that the release would impact human life or the environment, active remediation was deemed economically infeasible. The site remains an active fueling location for the TPECR O&M facility. There is no potential for the site to be impacted by the construction of the well since it falls outside of the project area. Part of the scope of work includes extending utility and communication lines from the well site to the TPECR facility. However, the plume is located beneath the tank and does not have a strong horizontal distribution, and the Proposed Action would not disturb contaminated soils. Therefore, implementation of the Proposed Action would result in no impacts to the long-term management of ERP sites.

### **3.8.3.3 Cumulative Impacts**

The Proposed Action would have adverse impacts on the management of HAZMAT and hazardous waste, toxic substances, and contaminated sites at the NTTR. No natural resource management projects proposed under the NTTR INRMP would involve these resources. Construction actions proposed across the TPECR O&M compound and NTTR would have the potential to produce small quantities of HAZMAT, which would be handled and removed utilizing proper procedures under the NTTR SPCC Plan. Consideration would need to be given to the 98 ERP sites identified within NTTR while ADP project locations are being determined. When considered in conjunction with the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions as presented in **Table 3-1**, no significant cumulative effects to HAZMAT and hazardous wastes, toxic substances, petroleum products, and contaminated sites would be anticipated to occur with implementation of the Proposed Action.

### **3.8.3.4 No Action Alternative**

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no impacts to HAZMAT and hazardous waste, toxic substances, and contaminated sites beyond baseline conditions. NTTR would continue to operate under current conditions, and the facility and infrastructure assets of the Range would continue to degrade. Over time, the reliability of the existing water access and supporting infrastructure would diminish. The ability of NTTR to implement future planned projects at both the TPECR O&M compound and the salvage yard would decrease, impacting the ability to support the military mission.

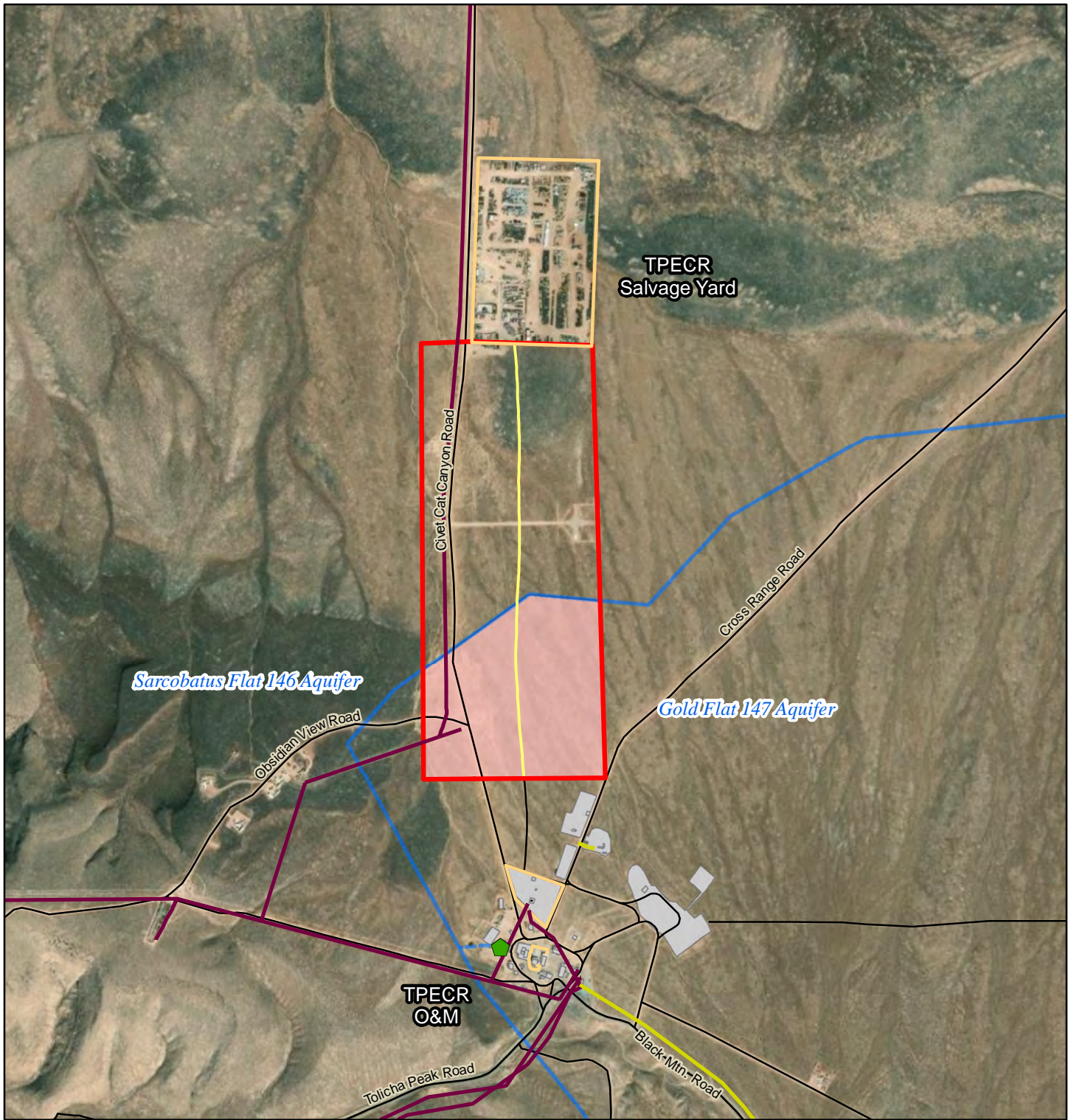
## **3.9 INFRASTRUCTURE/UTILITIES (INCLUDING TRANSPORTATION)**

### **3.9.1 Definition of the Resource**

Infrastructure consists of the systems and structures that enable a population in a specified area to function. Infrastructure is wholly man-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as developed. The availability of infrastructure and its capacity to support more users, including residential and commercial expansion, are generally regarded as essential to the economic growth of an area.

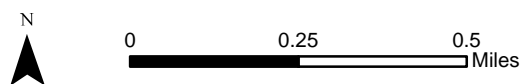
The infrastructure components include utilities, solid waste management, sanitary and storm sewers, and transportation. Utilities include electrical, natural gas, liquid fuel, potable water supply, sanitary sewage/wastewater, and communications systems. Solid waste management primarily relates to the availability of landfills to support a population’s residential, commercial, and industrial needs. Sanitary and storm sewers (also considered utilities) include those systems that collect, move, treat, and discharge liquid waste and stormwater. Transportation is defined as the system of roadways, highways, and transit services in the vicinity of the installation that potentially could be affected by a proposed action.

The ROI for this resource is the project area and the TPECR O&M compound (**Figure 3-4**).

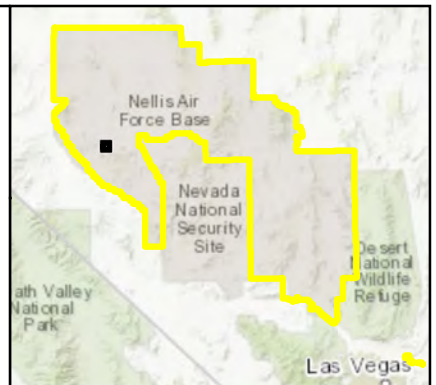


**FIGURE 3-4**  
**TPECR O&M Infrastructure**

- |                        |                      |                        |
|------------------------|----------------------|------------------------|
| TPECR Well             | Fencelines           | Proposed Well Location |
| Above Ground Powerline | Roads                | TPECR O&M Compound     |
| Access Road            | Hydrobasins Boundary |                        |
| Below Ground Powerline | Project Area         |                        |



Imagery: ESRI, 2021  
 Coordinate System: NAD 83 UTM Zone 11N



## **3.9.2 Existing Conditions**

### **3.9.2.1 Transportation**

The TPECR O&M compound is in the western portion of the NTTR Northern Range. The compound is accessible through a secure Entry Control Point located off US Route 95, north of Beatty, Nevada. Tolicha Peak Road is a paved roadway that leads the TPECR O&M compound from the southwest as shown in **Figure 3-4**. Civet Cat Canyon Road is an unpaved road that extends directly north of the TPECR O&M compound and connects directly to the salvage yard. The unpaved Cross Range Road extends from the O&M compound to the northeast, and the paved Black Mountain Road extends to the southeast for access to the larger road network connecting the numerous training areas and ranges across the NTTR. Due to the restricted access to NTTR, vehicular traffic along Range roads is sparse. While the existing roads are adequate for traffic volumes, many roads are unpaved and require regular maintenance for ease of travel throughout the ranges.

### **3.9.2.2 Electricity and Communications**

Valley Electric services the TPECR O&M compound through a 24.9/34.5 kilovolt, 3 megawatt transformer. Approximately 4,626 lf of above ground power lines extend from the TPECR O&M compound and run north-south along the western border of the project area. The power supply is adequate for the existing facilities at the TPECR O&M compound but there is currently no backup source if the electrical service is disrupted. No remote communications are currently established for the remote operation of the existing well, requiring personnel to be on site for monitoring or adjustments.

### **3.9.2.3 Liquid Fuel Storage**

Liquid fuel storage is found within the TPECR O&M compound in the form of two fiberglass USTs. One UST contains diesel fuel and the other contains gasoline. These tanks are frequently used to fuel Range vehicles and are located on the north side of the TPECR O&M compound. There is one 500-gallon oil tank located underground outside of a warehouse. Natural gas is not used by the existing buildings; therefore, there are no liquid propane storage tanks located at the compound.

### **3.9.2.4 Potable Water Supply**

Potable water is currently conveyed from the existing pump house through a series of 2-inch and 4-inch PVC pipes to six service connections within the TPECR O&M compound. The well is powered by a submersible 20hp pump set at approximately 800 ft in depth. The water system at the TPECR O&M compound lacks sufficient capacity to support future mission requirements. Currently, there is no water source located nearby to support the salvage yard, and the existing system has a single point of failure because there is only one on-site well. The current well at the TPECR O&M compound was originally permitted by the State Water Engineer in the Sarcobatus Flat 146 aquifer with a water right application in 1984, with an updated certificate issued in 1993. This well is the point of diversion for NDWR Permit 48429, issued for usage of up to 100 gallons per minute, not to exceed approximately 4.538 million gallons per year. It is anticipated that the current system runs at approximately 42 gallons per minute; however, demand has reached 75 to 79 percent of total yearly permitted capacity and is expected to continue to rise. Potable water is currently treated with liquid chlorine and then stored in a 20,000-gallon UST near the pump house.

The arsenic levels within the groundwater at Tolicha Peak are known to be elevated. Analytical tests of drinking water from three separate buildings at the TPECR O&M compound have shown that the levels of arsenic within the potable water are approximately 2.5 times the USEPA limit of 0.010 milligram per liter (WETLAB, 2023). Arsenic treatment would be required to make the water drawn from the new well potable.

### **3.9.2.5 Sanitary Sewer System**

The TPECR O&M compound is serviced by an underground sanitary sewer and septic tank system located underground near the vehicle maintenance building. This septic system connects the existing O&M facilities to a leach field located to the northeast of the compound. The sewer system also connects to an additional 5,000-gallon septic tank located to the northwest, which feeds into an expanded leach field to the northwest, north of the existing well pump house. This system has the capacity to effectively service the existing buildings located within the compound.

### **3.9.2.6 Solid Waste Management**

The NTTR generates nonhazardous waste each year such as office waste, food waste, construction debris, and garbage that is generated in the major operating areas. This is collected in dumpsters and transported to permitted landfills, causing little or no impact to natural resources. The NTTR transports recycling receptacles to a permitted recycling facility and municipal solid waste to a permitted disposal facility, both off Base (Nellis AFB, 2024). Hazardous waste is not permitted in these landfills and is removed from the Range by licensed contractors and transported to commercially licensed and permitted disposal facilities off Range (BLM, 2003). The landfills and disposal facilities are currently adequate to handle the waste needs of NTTR and, specifically, the TPECR O&M compound.

## **3.9.3 Environmental Consequences**

### **3.9.3.1 Evaluation Criteria**

A significant impact to infrastructure/utilities (including transportation) within the ROI would occur if the Proposed Action

- measurably changes or causes a service reduction within the regional transportation network;
- causes prolonged or repeated interruption of public transportation services regionally;
- causes prolonged or repeated service disruptions to utility end users; and/or
- substantially increases utility demand relative to existing and planned regional uses.

Adverse impacts to infrastructure would occur if the Proposed Action

- disrupts or improves the existing levels of service,
- increases energy or water consumption, and/or
- exceeds the capacity of sanitary sewer and solid waste management systems.

Adverse impacts to transportation would occur if the Proposed Action

- substantially increases traffic that would cause a decrease in the level of service,
- substantially increases the use of the street systems or mass transit, and/or
- fails to meet on-Installation parking needs.

Adverse impacts to utilities would occur if the Proposed Action

- creates a demand that exceeds the existing supply capacity, and/or
- requires services in conflict with adopted plans and policies for the area.

### **3.9.3.2 Proposed Action**

#### **Transportation**

An unpaved access road that runs north to south between the TPECR O&M compound and the salvage yard would be graded during Stage 1 of the Proposed Action. The road would be approximately 0.9 mile in length and directly connect the new well location to the TPECR O&M compound and the salvage yard. The amount of fill material proposed for road improvements and the groundwater facility would total approximately 13,000 cubic yards (cy), which would be sourced from a borrow pit located approximately 3 miles from the Target Yard. Approximately 5,820 cy of fill material would be used for the grading of the groundwater facility, and approximately 5,592 cy of Type II material would be needed for the remaining grading activities. A staging area measuring approximately 200 ft by 200 ft would be required for storing materials, equipment, and vehicles. Construction of the new access road would result in more efficient access to the proposed well, pump house, and water treatment infrastructure. Construction of a new roadway would result in no disruptions to existing road usage. Implementation of the Proposed Action would result in a minor, beneficial effect to vehicle transportation originating from the TPECR O&M compound.

#### **Electricity and Communications**

Approximately 6,800 lf of underground electrical lines connecting to the well and pumphouse would be installed north to south along Civet Cat Canyon Road during Stage 1 of the Proposed Action. Stage 2 would include an additional 4,800 lf of underground electrical utilities installed along the newly graded access road. A 100-kilowatt generator, constructed on a concrete pad occupying approximately 33.06 ft<sup>2</sup>, would be installed to provide redundancy in electrical service to the system. If the electrical service fails, the generator would provide a source of redundancy and allow the TPECR O&M compound to continue to receive water from the system. The Proposed Action would install communication lines to ensure that the new treatment facility is modernized for remote operations into the future, and it would resolve the requirement for on-site operation of the existing well pump. Implementation of the Proposed Action would result in a moderate, beneficial impact to the electrical infrastructure and reliability.

#### **Liquid Fuel Storage**

A 250-gallon fuel tank constructed on a concrete pad occupying approximately 23.26 ft<sup>2</sup> would be installed to support the 100-kilowatt generator. The purpose for this tank would be to provide fuel for the proposed generator that would power the well pump station in the event of a power outage. There would be no impact on the underground diesel and gasoline tanks at the refueling depot. Implementation of the Proposed Action would result in long-term, negligible impacts to fuel storage through the continued maintenance and inspection of the 250-gallon fuel tank; however, there would be a beneficial impact through the redundancy in the potable water supply that is supported by the tank's purpose of fueling the proposed backup generator.

#### **Potable Water Supply**

The Proposed Action would construct a new well and water treatment facility at the TPECR O&M compound within the Gold Flat 147 aquifer to provide adequate access to a consistent and safe supply of water at the TPECR O&M compound in compliance with state water draw limitations. Three 50,000-gallon water storage tanks would be constructed and installed during Stage 3 of the Proposed Action. The storage tanks would include the use of ultraviolet bacteriological disinfection to limit the accumulation of disinfection byproducts in the water. During Stage 4, the DAF would construct an arsenic filtration facility at the proposed well site. Arsenic filtration is the only long-term solution for maintaining a safe potable water supply given the elevated levels present within Gold Flat 147.

Since the existing water system is a licensed public water system, meaning it supplies potable water to 25 or more people, the new water system would need to be licensed through the public water system design and review process with NDEP BSDW. Plans and details for the proposed water system would need to be submitted for review and approval prior to construction, including the well, pump, controls, connections, piping and storage facilities. Construction of a new water distribution system would require plan approval

from the NDEP BSDW, which has an approval timeframe for new plans of 90 to 120 days. New wells would typically require a water rights permit for groundwater appropriation; however, NDWR rules allow for a portion of the existing water rights within Gold Flat 147 to be transferred from elsewhere within the hydrographic basin, where two additional wells are already permitted as described in **Section 3.7.2.3**.

Once constructed, all potable water for the TPECR O&M compound would be supplied via the new well within Gold Flat 147. The well within Sarcobatus Flat 146 would be reverted to construction-use only and also used as a backup for the new well. The shift of potable water extraction from this aquifer would immediately provide additional capacity to support expanded construction operations if needed. The amount of yearly permitted water extraction from Gold Flat 147 would be sufficient to meet the drinking water needs of the current operations and would provide expanded capacity to support growing operations and personnel in the future as described in **Section 3.7.3.2**.

Implementation of the Proposed Action would result in long-term, beneficial effects to the potable water supply as a result of providing redundancy and security for water access at both the TPECR O&M compound and salvage yard. Additionally, the new treatment facility would be modernized for remote operations into the future. The redundancy would also allow for necessary repairs to occur to the existing potable water system without jeopardizing the continuity of the military mission. The new well would immediately reduce the demand on the existing aging well for potable water.

### **Sanitary Sewer System**

A sewer system would be constructed under the Proposed Action to service the well and arsenic filtration facility; however, the size and extent of the sewer system would be determined by future analysis. The frequency and volume of backwash would be determined by the type of filtration media used in the arsenic system and in compliance with state regulations at the time of construction. This sewer system would not be anticipated to connect with the existing sewer, septic, and leach field system that is currently operating at the TPECR O&M compound. Implementation of the Proposed Action would not impact the existing sewer system but would result in minor, long-term impacts to sewer system management by creating additional infrastructure to monitor and inspect.

### **Solid Waste Management**

Under the Proposed Action, a total of 150,618 ft<sup>2</sup> of new construction is proposed across the four phases of the project. The Proposed Action could result in minor, short-term, adverse impacts to solid waste management from construction waste. The USEPA guidance on estimating solid waste from construction projects indicates that approximately 4.39 pounds (lbs)/ft<sup>2</sup> of debris would be generated for each square foot of construction activity; this formula can be applied to the construction of the well pump, supporting infrastructure, and impervious surfaces (USEPA, 2003). Using this formula, solid waste generated from all construction projects under the Proposed Action would be anticipated at approximately 661,000 lbs (330 tons). Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of solid waste generated under the Proposed Action, and all solid waste generated would be collected and transported off the Range for disposal or recycling in accordance with AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*.

Implementation of the Proposed Action would not result in long-term impacts to solid waste management because the projects would not appreciably increase the amount of solid waste generated at the TPECR O&M compound from everyday functions.

#### **3.9.3.3 Cumulative Impacts**

The Proposed Action would result in minor, beneficial impacts to the infrastructure and utilities as well as moderate beneficial impacts to potable water. The natural resource management projects under the NTTR INRMP would have no involvement with existing infrastructure or utilities. Multiple future actions are proposed to improve the infrastructure both at the TPECR O&M compound as well as the salvage yard to the north. The demolition of inefficient buildings and construction of modern replacements within the TPECR

O&M compound would result in more energy efficient structures. Solid waste generated from construction and demolition activities would be collected and transported off the Range in accordance with AFMAN 32-7002, and existing facilities for solid waste disposal would have sufficient capacity to accept the waste. Road construction and rehabilitation would also improve vehicle connectivity across the Range. When considered in conjunction with the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions as presented in **Table 3-1**, long-term, beneficial cumulative effects to infrastructure/utilities and transportation would occur with implementation of the Proposed Action.

#### **3.9.3.4 No Action Alternative**

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no impacts to infrastructure/utilities and transportation beyond baseline conditions. The NTTR would continue to operate under current conditions, and the facility and infrastructure assets of the Range would continue to degrade. Redundancy in the potable water supply would not be achieved, and the supporting water treatment infrastructure, including the backup generator and arsenic treatment, would not be installed. Known issues with water quality and availability would persist. The ability of NTTR to implement future planned projects at both the TPECR O&M compound and the salvage yard would decrease, impacting the ability to support the military mission.

### **3.10 EARTH RESOURCES**

#### **3.10.1 Definition of the Resource**

Earth resources include geology, topography, and soils. Geology refers to the structure and configuration of the earth's surface and subsurface features. Characteristics of geology include geomorphology, subsurface rock types, and structural elements. Topography refers to the shape, height, and position of the land surface. Soil refers to the unconsolidated materials overlying bedrock or other parent material. Soils are defined by their composition, slope, and physical characteristics. Attributes of soil, such as elasticity, load-bearing capacity, shrink-swell potential, and erodibility determine its suitability to support a particular land use.

Prime farmland, as defined by the United States Department of Agriculture (USDA) in the *Farmland Protection Policy Act* ([7 USC §§ 4201–4209](#)), is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses.

The ROI for earth resources is the project area.

#### **3.10.2 Existing Conditions**

Quality and detailed geologic, topographic, and soils data are largely lacking in information for the NTTR due to the sensitivity of the mission and activities taking place within the NTTR. The 2024 INRMP has identified this lack of data as a hindrance to potential mission activity evaluations (Nellis AFB, 2024).

##### **3.10.2.1 Geology**

The mountain ranges in the South Range of the NTTR are dominated by carbonate rocks mixed with smaller amounts of alluvium from erosion of nearby mountain ranges. Sedimentary rocks from lakes and rivers have been deposited in shallow basins and outcrops in several areas within the NTTR (Nellis AFB, 2024).

Volcanic rocks dominate the geology of the North Range of the NTTR. The Timber Mountain caldera is one of several sources of volcanic activity in the North Range. Volcanic tuff (hardened clay) originating from the volcanic sources extends throughout the North Range including the extensive tableland of the western Pahute Mesa, the southern Cactus and Kawich Ranges, and Stonewall Mountain (Nellis AFB, 2024). Specifically, the TPECR O&M compound is located within the Basin and Range physiographic province in

Nye County, Nevada. The project area is located within the Southwest Nevada Volcanic Field, which is an area of decreased rock thickness due to uplift and erosion (Cole, 1997). Geologic units in the surrounding area include basalt flows to the north, silicic ash flow tuffs (porous rock) to the west, and porous sedimentary rocks to the south (**Figure 3-5**). Based on previous site drilling evaluations, the area is likely to consist of volcanic rock aquifers and local basin-fill aquifers (McGinley & Associates, 2021).

Most of the faults found on the NTTR are associated with regional mountain formation. The western one-third of the NTTR is located within Seismic Zone 3, while the eastern two-thirds are in Seismic Zone 2B. Seismic Zone 3 is considered an area with major earthquake damage potential. The Yucca fault, located in the south-central portion of the NTTR, is the only fault that is considered active. Several inactive or potentially active faults are also present at the NTTR; however, most faults on the NTTR are considered inactive (Nellis AFB, 2024).

### **3.10.2.2 Topography**

The topography over most of the NTTR is undisturbed. Some areas, such as the TPECR O&M compound, have been locally modified by human-made features. The NTTR ranges in elevation from 1,900 to over 8,500 feet AMSL; as a result, it has a variety of topographic features ranging from flat expanses of land to mountain ranges to the valley floors that lie between them. On the North Range, the valley floors vary from 3,900 to 5,200 feet AMSL (Nellis AFB, 2024). The elevation of the project area ranges from approximately 5,500 to 5,700 feet AMSL from north to south.

### **3.10.2.3 Soils**

Nearly the entire project area is contained within a region of undifferentiated alluvial soils. The soils in the NTTR have not been formally surveyed by the US Geological Survey. However, these soils are largely derived from alluvial deposits of quartzite, sandstone, and shale from the nearby mountain ranges (Nellis AFB, 2024; Cole, 1997). Alluvial soils are sandy in nature due to their origins eroding from higher elevations. The defined geologic units surrounding the project area are known to contain clay and silt layers, and a 2021 drilling report found sandy soil within the first 5 feet of the surface before reaching the clay and rock beneath (McGinley & Associates, 2021). These types of soils absorb excess water effectively but can be susceptible to erosion if improper land management practices are used.

### **3.10.2.4 Prime Farmland**

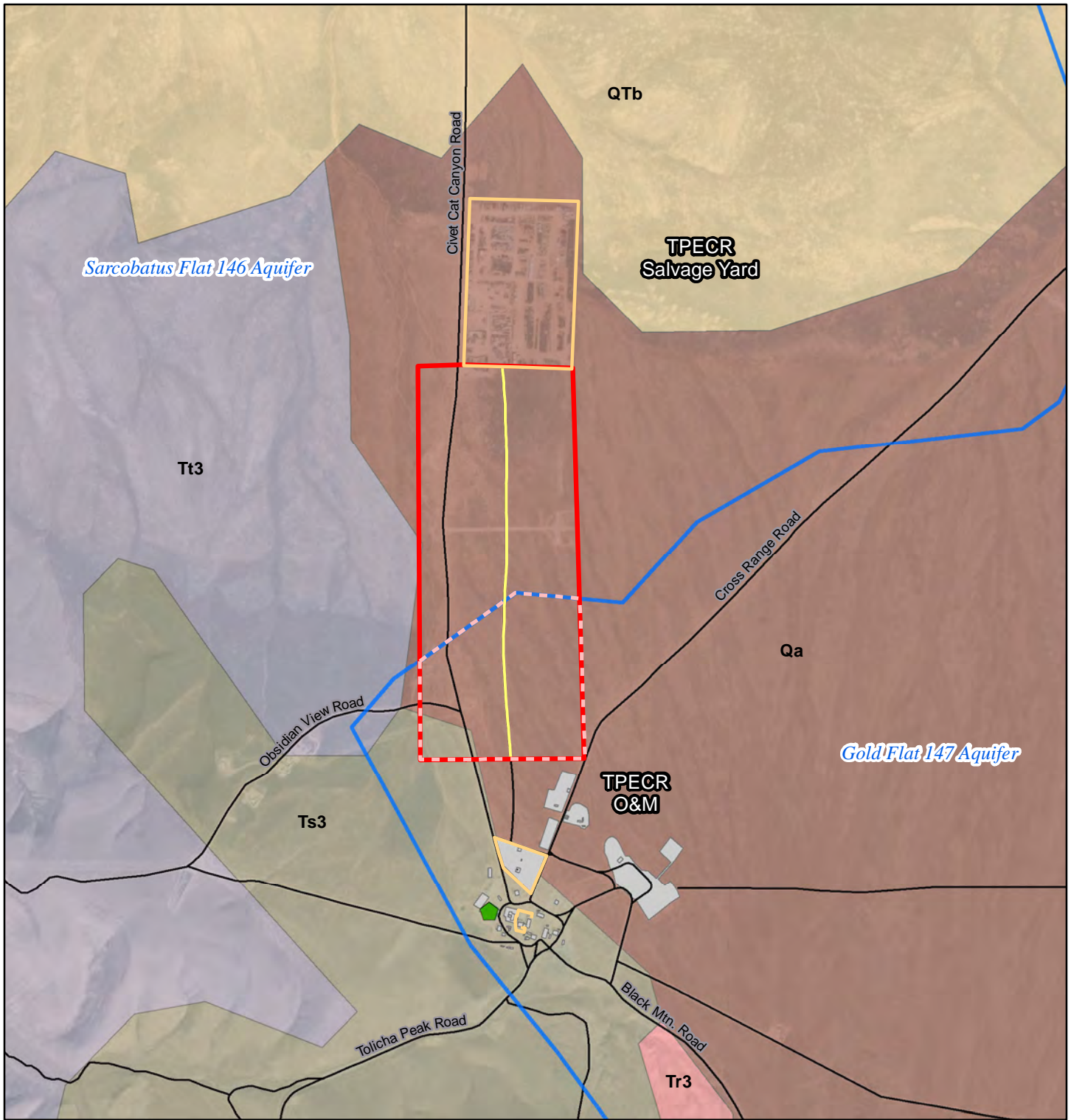
Prime farmland, as defined by the USDA in the *Farmland Protection Policy Act* ([7 USC §§ 4201–4209](#)), is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses. The land at NTTR is under military use and is not developable for agricultural purposes. In accordance with [7 CFR § 658.3\(b\)](#), the acquisition or use of farmland by a federal agency for national defense purposes is exempted per [7 USC § 4208\(b\)](#). Land within the NTTR has been, and would continue to be used primarily for military activities and operations; therefore, prime farmland is not discussed further in this EA.

## **3.10.3 Environmental Consequences**

### **3.10.3.1 Evaluation Criteria**

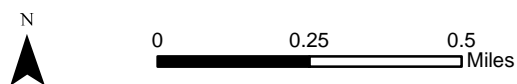
Potential adverse impacts to earth resources would occur if the Proposed Action

- substantially alters the unique or valued geologic or topographic conditions;
- substantially erodes soil, sedimentation, and/or loss of natural function (e.g., compaction); or
- develops on soils with characteristics that do not support the intended land use.

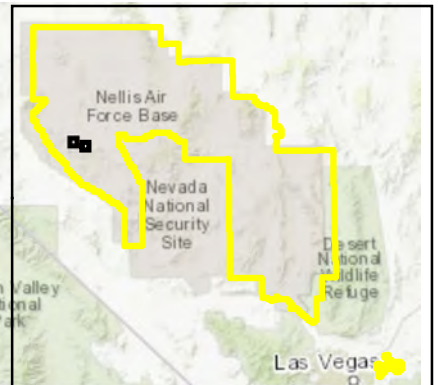


**FIGURE 3-5**  
 Geologic Units

- |             |                        |   |
|-------------|------------------------|---|
| TPECR Well  | Proposed Well Location | Qa Alluvial Deposits                            |
| Access Road | Hydrobasins Boundary   | QTb Basalt Flows                                |
| Fencelines  | Project Area           | Tr3 Rhyolitic Flows and Shallow Intrusive Rocks |
| Roads       | TPECR O&M Compound     | Ts3 Tuff Aceous Sedimentary Rocks               |
|             |                        | Tt3 Welded and Non-Welded Silicic Ash-Flow Tuff |



Imagery: ESRI, 2021  
 Coordinate System: NAD 83 UTM Zone 11N



Significant impacts to earth resources would occur if the underlying topography, soil composition, or geology would be altered such that the function of these resources would change irreversibly, resulting in impacts to the broader environment.

### **3.10.3.2 Proposed Action**

#### **Geology**

Exploratory drilling under the Proposed Action would require test holes to be drilled to approximately 1,000 ft. While this would disturb underground geologic resources, the impacts would be localized to the site of the drilling. The exploration borehole would be drilled initially in unconsolidated alluvial materials but may encounter volcanic or sedimentary bedrock at an undetermined depth. Drilling through the alluvium may be accomplished using mud rotary drilling methods, and a temporary casing may be used to allow for deeper drilling into bedrock. Once the final well location has been determined, there would be no further impacts to the local geology. Dried drilling cuttings may be spread near the well site. Implementation of the Proposed Action would result in minor, short-term impacts to geology.

#### **Topography**

No significant impacts to topography would be expected under the Proposed Action. The amount of fill material proposed for road improvements and the groundwater facility would total approximately 13,000 cy, which would be sourced from a borrow pit located approximately 3 miles from the Target Yard. Approximately 5,820 cy of fill material would be used for the grading of the groundwater facility, and approximately 5,592 cy of Type II material would be needed for the remaining grading activities. A staging area measuring approximately 200 ft by 200 ft would be required for storing materials, equipment, and vehicles. This minor roadway grading and construction site leveling would have negligible effects on the overall topography of the project area. Implementation of the Proposed Action would not significantly affect topography.

#### **Soils**

Minor, short-term impacts to soil would occur during construction activities. A total of approximately 150,000 ft<sup>2</sup> of soil disturbance would be anticipated across all phases of the Proposed Action. Per Category X of [40 CFR §122.26\(b\)\(14\)](#), the Stormwater Branch of the NDEP issues coverage under the Construction Stormwater General Permit to prevent stormwater pollution during and after construction to protect Nevada's water resources. Construction of the well, pump house, utilities, storage tanks, unpaved access road, and multiple support structures would disturb more than 1 acre of land. In accordance with NPDES regulations, NTTR would obtain coverage under a State-issued Construction Stormwater General Permit from NDEP prior to implementing the Proposed Action. This permit would require the development of a Stormwater Pollution Prevention Plan, which would detail erosion control plans for the proposed construction.

During construction, displaced alluvial soils would be much more vulnerable to wind erosion. Effective BMPs for preventing soil erosion and controlling sedimentation would be implemented within the construction site. These may include installing silt fences, sediment basins, hay bales, mulching, or other erosion control practices that minimize the amount of disturbed soil that can be washed away by rainwater. Implementation of the Proposed Action would result in minor, short-term impacts to soils with application of such BMPs during the construction process.

### **3.10.3.3 Cumulative Impacts**

The Proposed Action would have negligible impacts to topography at the NTTR. Potential impacts to earth resources would be expected to be short term and would be limited to the construction of the proposed well and water treatment infrastructure. The natural resource management projects under the NTTR INRMP would have beneficial impacts to soils from reducing foot traffic, reseeding, managing invasive species, converting certain land areas to back to natural habitat, and collecting information that would inform

appropriate soil management techniques. Foreseeable development actions at TPECR and across NTTR, including road rehabilitation and construction, would have the potential to disturb soils during construction, particularly the road rehabilitation and construction. BMPs and compliance with required permits would minimize the cumulative effect on soils. When considered in conjunction with the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions as presented in **Table 3-1**, no significant cumulative effects to earth resources would be anticipated to occur with implementation of the Proposed Action.

#### **3.10.3.4 No Action Alternative**

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no impacts to earth resources beyond baseline conditions. NTTR would continue to operate under current conditions, and the facility and infrastructure assets of the Range would continue to degrade. Over time, the reliability of the existing water access and supporting infrastructure would diminish. The ability of NTTR to implement future planned projects at both the TPECR O&M compound and the salvage yard would decrease, impacting the ability to support the military mission.

### **3.11 SAFETY AND OCCUPATIONAL HEALTH**

#### **3.11.1 Definition of the Resource**

This section discusses safety and occupational health concerns associated with ground, flight, and explosives activities. Ground safety considers safety issues associated with ground O&M activities that support unit operations. Ground safety also considers the safety of personnel and facilities on the ground that may be placed at risk from flight operations in the vicinity of the airfield and in the airspace. Flight safety considers aircraft risks such as midair collisions, bird/wildlife-airstrike hazards, and in-flight emergencies. Explosives safety relates to the management and safe use of ordnance and munitions.

The ROI for safety is the project area and the TPECR O&M compound.

#### **3.11.2 Existing Conditions**

##### **3.11.2.1 Ground Safety**

Ground safety includes ground and industrial operations and motor vehicle use. Ground mishaps can occur from the use of equipment or materials and from construction, demolition, and maintenance functions. Ongoing DAF safety programs covering industrial activities, operation of motor vehicles and other equipment, and everyday operations are continuously refined as new activities and new information becomes available. All Aircrew receive regular safety training to keep the chances of mishaps as low as possible.

All construction contractors operating on the NTTR must follow ground safety regulations to avoid posing any risks to workers or personnel on or off Base. Construction contractors are responsible for reviewing potentially hazardous workplace operations, monitoring exposure to workplace chemicals (e.g., asbestos, lead, HAZMAT), physical hazards (e.g., noise propagation, slips, trips, falls), and biological agents (e.g., infectious waste, wildlife, poisonous plants).

Within the NTTR, Nellis AFB maintains a Wildland Fire Management Plan (Nellis AFB, 2020). This plan contains the procedures and directives necessary in the event that an aircraft mishap or accidental fire from aircraft operations or training occurs within the NTTR. The plan also lays out various Memoranda of Agreement with the City of North Las Vegas and the BLM that define roles and responsibilities in the event of a wildland fire in the NTTR. Additionally, the plan specifies ways to reduce the likelihood of fire within the NTTR through actions such as fuel reduction and fuel moisture monitoring.

### **3.11.2.2 Flight Safety**

The Proposed Action would not involve flight activities. Accordingly, flight safety is not discussed further in this EA.

### **3.11.2.3 Explosives Safety**

Aircraft and weapon munitions include ammunition, propellants (solid and liquid), pyrotechnics, warheads, explosives devices, and chemical agent substances and associated components that present real or potential hazards to life, property, or the environment. [Defense Explosive Safety Regulation 6055.09 Department of the Air Force Manual 91-201](#), *Explosives Safety Standards* (February 2025), defines the guidance and procedures dealing with munition storage and handling.

Operational constraints are primarily associated with explosive safety quantity distance (ESQD) arcs, munitions storage, and transportation routes. ESQD arcs define distances from explosives storage that prevent development within their extents. There are no ESQD arcs, munitions storage concerns, or transportation routes involved in the Proposed Action. On 14 November 2023, the 99th Ordnance Detachment completed an unexploded ordnance (UXO) above ground-surface sweep of the entire area between the TPECR O&M compound and the salvage yard. Any found items were removed from the project area, and explosives safety is not evaluated further in this EA. The NTTR has employed live munitions on designated portions of the Range since 1940, and there is always the potential to uncover UXO. Any UXO encountered on the NTTR is inspected.

### **3.11.3 Environmental Consequences**

In accordance with NEPA, the DAF must assess direct and indirect impacts of a proposed action and alternatives on the safety and health of DAF employees and others at a work site. DAF Policy Directive 91-2, *Safety Programs*, is implemented by [DAFI 91-202](#), *The Department of the Air Force (DAF) Mishap Prevention Program* (April 2024), which manages risks to protect DAF personnel from occupational deaths, injuries, or illnesses and minimizes loss of DAF resources. These standards apply to all DAF activities; adherence to the DAF's Mishap Prevention Program ensures DAF workplaces meet federal safety and health requirements.

#### **3.11.3.1 Evaluation Criteria**

Safety-related impacts from a proposed activity are assessed according to the potential to increase or decrease safety risks to personnel, the public, property, or the environment. Adverse impacts related to safety would occur if the Proposed Action resulted in DAF OSHA criteria being exceeded or the improper implementation of established or proposed safety measures, creating unacceptable safety risk to personnel. Adverse impacts would occur if the Proposed Action

- increases risks associated with the safety of construction personnel, contractors, military personnel, or the local community;
- hinders the ability to respond to an emergency; or
- introduces a new health or safety risk for which the Base is not prepared or does not have adequate management and response plans in place.

Significant adverse impacts to safety resources would occur if the Proposed Action

- substantially increases risks to the health and safety of workers or the public;
- substantially increases rates of injuries, illnesses, accidents, or emergencies;
- substantially affects the ability of law enforcement or other emergency response personnel to respond promptly to accidents and emergencies;

- causes workers or the public to reasonably perceive that health and safety risks had substantially increased; and/or
- contributes to a violation of any local, state, or federal regulation.

### **3.11.3.2 Proposed Action**

#### **Ground Safety**

The Proposed Action includes new construction, which would have the potential to expose personnel to risks from heavy equipment operation and HAZMAT. To minimize health and safety risks, contractors would be required to maintain site-specific health and safety programs that follow all applicable regulations. NTTR TPECR O&M compound personnel would review these programs before beginning work to ensure that contractors take appropriate measures to reduce the potential health and safety risks.

Long-term, beneficial impacts to ground safety would occur from consistent access to a safe water supply at the compound. The issue of a single point of failure for the water system caused by only one on-site well would be solved by constructing an additional well on the Installation. Arsenic filtration and ultraviolet bacteriological disinfection of the water storage tanks would aid in overall water quality for its range of potential uses.

Beneficial impacts to safety would also occur under the Proposed Action with three new 50,000-gallon water storage tanks to better support fire suppression efforts at TPECR. Having additional draw capacity as well as stored water ready for firefighting purposes within the Range would cut down response time and the potential for mechanical failures when a fire event occurs.

In summary, implementation of the Proposed Action would result in minor, short-term impacts and long-term, beneficial impacts to ground safety.

### **3.11.3.3 Cumulative Impacts**

The Proposed Action would have beneficial impacts to safety and occupational health through the availability of water for both human consumption and firefighting purposes. Beneficial impacts from the NTTR INRMP projects include reduced fire fuel, continued wildland fire management, and continued bird/wildlife aircraft strike hazard management would improve the ground and flight safety environment. Infrastructure improvements and building replacements within the TPECR O&M compound would improve the working environment for personnel at the Range, and the road improvements would support safe vehicular travel to and from the compound. When considered in conjunction with the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions as presented in **Table 3-1**, no significant cumulative effects to safety and occupational health would be anticipated to occur with implementation of the Proposed Action.

### **3.11.3.4 No Action Alternative**

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no impacts to safety and occupational health beyond baseline conditions. NTTR would continue to operate under current conditions, and the facility and infrastructure assets of the Range would continue to degrade. Additional water storage for firefighting would not be installed. Treatment and sanitation infrastructure for potable water would not be installed, and the existing system would remain in place. Failure of the well would require use of water trucks brought on site for both construction and domestic use because there is no alternative means of drawing water. This would present a health hazard until emergency drinking water and portable toilet facilities could be transported to the TPECR O&M compound. Trucking water for potable use under these conditions would require additional bacteriological testing for safety. The groundwater is known to have a high baseline level of arsenic that requires treatment prior to use, and a functional well with arsenic filtration is the only long-term solution. Over time, the reliability of the existing water access and supporting infrastructure would diminish. The ability of NTTR to implement future planned projects at both the TPECR O&M compound and the salvage yard would decrease, impacting the ability to support the military mission.

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## CHAPTER 5 REFERENCES

- Agency for Toxic Substances and Disease Registry. 2018. 2018 Annual Report. [https://archive.cdc.gov/www\\_atsdr\\_cdc\\_gov/2018atsdrannualreport/index.html](https://archive.cdc.gov/www_atsdr_cdc_gov/2018atsdrannualreport/index.html) (accessed June 2023).
- Alaska Department of Environmental Conservation. 2025. "Aqueous Film Forming Foam (AFFF)." Division of Spill Prevention and Response. <https://dec.alaska.gov/spar/csp/pfas/firefighting-foam/>
- Bureau of Land Management (BLM). 2003. *Proposed Nevada Test & Training Range Resource Management Plan and Final Environmental Impact Statement*. May 2003.
- BLM. 2023. *Nevada Special Status Species List*. [https://www.blm.gov/sites/default/files/docs/2023-11/NV-IM-2024-003%20att%201%20BLM%20Nevada%20Special%20Status%20Species%20List\\_0.pdf](https://www.blm.gov/sites/default/files/docs/2023-11/NV-IM-2024-003%20att%201%20BLM%20Nevada%20Special%20Status%20Species%20List_0.pdf) (accessed 07 January 2025).
- Cole, J.C. 1997. Major Structural Controls on the Distribution of pre-Tertiary Rocks, Nevada test site vicinity, southern Nevada. US Geological Survey, OF 97-533.
- Dames & Moore, Inc. 1995a. *Decision Document for Nellis Air Force Range Site DP-53*. Nellis Air Force Base Installation Restoration Program. November 1995.
- Dames & Moore, Inc. 1995b. *Site Investigation Report, Sites ST-31, ST-54, and DP-59*. Nellis Air Force Range, Nevada. Installation Restoration Program. August 1995.
- Department of Defense. 2021. *Mission Sensitive Species*. [https://www.denix.osd.mil/dodpif/denix-files/sites/37/2021/05/DoD-PIF-MSS-Fact-Sheet\\_508\\_v2.pdf](https://www.denix.osd.mil/dodpif/denix-files/sites/37/2021/05/DoD-PIF-MSS-Fact-Sheet_508_v2.pdf) (accessed 07 January 2025).
- Department of the Interior. 2023. *General Provisions; Revised List of Migratory Birds*. 50 CFR Parts 10, 17, and 21, RIN 1018-BG04. 31 July 2023.
- Environmental Assessment Services, LLC. 2024. *Class III Intensive Cultural Resources Survey of Approximately 200 Acres at Nellis Air Force Base – Nevada Test and Training Range: Northern Hub Development, Tolicha Peak Water Facility, Nye County, Nevada*.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87-1*. Final Report. January. [https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/Website%20Organization/Corps%20of%20Engineers%20Wetlands%20Delineation%20Manual%20\(1987\).pdf](https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/Website%20Organization/Corps%20of%20Engineers%20Wetlands%20Delineation%20Manual%20(1987).pdf) (22 February 2023).
- Federal Emergency Management Agency. 2020. "FEMA Flood Maps and Zones Explained." <https://www.fema.gov/blog/fema-flood-maps-and-zones-explained> (accessed 24 February 2023).
- Fink, D. 2023. eBird Status and Trends, Data Version: 2022; Released: 2023. Cornell Lab of Ornithology, Ithaca, New York. <https://doi.org/10.2173/ebirdst.2022>
- Francis, C.D. and Barber, J.R. 2013. "A Framework for Understanding Noise Impacts on Wildlife: An Urgent Conservation Priority." *Frontiers in Ecology and the Environment*, 11(6), 305-313. <https://doi.org/10.1890/120183>.
- McGinley & Associates. 2021. Well Drilling and Design Review for the NTTR TPECR Targets Yard Facilities. October 2022.
- Military Health System. 2019. "Perfluoroalkyl and Polyfluoroalkyl Substances." <https://www.health.mil/Military-Health-Topics/Health-Readiness/Public-Health/PFAS>

- Nellis Air Force Base (AFB). 2015. *Hazardous Waste Management Plan*. US Air Force.
- Nellis AFB. 2019. *Final Integrated Cultural Resources Management Plan: Nellis Air Force Base/Creech Air Force Base/Nevada Test and Training Range*. US Air Force.
- Nellis AFB. 2020. *Draft Nellis Nevada Test and Training Range Wildland Fire Management Plan*. US Air Force September.
- Nellis AFB. 2022a. *Final Report: 2021 Unique Habitats Report*. Prepared by Colorado State University Center for Environmental Management Military Lands. August.
- Nellis AFB. 2022b. *Final Report: 2021 Reptiles and Amphibians Surveys*. Prepared by Colorado State University Center for Environmental Management Military Lands. August.
- Nellis AFB. 2022c. *Final Report: 2021 Golden Eagle Report*. Prepared by Colorado State University Center for Environmental Management Military Lands. September.
- Nellis AFB. 2024. *Integrated Natural Resources Management Plan: Nellis Air Force Base, Creech Air Force Base, Nevada Test and Training Range*. Nellis Air Force Base, Nevada. US Air Force.
- Nevada Department of Wildlife (NDOW). 2022. Nevada State Wildlife Action Plan. <https://www.ndow.org/wp-content/uploads/2023/11/2022-SWAP-Full-Doc-FINAL-print.pdf> (accessed 7 January 2025).
- Nevada Division of Environmental Protection (NDEP). 1995. *Site ST-54*. Department of Conservation and Natural Resources. August 1995.
- NDEP. 1996. "No Further Action" Determination, Nellis Air Force North Range Disposal Pit DP-53. Department of Conservation and Natural Resources. October 1996.
- Nevada Division of Natural Heritage (NDNH). 2024a. *At-Risk Plant and Animal Tracking List*. [https://heritage.nv.gov/assets/documents/2024-02-Track\\_List.pdf](https://heritage.nv.gov/assets/documents/2024-02-Track_List.pdf) (accessed 07 January 2025).
- NDNH. 2024b. *Plant and Animal Watch List*. [https://heritage.nv.gov/assets/documents/2024-02-Watch\\_List.pdf](https://heritage.nv.gov/assets/documents/2024-02-Watch_List.pdf) pdf (accessed 6 July 2023).
- Oneida Total Integrated Enterprises. 2021. Final Spill Prevention, Control, and Countermeasure Plan. July.
- Spaulding, W.G. 1985. *Vegetation and Climates of the Last 45,000 Years in the Vicinity of the Nevada Test Site, South-Central Nevada*. US Geological Survey Professional Paper 1329. Denver, CO.
- State of Nevada. 1984. *Well Drillers Report – Permit No. 48429*. Division of Water Resources. June.
- United States Environmental Protection Agency (USEPA). 2003. Estimating 2003 Building-Related Construction and Demolition Building Material Amounts.
- USEPA. 2020. *2017 National Emission Inventory Data – Facility Summaries, Nevada*. United States Environmental Protection Agency. <https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data> (accessed 21 August 2020).

USEPA. 2024a. Criteria Air Pollutants. Available at: <https://www.epa.gov/criteria-air-pollutants> (accessed 21 November 2024). 22 October.

USEPA. 2024b. NAAQS Table. Available at: <https://www.epa.gov/criteria-air-pollutants/naaqs-table> (accessed 21 November 2024). 7 February.

USEPA. 2024c. National Ambient Air Quality Standards (NAAQS) for Particulate Matter. Available at: <https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm> (accessed 1 March 2024).

United States Fish and Wildlife Service (USFWS). 2022. *Desert Tortoise Monitoring Handbook*. Desert Tortoise Recovery Office, US Fish and Wildlife Service, Reno, Nevada. Version: 1 March.

USFWS. 2023a. IPaC Information for Planning and Conservation. Southern Nevada Fish and Wildlife Office. June 2023.

USFWS. 2023b. "Yellow-billed Cuckoo". <https://www.fws.gov/species/yellow-billed-cuckoo-coccyzus-americanus> (accessed 6 June 2023).

WETLAB (Western Environmental Testing Laboratory). 2023. *Tolicha Peak Drinking Water Analytical Report*. March 2023.

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