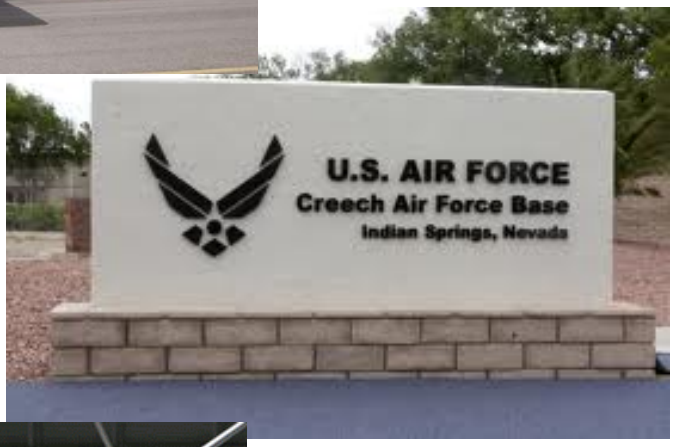
Final

Creech Air Force Base
Capital Improvements Program
Environmental Assessment



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LIST OF ACRONYMS AND ABBREVIATIONS

99 ABW	99th Air Base Wing
ACC	Air Combat Command
ACES	Automated Civil Engineer System
ACM	Asbestos-Containing Material
ADP	Area Development Plan
AFB	Air Force Base
AGE	Aerospace Ground Equipment
AICUZ	Air Installation Compatible Use Zone
Air Force/USAF	United States Air Force
APZ	Accident Potential Zone
ATG	Adversary Tactics Group
BTU	British thermal unit
CAA	Clean Air Act
CCDAQEM	Clark County Department of Air Quality and Environmental Management
CCW	Command and Control Wing
CEP	Central Energy Plant
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIP	Capital Improvements Program
CO	Carbon Monoxide
CWA	Clean Water Act
CZ	Clear Zone
dB	Decibel
dBA	A-Weighted Decibel
DNL	Day-Night Average Sound Level
DoD	Department of Defense
EA	Environmental Assessment
ECIP	Energy Conservation Improvement Program
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FDE	Force Development Evaluation
FY	Fiscal Year
GHG	greenhouse gas
gpd	Gallons Per Day
HAP	hazardous air pollutant
HAZMART	hazardous material pharmacy
HAZMAT	Hazardous Materials
HQ	Headquarters
IAP	Initial Accumulation Point
JSF	Joint Strike Fighter
kV	Kilovolt
LBP	Lead-Based Paint
LEED	Leadership in Energy and Environmental Design
LF	linear feet
MILCON	Military Construction
MSAT	Mobile Source Air Toxics
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NDEP	Nevada Division of Environmental Protection
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
nm	nautical miles
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxide
NDPES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTTR	Nevada Test and Training Range
O_3	Ozone
O&M	Operations and Maintenance
PM_{10}	Particulate Matter Less than 10 Microns
$PM_{2.5}$	Particulate Matter Less than 2.5 Microns
QD	Quantity Distance
RCRA	Resource Conservation and Recovery Act
RED HORSE	Rapid Engineers Deployable Heavy Operational Repair Squadron Engineer
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxide
THPO	Tribal Historic Preservation Office
UFC	Unified Facilities Criteria
UNLV	University of Nevada Las Vegas
U.S.	United States
US-93	United States Highway 93
USACE	United States Army Corps of Engineers
USAFWC	United States Air Force Warfare Center
USC	United States Code
USCB	United States Census Bureau
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound
WINDO	Wing Infrastructure and Development Outlook
WS	Weapons School
WSA	Weapons Storage Area

FINDING OF NO SIGNIFICANT IMPACT

1.0 NAME OF THE PROPOSED ACTION

Creech Air Force Base Capital Improvements Program (CIP) Environmental Assessment (EA)

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Creech AFB proposes to formally update their CIP which continually evolves, but the last formal proposal which resulted in National Environmental Policy Act (NEPA) documentation was during the 2008 update of the Creech Air Force Base (AFB) General Plan. The mission changes at Creech AFB are substantive enough to require update of the CIP projects list. Restoration/Modernization and Sustainment projects would provide the base with up-to-date facilities by repairing, remodeling, or replacing older facilities to modern standards. Also, these outdated facilities demand considerable energy, replacing them with new energy efficient, updated facilities would yield considerable savings for the base and conform to Department of Defense (DoD) guidelines for Leadership in Energy & Environmental Design (LEED) facilities.

The projects described in the CIP are derived from Base Comprehensive Asset management Plan (BCAMP). The BCAMP lists all of the proposed projects which have been identified as a bona fide need by the individual proponents of each action. These projects are reviewed by the Civil Engineering Facility Review Board and approved by the 99 ABW Commander based upon criteria including mission requirements, quality of life, degradation of existing facilities, and other factors. While the CIP includes hundreds of projects, funding for all of the projects to be completed in the next 5 years is not feasible because of the limited amount of funds available. These funding limitations are due to worldwide deployments and contingency operations; competing funding requests from every other military installation; new missions such as the F-35A beddown; and general budget reductions for civil engineering projects. As a result, only a small percentage of the projects can be funded within one fiscal year.

Since the overall funding amount available to execute CIP projects is unknown, two construction scenarios have been developed to place reasonable limits on the analyses. Scenario 1 involves light construction and describes demolition of an unspecified 2,000 square foot existing building, and construction of representative 30,000 square foot facility including parking up to 3 acres. The vast majority of the CIP projects combined together would be an aggregate size less than that described for Scenario 1. Scenario 2 triples the size of the demolition and construction up to 10 acres and only the largest or combination of several smaller new construction projects would reach this limit. Other large projects could be implemented if aspects of Scenario 2 would not be implemented, such as roadway projects where there would be no demolition or facility construction, but would be looked at on a case-by-case basis.

The Air Force also analyzed the no-action alternative. Baseline conditions as reflected by the no-action alternative provide a comparison to the environmental impacts of the proposed action.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The EA provides an analysis of the potential environmental consequences resulting from implementing the proposed action. Nine resource categories were thoroughly analyzed to identify potential impacts. According to the analysis in this EA, implementation of the proposed action would not result in significant impacts to any resource category or significantly affect existing conditions at Creech AFB. The following summarizes and highlights the results of the analysis by the resource categories anticipated to be affected of land use, socioeconomics, biological resources and air quality. Cultural resources, water and soil resources, hazardous materials and waste, safety, and noise were also analyzed but were determined to have little to no impacts.

Land Use. All Creech AFB projects, including the CIP projects, would be reviewed by the base community planner to assume compatibility with current land uses. To the extent possible, facilities would be clustered together assuring compatible facilities would be sited closer to each other. New facilities would be sited to ensure compatibility with land uses in accordance with the General Plan.

Socioeconomics. Under the proposed action, no increase in permanently-based personnel would occur at Creech AFB in Clark County. The proposed action would not adversely affect housing, schools, or utilities in the Indian Springs or Las Vegas area. Construction activities could create jobs for people in the Indian Springs and Las Vegas area, although the split of how many jobs for each location in indeterminable. Operation of the new facilities would draw from existing manpower positions and not create new jobs for any of the communities; therefore, no significant impacts are anticipated if the proposed action were implemented.

Biological Resources. Overall, there would be no adverse impact to vegetation, wildlife, wetlands, or special-status species from implementation of the proposed action. None of the CIP projects intersect known desert tortoise habitat, and therefore, this species would not be affected. However, should a project arise with the potential to affect desert tortoise, consultation with the United States (U.S.) Fish and Wildlife Service would be initiated. Consultation with the U.S. Army Corps of Engineers would be conducted and a Section 404 permit obtained if required for any capital improvement project with the potential to impact jurisdictional waters of the United States.

Air Quality. Air quality would be affected during facility construction period; however, the emissions would not pose an adverse impact. Two demolition/construction scenarios were developed to calculate *de minimis* thresholds for pollutant emissions. Scenario 1 modeled demolition of a two-story, 2,000 square-foot concrete building located on 1 acre of land, and 3 acres of construction for a 30,000 square-foot concrete maintenance shop with a 100,000 square-foot parking lot. Scenario 2 increased demolition to 3 acres and tripled the sizes of the building and parking lot to be demolished. Construction under Scenario 2 tripled the sizes of the building and parking lot and the overall project disturbance area increased to 10 acres. These scenarios assumed that all best management practices, such as watering loose soil and avoiding unnecessary periods of engine-idle, would be in place.

4.0 CONCLUSION

On the basis of the findings of the EA, no significant impact to human health or the natural environment would be expected from implementation of the proposed action or no-action alternative. Therefore, issuance of a Finding of No Significant Impact (FONSI) is warranted, and preparation of an Environmental Impact Statement, pursuant to the National Environmental Policy Act of 1969 (Public Law 91-190) is not required for this action.

BARRY CORNISH
Colonel, USAF
Commander

8 APR 14
Date

CREECH AIR FORCE BASE CAPITAL IMPROVEMENTS PROGRAM
ENVIRONMENTAL ASSESSMENT

Responsible Agency: United States Air Force (Air Force), Creech Air Force Base (AFB)

Proposed Action: Creech AFB proposes to update the Capital Improvements Program (CIP). The CIP update proposes a plan to construct new facilities, and/or repair, remodel, maintain or demolish outdated facilities at Creech AFB, Nevada.

Written comments and inquiries regarding this document should be directed to:

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In addition, the document can be viewed on and downloaded from the World Wide Web at www.nellis.af.mil/library/environment.asp

Designation: Final Environmental Assessment (EA)

Abstract: Creech AFB proposes to initiate updates to the CIP that would include construction, demolition, renovation, and maintenance activities at the base. By taking a comprehensive approach to planning and implementing facilities and infrastructure improvements over a multi-year period, Creech AFB would ensure that limited funds, energy conservation, and operational goals are maximized. The CIP contains hundreds of projects; however, funding for all of the projects to be completed in the next five years is not feasible because of the limited amount of funds available. These funding limitations are due to worldwide deployments and contingency operations, competing funding requests from other military installations, and general budget reductions for civil engineering projects. As a result, only a small percentage of the projects can be funded within one fiscal year

Since the overall funding amount available to execute CIP projects is unknown, two construction scenarios have been developed to place reasonable limits on the analyses. Scenario 1 involves light construction and describes demolition of an unspecified 2,000 square foot existing building, and construction of representative 30,000 square foot facility including parking up to 3 acres. The vast majority of the CIP projects combined together would be an aggregate size less than that described for Scenario 1. Scenario 2 triples the size of the demolition and construction up to 10 acres and only the largest or combination of several smaller new construction projects would reach this limit. Other large projects could be implemented if aspects of Scenario 2 would not be implemented, such as roadway projects where there would be no demolition or facility construction, but would be looked at on a case-by-case basis.

This Final EA analyzes the potential environmental consequences of the proposed CIP update and includes analysis of the no-action alternative.

Final

Creech Air Force Base
Capital Improvements Program
Environmental Assessment

United States Air Force
Air Combat Command

November 2013

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This Environmental Assessment (EA) analyzes the potential environmental consequences resulting from a proposal to update the Creech Air Force Base (AFB) Capital Improvement Program (CIP). The CIP for Creech AFB describes discrete projects, such as major utility upgrades or construction of individual facilities, also reflects planned changes to enhance mission capability, correct space and/or infrastructure deficiencies, and to support future development through modernization, restoration, and sustainment projects. The CIP is first identified in the Creech AFB General Plan issued in 2006 and the last CIP was formalized in 2008. However, internally the CIP evolves regularly as completed projects get deleted from the list and as new requirements are identified and planned. Formal updates to the CIP are driven by planned major mission changes and the fact that a formal CIP hasn't been updated since 2008. This updated CIP provides more current information relating to the mission changes.

This EA has been prepared by Nellis AFB in accordance with the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and Air Force Environmental Impact Analysis Process, as promulgated in Title 32 of the Code of Federal Regulations (CFR) Part 989.

PURPOSE AND NEED FOR THE ACTION

The purpose of the proposed action is to update the CIP to account for mission changes and update and repair outdated facilities and infrastructure. The proposed update to the Creech AFB CIP is needed to provide the installation and unit commanders with up-to-date development possibilities for the base and to assist the base planners in compliance with the overall vision of the respective missions of Creech AFB. Additionally, the CIP assigns projects that not only meet this need but also provide the necessary repairs and maintenance for restoration, modernization, and sustainment of facilities to assure facilities are capable of supporting mission needs. CIP projects address facility conditions including plans for future activities such as construction, repair, maintenance, and demolition, following recommendations for architectural compatibility and landscaping.

PROPOSED ACTION AND NO-ACTION ALTERNATIVE

Creech AFB proposes to initiate updates to the CIP that would include construction, demolition, renovation, and maintenance activities at the base. By taking a comprehensive approach to planning and implementing facilities and infrastructure improvements over a multi-year period, Creech AFB would ensure that limited funds, energy conservation, and operational goals are maximized. Proposed improvements would comply with the Department of Defense's (DoD) direction to design and build Leadership in Energy & Environmental Design (LEED) facilities and decrease energy consumption on military installations.

The projects described in the CIP are derived from the Base Comprehensive Asset Management Plan (BCAMP). The BCAMP lists all of the proposed projects which have been identified as a bona fide need by the individual proponents of each action. These projects are reviewed by the Civil Engineering Facility Review Board and approved by the 99th Air Base Wing (99 ABW) Commander based upon criteria including mission requirements, quality of life, degradation of existing facilities, and other factors. While the CIP includes hundreds of projects, funding for all of the projects to be completed in the next

five years is not feasible because of the limited amount of funds available. These funding limitations are due to worldwide deployments and contingency operations, competing funding requests from other military installations, and general budget reductions for civil engineering projects. As a result, only a small percentage of the projects can be funded within one fiscal year.

Since the overall funding amount available to execute CIP projects is unknown, two construction scenarios have been developed to place reasonable limits on the analyses. Scenario 1 involves light construction and describes demolition of an unspecified 2,000 square foot existing building, and construction of representative 30,000 square foot facility including parking up to 3 acres. The vast majority of the CIP projects combined together would be an aggregate size less than that described for Scenario 1. Scenario 2 triples the size of the demolition and construction up to 10 acres and only the largest or combination of several smaller new construction projects would reach this limit. Other large projects could be implemented if aspects of Scenario 2 would not be implemented, such as roadway projects where there would be no demolition or facility construction, but would be looked at on a case-by-case basis. In addition to the proposed action, the Air Force analyzed the no-action alternative.

MITIGATION MEASURES

In accordance with 32 CFR 989.22, the Air Force must indicate if any mitigation measures would be needed to implement the proposed action. However, based upon the findings of this EA, no mitigation measures would be needed to arrive at a finding of no significant impact (FONSI) if the proposed General Plan update action was selected for implementation at Creech AFB.

SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

This EA provides an analysis of the potential environmental consequences resulting from implementation of the proposed CIP update action and the no-action alternative. Nine resource categories were analyzed to identify potential impacts: land use and transportation, socioeconomics, cultural resources, biological resources, water resources, air quality, hazardous materials and waste, safety, and noise. According to the analysis in this EA, implementation of the proposed action or no-action alternative would result in no significant environmental impacts in any resource category. Implementing the proposed action would not significantly affect existing conditions at Creech AFB. The following Table ES-1 summarizes and highlights the results of the analysis by resource category.

Table ES-1. Comparison of Alternatives by Resource

Resource Category	CIP Update	No-Action Alternative
Land Use	• Land Use planning would ensure siting of compatible missions within appropriate land use categories and noise zones.	• Current land uses and transportation conditions would remain unchanged.
Socioeconomics	• Construction activity on Creech AFB would temporarily increase construction activities that could result in short-term beneficial impacts to Clark County and Indian Springs.	• No change to existing socioeconomic resources.
Cultural Resources	• Creech AFB has been inventoried and the proposed action would not impact any cultural resources. • All proposals for federal actions would be reviewed by the Nellis AFB Cultural Resources Manager to determine and implement the appropriate consultation requirements.	• The effect on the environment would be unchanged relative to baseline.

Biological Resources	• No adverse impacts to vegetation, wetland or waters of the U.S., wildlife, or special-status species from implementation of the proposed action. • Consultation with the U.S. Army Corps of Engineers (USACE) would be conducted and a Section 404 permit obtained, if required. • Consultation with the U.S. Fish and Wildlife Service (USFWS) for desert tortoise, Section 7, Endangered Species Act compliance, if required. • Construction is not planned in the Las Vegas bearpoppy habitat areas. However, consultation with the base biologist would be implemented prior to construction to assure there would be no impacts.	• No change to current baseline conditions on Creech AFB.
Water and Soil Resources	• Impacts would be minimized by use of best management practices required by the base and permits. • Overall water use would not increase at Creech AFB as the proposed action is not associated with any personnel increase. • Many projects include upgrades to the water system and/or use water saving devices and landscaping to conserve water.	• Ongoing activities at Creech AFB would continue at baseline levels; no additional effects on water resources would occur.
Air Quality	• Emissions generated by construction, demolition, and paving would be localized and temporary. • Maximum emissions of any criteria pollutant would not exceed *de minimis* thresholds.	• No change to existing emissions.
Hazardous Materials and Waste	• Any new waste streams would be handled in accordance with current Nellis AFB Hazardous Material Plan (NAFB Plan 32-7086) and Hazardous Waste Plans (NAFB Plan 12). • Proposed facilities affected by the location of an active Environmental Restoration Program (ERP) site would seek the required ERP waiver from HQ ACC at the planning phase.	• Ongoing activities at Creech AFB would continue at baseline levels.
Safety	• Established safety guidelines and procedures which would continue to be observed. • No incompatible projects would occur within safety zones.	• No change to current practices would occur.
Noise	• Construction noise impacts would be localized within the installations, and of short-term duration. • No long-term increase of noise is anticipated.	• Baseline conditions would continue within current contours.

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CHAPTER 1

PURPOSE AND NEED FOR THE PROPOSED ACTION

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The Capital Improvements Program (CIP) for Creech Air Force Base (AFB) describes discrete projects, such as major utility upgrades or construction of individual facilities. It also presents planned changes to enhance mission capability and correct space and/or infrastructure deficiencies. At the core of the CIP are lists describing these discrete projects sorted by Military Construction (MILCON) or Operations and Maintenance (O&M). The O&M lists are distinguished by; Restoration and Modernization; Sustainment; and O&M Construction Projects. The latter is a master list containing all O&M projects including those that are not classified as either Restoration and Modernization or Sustainment. The CIP was first identified in the Creech AFB General Plan issued in 2006 and the last CIP was formalized in 2008 (Air Force 2008). However, internally the CIP evolves regularly as completed projects get deleted from the list and as new requirements are identified and planned. Formal updates to the CIP are driven by planned mission changes. A formal CIP update has not been prepared since 2008. The new CIP will incorporate Restoration and Modernization, and Sustainment concepts that are new terms for describing projects that was not used during the previous CIP.

In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States [U.S.] Code [USC] 4321-4347), Nellis AFB has prepared this Environmental Assessment (EA) that considers the potential consequences to the human health and the natural environment. In addition, this EA complies with the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Sections 1500-1508), and 32 CFR Part 989, *et seq*., Air Force Environmental Impact Analysis Process (EIAP). This EA examines the consequences of implementing the proposed updates and implementation of the Creech AFB CIP and includes analysis of the no-action alternative.

1.2 BACKGROUND

Creech AFB is under the command of Air Combat Command and is a component of the U.S. Air Warfare Center (USAFWC) at Nellis AFB. Creech AFB is home to the Remotely Piloted Aircraft, Predator (MQ-1) and the Reaper (MQ-9) systems. Geographically, the bases are separated by about 45 miles.

Location of the Proposed Action

Creech AFB

Creech AFB is located near the town of Indian Springs, Nevada; approximately 45 miles northwest of Las Vegas, along US-95 (refer to Figure 1-1). Air Force facilities are found on both the north and south side of the highway, with the majority of assets located to the north (e.g., runways; hangars; and maintenance, administrative, and operational facilities). The 432 Wing operates remotely piloted aircraft in support of commander's need and operates worldwide. Units assigned to the 432 Wing provide theater commanders with deployable long-range, long-endurance, real-time aerial reconnaissance, surveillance, target acquisition and attack flying the remotely piloted MQ-1 Predator and the MQ-9 Reaper. All Predator squadrons operate out of Creech AFB and the Predator Operations Center-Nellis. The MQ-9 Reaper, a newer, larger version of the Predator, is operating from Creech AFB. The Reaper is able to fly at higher altitudes, carry more weapons, and has a greater range than the Predators. Another one of Creech AFB's

primary missions is to provide an emergency divert airfield for military aircraft training in the Nevada Test and Training Range (NTTR) and support the flying operations at Nellis AFB, other Air Force units, Navy, Marine Corps and allied air forces. Creech AFB is also the primary training site for the United States Air Force Thunderbirds flying F-16s from Nellis AFB. The 99th Security Forces Group, Ground Combat Training Squadron is also based at Creech AFB.

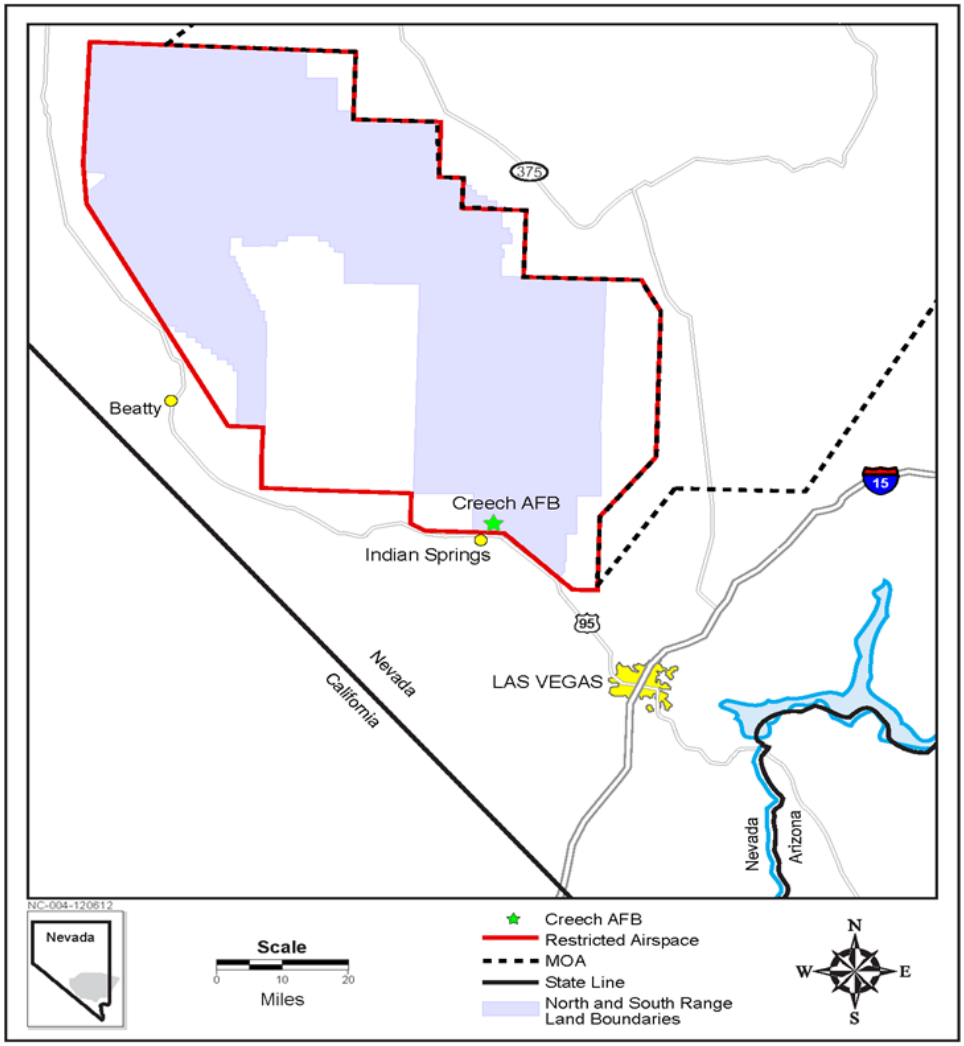


Figure 1-1. Creech AFB Location Map

Since the overall funding amount available to execute CIP projects is unknown, two construction scenarios have been developed to place reasonable limits on the analyses. Scenario 1 involves light construction and describes demolition of an unspecified 2,000 square foot existing building, and construction of representative 30,000 square foot facility including parking up to 3 acres. The vast majority of the CIP projects combined together would be an aggregate size less than that described for Scenario 1. Scenario 2 triples the size of the demolition and construction up to 10 acres and only the largest or combination of several smaller new construction projects would reach this limit. Other large projects could be implemented if aspects of Scenario 2 would not be implemented, such as roadway

projects where there would be no demolition or facility construction, but would be looked at on a case-by-case basis.

1.3 PURPOSE AND NEED FOR ACTION

The purpose of this update to the Creech AFB CIP is to incorporate new projects into the current projects lists that are necessary to sustain the Base mission. With the implementation of asset management principles through the Base Comprehensive Asset Management Plan (BCAMP), as well as changes to the Installation Priority List (IPL) processes, the General Plan is no longer the primary force determining which projects are funded. However, the General Plan remains a tool for the Installation Commander to use in decision making and project prioritization.

As an integral element of the new project prioritization process, the General Plan, the CIP, and the BCAMP assist the Base Civil Engineer in recommending priorities to Wing leadership. Pulling information from legacy databases, the BCAMP transparently documents the current condition of base assets and assists making recommendations on asset maintenance based on the assets value to the base mission. With limited funding for the near future, prioritization and consolidation has become the norm. Not all facilities that need repair will get the needed attention due to its value to the base mission. Another component is the long range Sustainability, Restoration, and Modernization (SRM) funding. If consolidation continues, many of the facilities may be demolished before repairs are funded. The IPL is a composite priority list, produced by the BCAMP and previewed/approved by the five wings. Each wing analyzes their mission needs and prioritizes the list of projects necessary to maintain their mission capability. The five lists are combined to create a composite list for the installation. The Facility Utilization Board reviews and prioritizes the composite list to forward to Air Combat Command as the IPL.

The proposed update to the Creech AFB CIP is needed to provide the installation and unit commanders with up-to-date development possibilities for the base and to assist planners in compliance with the overall vision of the respective missions of Creech AFB. One of the key changes to the existing conditions at Creech AFB is the beddown (permanent basing) of additional Predator and Reaper aircraft.

CHAPTER 2

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

Nellis AFB proposes to implement an update to the Capital Improvements Program (CIP) for Creech AFB. The update includes the CIP that describes discrete projects, such as major utility upgrades or construction of individual facilities. It also presents planned changes to enhance mission capability and correct space and/or infrastructure deficiencies. The goal of this EA is to analyze the projects defined in these components of the CIP and assess their potential impacts to the environment.

The following provides a description of the CIP and the types of activities planned by implementing the CIP. These planned activities represent the proposed action analyzed in this EA.

2.1.1 Capital Improvements Program

The projects described in the CIP are derived from the BCAMP. The BCAMP lists all of the proposed projects which have been identified as a bona fide need by the individual proponents of each action. These projects are reviewed by the Civil Engineering Facility Review Board and approved by the 99 ABW Commander based upon criteria including mission requirements, quality of life, degradation of existing facilities, and other factors. While the list includes hundreds of projects, funding for all of the projects to be completed in the next five years is not feasible because of the limited amount of funds available. These funding limitations are due to worldwide deployments and contingency operations, competing funding requests from every other military installation, new missions such as the Remotely Piloted Aircraft, and general budget reductions for civil engineering projects. As a result, only a small percentage of the projects can be funded within one fiscal year. Projects that are not funded and still considered valid projects are carried over to the following fiscal year; in fact, many projects are still on the list that date back to the early 2000's or before and remain vitally needed for the installation. The complete list of CIP projects is provided in Appendix A.

New construction, additions, remodels, demolition, maintenance, and repair comprise types of projects on the ACES list and are further broken down by type, such as facilities, utilities, roads, airfield, administrative, recreation, and others. Table 2-1 identifies the improvement types of work, definitions and examples for improvements by the type of activity.

Table 2-1. Capital Improvements Identification by Activity Type		
Activity	**Definition**	**Examples**
Construction	New construction or addition, expansion, and renovation to existing facilities. All new construction must meet energy savings requirements.	Includes construction of buildings, roads, mission operation facilities, pads, access roads and parking lots and landscaping
Repair/Replace	Repair and/or replace existing equipment and infrastructure	Repair equipment, parking lots, manhole covers, fences, sprinkler systems, and fuel tanks; install exterior lighting; also includes replacing existing landscaping with xeriscaping
Installation	Installation of equipment, signs, utilities etc. to enhance the functionality of existing infrastructure	Install equipment to maintain operational mission such as emergency power, check valves, heating and air conditioning units, force protection, under-wing foam system, and fire hydrants
Maintenance	Routine maintenance	Routine maintenance to landscaping, road/parking lot pavement, ramps, water tanks, and hangars
Demolish	Demolition of existing infrastructure	Demolish roads, aged dormitories, buildings, pads, etc., potentially not related to new construction
Environmental	Monitoring and/or remediation of environmental spill sites, or other contracted documents such as Remedial Action Plans, Spill Response Plans, and Permit Fees	Long-term monitoring or planned remediation of identified sites, plans and permits which do not have physical impacts

Table 2-2 identifies the infrastructure types existing on Creech AFB and the variety of activities that are accomplished on each infrastructure type. For example, airfield improvements could involve construction, repair, maintenance, demolition, and perhaps, environmental remediation activities.

Table 2-2. Capital Improvements Identification by Infrastructure Type		
Facility Type	**Definition**	**Examples**
Facilities	Building construction or additions. This could include new, modular, addition/remodel, or storage facilities.	Includes all of the different classes of buildings; industrial, administrative, community service, etc. An example of a holding pad would be a munitions storage pad.
Airfield	Maintenance, installation, and repair of airfield pavements and airfield related equipment.	Revetment, paint taxi lines, install runway shoulders, extend/repair flight line, maintain airfield pavement, and aircraft arresting systems.
Utilities	Installation and repair.	Repair and install communication, electrical, sewer, natural gas, and water lines, and water conservation projects.
Roads	Installation, repair or maintenance of roads, sidewalks and parking lots.	Roads, parking lots, etc. this also includes signal lights, roundabouts, and deceleration lanes.
Security	Installation, construction, repair or maintenance of Antiterrorism/Force Protection items designed to improve the security of the installation.	Fencing, security barricades, lighting, security cameras, and vehicle inspection areas. Vegetation clearing and perimeter roads could fall in this category.
Fences/walls	Perimeter structures primary for Force Protection and/or aesthetics.	Fences and block walls, includes dumpster enclosures, fence line lighting and security equipment.
Energy Conservation Improvement Program (ECIP) and *Greening of the Government* Projects	Installing and/or retrofitting systems and equipment which directly or indirectly result in energy savings.	Photovoltaic Arrays, window film, HVAC controls, day-lighting projects.
Recreation and quality of life projects	Installing or repairing recreational areas, unit gathering places, or items to improve worker comfort and well-being.	Volleyball courts, horseshoe pits, pavilions and BBQ areas, this also includes sunshades for flightline workers.

Further descriptions of various types of CIP activities include construction of current mission and future mission facilities, restoration, modernization, and sustainment projects with definitions provided below.

MILCON (Military Construction) includes construction activity of sufficiently large scope to require Congressional funding and has the most potential for environmental impacts. All new facilities would be designed to comply with the Nellis AFB Design Compatibility Guidelines, August 2006, and major building projects would also comply with the Air Force Policy Memorandum requiring Leadership in Energy and Environmental Design (LEED) Green Building Rating System as the Air Force preferred self-assessment metric. The standards require energy saving building techniques, supplies and equipment to reduce environmental impacts, and provide for energy savings from the construction and operation of these new facilities.

Restoration includes repair and replacement work to restore facilities damaged by inadequate sustainment, excessive age, natural disaster, fire, accident, or other causes, to such a condition that it may be used for its designated purpose.

Modernization includes alterations of facilities to implement new or higher standards, including regulatory changes to accommodate new functions (including new mission beddowns), or to replace building components that typically last more than 50 years.

Sustainment includes maintenance and repair activities necessary to keep an inventory of facilities in good working order. Sustainment includes deferred sustainment such as anticipated major repairs or replacement of components that occur periodically over the expected service life of the facilities.

Table 2-3 lists the Creech AFB MILCON projects. Tables 2-4, 2-5, and 2-6 provide a list of the various O&M projects proposed for Creech AFB that are the more likely projects to be funded and executed over the next few years. Table 2-4 lists the representative Restoration and Modernization projects, and Table 2-5 lists the Sustainment projects.

Table 2-3. MILCON Projects

Project Number	Project Title	Infrastructure Type
LKTC103104	UAS Visitors Quarters	Facility
LKTC103105	UAS Joint Center Of Excellence Facility	Facility
LKTC113103	ADD/ALTER UAS Munitions Administration Facility	Facility
LKTC 11-3104	UAS Conventional Munitions Maintenance Facility	Facility
LKTC 11-3105	UAS Phase Maintenance Hangar	Facility
LKTC 11-3110	RPA Mission Complex Intrusion Detection Fence	Security
LKTC 11-3111	RPA Mission Complex Vehicle Denial Barrier	Security
LKTC 13-3101	RPA Mission Complex Physical Protection System	Security

Table 2-4. Representative Restoration/Modernization Construction/Repair Projects

Project Number	Project Title	Infrastructure Type
LKTC 10-1034	Repair AAS BAK 12 to BAK 14 Runway 08/26 West End	Airfield
LKTC 12-1038	Replace Base Ops/Weather Facility w/New Construction	Facility
LKTC 10-1022	Construct 432d Wing Standardization and Evaluation Facility	Facility
LKTC 12-1045	Construct Flightline Entry Gates	Security
LKTC 12-1050	Construct Flightline Perimeter Fence	Security
LKTC 12-1052	Construct Box Canyon Gate Automated Entry	Security
LKTC 12-1049	Construct Range Road Automated Entry	Security
LKTC 08-6802	Repair Aviation Gasoline (LL100) Operational Fueling System	Utility
LKTC 06-1009	Construct Apron Lighting	Utility
LKTC 10-1024	Construct Common Area Addition, Building 1005	Facility
LKTC 10-1025	Construct Volleyball and Basketball Courts, And Horseshoe Pit	Recreation
C-08015	Design and Repair Fuel System for AGE Yard, Building 1011	Utility
LKTC 12-1051	Renovate Facility for RPA Training, Building 707	Facility

Note: Table acronyms listed in Appendix A

Table 2-5. Representative Sustainment Construction/Repair Projects

Project Number	Project Title	Infrastructure Type
LKTC 12-1046	Repair North Side Propane and Chilled Water Lines	Utility
C-1107	Repair LOLA Road Washout	Road
C-10157	Repair Roof, Insulation for NOC, Ventilation Repair	Facility
C-10120	Replace Road 90 Degree Turn at Munitions Suspect Holding Area	Road
C-11001	Cost Analysis Expansion of Building 718 for Additional GCS's	Facility
C-10179	Hangar 1003 Floor Refinishing	Facility

Note: Table acronyms listed in Appendix A

Table 2-6. Representative O&M Projects

Project Number	Project Title	Infrastructure Type
LKTC036904	Repair Ground Product Piping, Bulk Storage	Utility
C-09132	Underground Storage Tank Removal Facility 24	Facility
C-09133	Underground Storage Tank Removal Facility 225	Facility
LKTC131005	Repair Electrical Service, Building 71	Facility
LKTC131006	Construct 2nd Floor Observation Deck, Building 1000	Road/Parking
LKTC131007	Install Emergency Mass Notification PA System, Building 1000 and 1004	Facility
LKTC131008	Construct Final Denial Barrier, Former Creech Main Gate	Road/Parking
LKTC131009	Repair CE Compound Entry/Exit Gates	Facility
LKTC131010	Construct East Gate Visitor Center	Facility
LKTC131011	Construct Various Parking Lots, 1000 Series Buildings	Road/Parking
LKTC131014	Repair Fire Alarm/Detection System, Building 14	Facility
LKTC131015	Renovate Interior, 11 RS Building 707	Facility
LKTC131016	Repair Chilled Water and Propane Gas Lines, Buildings 1000/1003	Facility
LKTC131017	Renovate Interior Building 271 For 99 ABG Standup	Security
LKTC131018	Repair Fire Alarm/Detection System, Building 12	Facility
LKTC131019	Repair Electrical Systems, Fuel Storage Yard and Service Station	Utility
LKTC131020	Repair Airfield Headwall (Airfield Violation)	Facility
LKTC131021	Construct 78 ATKS Administrative Facility	Facility
LKTC131022	Construct 91 ATKS Administrative Facility	Facility

Table 2-6. Representative O&M Projects		
Project Number	**Project Title**	**Infrastructure Type**
LKTC131023	Demolish Building 400 and 404	Facility
LKTC131025	Repair HVAC and Chiller Units, Building 1000	Utility
LKTC131026	Construct North Gate Electronic Vehicle Gate	Facility
LKTC131028	Construct RPA Parking Lot	Facility
LKTC131029	Construct GCS Pads, 42 ATKS	Demolition
LKTC131032	Demolish Airfield Support Facilities 80, 81, 82, 86, and 95	Demolition
LKTC131033	Construct Addition Vehicle Maintenance Facility	Demolition
LKTC131035	Construct Security Fence/Lights	Airfield
LKTC131036	Construct Communications Mission Command Post	Airfield
LKTC131037	Construct 42 ATKS Combat Support Facility	Utility
LKTC131038	Construct 42 ATKS Fixed GCS Operations Facility	Security
LKTC131039	Construct Temporary Large Area Maintenance Shelter (LAMS) Facilities	Facility
LKTC141004	Construct Secondary Power For 30 RS Relocation, Building 1009	Utility
LKTC141005	Install Backup Generator and Upgrade to SCIF Standards, Building 119	Facility
LKTC141006	Install Anti-Vehicle Boulders, 1000 Series Buildings	Utility
LKTC141007	Repair Asphalt Shoulders at Taxiway Foxtrot Fighter LOLA	Airfield
LKTC141008	Install Backup Generator, Supply Warehouse Building 52	Airfield
LKTC141009	Install Backup Generator, Supply Warehouse Building 1013	Facility
LKTC141010	Install Backup Generator, Supply Warehouse Building 1012	Facility
LKTC141011	Repair Heat Pumps and HVAC Controls, Building 91	Airfield
LKTC141013	Construct Non-Destructive Testing Facility	Recreation
LKTC141014	Install Backup Generators, Creech Fuels Yard (FAC 661)	Security
LKTC141015	Install Permanent Eyewash/Shower Station Building 256	Facility
LKTC141016	Install Lightning Protection, ESPN Trailer Pad 10132	Utility
LKTC141017	Install Additional Power Outlets, Room 109 Building 119	Facility
LKTC141018	Repair Interior Walls, 53 TMG Building 14	Utility
LKTC141019	Repair Communications Equipment Support Structure, Building 12	Utility
LKTC141020	Install Fence Keypad Entry System, Building 1038	Energy
LKTC141021	Install Security Aspects, Building 1012	Utility
LKTC141022	Replace Duct Detectors, Building 143	Airfield
LKTC141023	Install Fire Suppress and Alarm Systems, Vehicle Maintenance Building 225	Facility
LKTC141024	Repair Building 273 To Meet AFOSI Standards	Facility
LKTC141026	Install Fire Suppress and Alarm Sys Buildings 6, 7, and 8 (SUST TEAM)	Airfield
LKTC141027	Reinforce Fenceline at Casino	Airfield
LKTC141028	Install A/C Building 1109 Communications Closet	Road/Parking
LKTC141029	Repair Fire Alarm System, Building 2	Airfield
LKTC141030	Construct Drainage Culverts Along Road	Utility
LKTC141031	Replace Heat Pump, Building 234	Utility
LKTC141033	Replace HVAC Filters/Grills, 99 GCTS Billeting Building 24	Utility
LKTC141034	Construct Parking Lot Lighting (Lots 1, 2, and 3)	Utility
LKTC141036	Design/Repair Fuel System For AGE Yard, Building 1011	Utility
LKTC141037	Repair LOLA Road Washout	Road/Parking
LKTC141038	Repair Roof, Insulation For NOC and Ventilation System, Building 1004	Facility
LKTC141039	Replace Road 90 Degree Turn at Munitions Suspect Holding Area	Road/Parking
LKTC141040	Maintain Floor, Hangar 1003	Facility
LKTC 141042	Repair Lift Station	Utility
LKTC 141047	Construct 926 RPA Operations Group HQ Facility	Facility
LKTC 151004	Repair Fuel Cell Hangar 1009	Facility

Note: Table acronyms listed in Appendix A

2.2 METHODOLOGY FOR IDENTIFYING PROPOSED ACTION AND ALTERNATIVES

The individual CIP projects proposed action and alternatives were identified through a process that examined the basic requirements for the action; the applicability of environmental, safety, security and exclusionary criteria that located actions at appropriate locations on base or eliminated actions from consideration; and the need for additional analyses. Actions in locations that were not compatible, violated environmental constraints (such as locations of threatened or endangered species) and require additional NEPA analysis, or have already been analyzed under NEPA, were not included within the proposed action and alternatives.

2.2.1 Basic Requirements and Exclusionary Criteria

The basic requirements for assembling the General Plan are to meet the 99 ABW Commander's vision for the future configuration of Creech AFB. Planning needs to account for current and anticipated mission needs and yet still be flexible to accommodate changes to the mission. In the case of Creech AFB, which is home to RPA operations, needs change frequently as airframes, tactics, and equipment are constantly evolving. There are some constants, which in many respects are the focus of this EA. Flight operations have to occur along the flightline, community services and other facilities are required. The following are some of the more notable constraints.

Compatible Land Use

Land use is the classification of either natural or human-modified activities occurring at a given location. Natural land use includes rangeland and other open or undeveloped areas. Human-modified land use classifications include residential, commercial, industrial, airfield, recreational, and other developed areas. Land uses at Creech AFB are regulated by the 2006 General Plan, which designates land use categories and identifies the type and extent of land use allowable in specific areas and where environmentally sensitive areas need to be protected (Air Force 2006a).

Force Protection and Security Compliance

As a result of potential terrorist activities, the Department of Defense (DoD) and the Air Force have developed a series of Antiterrorism/Force Protection (AT/FP) guidelines for military installations. These guidelines address a range of considerations that include access to the installation, access to facilities on the installation, facility siting, exterior design, interior infrastructure design, and landscaping (Unified Facilities Criteria [UFC] 4-010-01, 2012). The intent of this siting and design guidance is to improve security, minimize fatalities, and limit damage to facilities in the event of a terrorist attack. The representative projects would be constructed in accordance with UFC 4-010-01 and would help improve AT/FP measures on the base.

Available Utilities and Infrastructure

Facility location has considered the location of existing utilities and infrastructure and/or the capacity to readily extend to the new facility.

Compatibility with Explosive Safety Zones

Defense Department Explosives Safety Board 6055.9-STD and Air Force Manual 91-201 (Explosives Safety Standards) define distances that need to be maintained between munitions storage areas and a

variety of other types of facilities. These distances, called quantity-distance (QD) arcs, restrict or prohibit development based on the type and quantity of explosive material being stored.

Compatibility with Airfield Safety Zones

The Creech AFB Air Installation Compatible Zone (AICUZ) Study identifies Clear Zones (CZ) and Accident Potential Zones (APZs) as areas where an aircraft mishap is statistically most likely to occur. Base and local planning agencies are advised not to put incompatible structures within these zones.

Environmental Constraints

Projects meeting the criteria would undergo numerous environmental constraints and are discussed in detail in Chapters 3 and 4 of this EA. They include air quality, Environmental Restoration Program (ERP) sites, biological and cultural resources, hazardous materials and waste management, and aircraft noise zones.

2.3 ALTERNATIVES TO THE PROPOSED ACTION

The CIP projects would provide the installation commander with overall list of projects that meet bona-fide mission needs and/or upgrading of degraded facilities or infrastructure for a selection to be funded and performed annually. The tables described above generally are listed in order of priority, but factors can alter the prioritization and determine the number of projects that can be performed. These factors include: emerging mission needs and requirements; the current condition of the facility or infrastructure; amount of budget available; and/or other requirements such as fulfilling environmental, safety, or security issues. Funding is always an issue and relatively few projects get implemented annually. In addition, work-arounds often get implemented in the interim and while the mission or upgrade project need still exists, these work-arounds can drop the priority while a different project may be elevated that can't be solved by a work-around. In other words, the CIP list reflects a dynamic priority as adjustments are continually made. As a result, the CIP projects list itself presents a myriad of alternatives of this action and is impossible to definitively proscribe a set of alternatives. In reality, the proposed action would be that any of the CIP projects could be implemented. For these reasons, the light and heavy construction scenarios were developed to characterize the type of project and assess the impacts according to project size. The analysis would garner the similar conclusions for the proposed action if five or ten large projects are implemented as forty or more little projects. Therefore implementation the CIP represents a continual alternative selection process and no formal alternatives to the proposed action are presented in this EA.

2.4 NO-ACTION ALTERNATIVE

Under NEPA and CEQ regulations (40 CFR Part 1502.14(d)), "no action" means that the proposed action (i.e., CIP updates for Creech AFB) would not take place, and the resulting environmental effects from taking no action would be compared to the effects of permitting the proposed action to go forward. Under the no-action alternative, some projects would still occur but would require being individually assessed and documented. NEPA also requires analysis of baseline conditions as reflected by the no-action alternative to compare the impacts to those resulting from the proposed action. The following descriptions of the current status of Creech AFB provides a context for comparing the changes that would occur with implementing the proposed action.

Mission Characteristics

Creech AFB, formerly Indian Springs Air Force Auxiliary Field, is located in northwestern Clark County, adjacent to the town of Indian Springs. Remotely Piloted Aircraft (RPA) training and testing, as well as Security Forces Expeditionary training are the primary operations occurring at Creech AFB. With the RPA and the Security Forces missions, Creech AFB plays a major role in the ongoing war on terrorism.

Facilities and Infrastructure

Creech AFB encompasses approximately 2,380 acres on both sides of US-95, with the runways and the installation facilities on the north side of the highway within the boundaries of the NTTR (refer to Figure 1-1). Installation facilities on Creech AFB include a newer area north and east of the runways housing hangars, administration and most of the support facilities for the 432d Wing mission. The older portion on the south side of the flight line houses Civil Engineering and the 99 Ground Combat Training Squadron.

Under the no-action alternative, previous planning for the base resulted in mixed land uses primarily because of the small area involved and the relative lack of mission activity prior to the first Predator Beddown (permanent basing). Recent efforts have improved planning at Creech AFB and any new facilities would likely fit better within existing land uses; however, a formalized and up-to-date General Plan would not be used.

2.5 REGULATORY COMPLIANCE AND PERMIT REQUIREMENTS

This EA examines the specific affected environment for implementation of projects at Creech AFB. The analysis considers the current conditions of the affected environment, and compares those to the no-action alternative. It also examines the cumulative impacts within the affected environment at each of these locations as well as past, present, and reasonably foreseeable actions of the Air Force and other federal, state, and local agencies. The NEPA process is intended to assist the decision maker in understanding the environmental consequences and in taking appropriate actions that protect, restore, and enhance the environment. Other federal statutes that may apply to the proposed action are listed in Table 2-7.

Stormwater

Under the proposed action, the Nellis AFB water quality program manager would update applicable base permits and assist in obtaining all stormwater-related permits for new construction at Creech AFB. Nellis AFB would need to reevaluate its National Pollutant Discharge Elimination System (NPDES) permit and Stormwater Pollution Prevention Plans to ensure compliance.

Permits

Should the proposed action be implemented, the Air Force would need to obtain new permits or update existing permits. These permits would apply to the removal and disposal of asbestos as a result of demolition of, or modifications to, facilities; construction of new facilities; and stormwater discharge permits.

Asbestos and Lead-Based Paint Removal and Disposal

Prior to demolition or additions to buildings, asbestos surveys are required by Air Force regulation. For the removal of asbestos, a notification process with Clark County, the state health board, the U.S. Environmental Protection Agency (EPA), and the base asbestos and lead-based paint (LBP) coordinator is

required. Removal would be contracted out to state-certified and licensed contractors. Contractors would obtain the necessary permits for the removal, handling, and transportation of asbestos. Contractors must have access to a permitted landfill for disposal of asbestos.

Table 2-7. Other Major Environmental Statutes, Regulations, and Executive Orders Applicable to Federal Projects

Environmental Resource	Statutes
Noise	Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609); U.S. Environmental Protection Agency (EPA), Subchapter G-Noise Abatement Programs (40 CFR 201-211)
Air	Clean Air Act (CAA) of 1970 (PL 95-95), as amended in 1977 and 1990 (PL 91-604); EPA, Subchapter C-Air Programs (40 CFR 52-99)
Environmental Justice	Executive Order 12898-Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations; Protection of Children from Environmental Health Risks and Safety Risks (Executive Order 13045)
Water	Federal Water Pollution Control Act of 1972 (PL 92-500) and Amendments; Clean Water Act (CWA) of 1977 (PL 95-217); USEPA, Subchapter D-Water Programs (40 CFR 100-145); Water Quality Act of 1987 (PL 100-4); USEPA, Subchapter N-Effluent Guidelines and Standards (40 CFR 401-471); Safe Drinking Water Act of 1972 (PL 95-923) and Amendments of 1986 (PL 99-339); EPA, National Drinking Water Regulations and Underground Injection Control Program (40 CFR 141-149)
Biological Resources	Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-654); Sikes Act of 1960 (PL 86-97) and Amendments of 1986 (PL 99-561) and 1997 (PL 105-85 Title XXIX); Endangered Species Act of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Lacey Act Amendments of 1981 (PL 97-79)
Wetlands and Floodplains	Section 401 and 404 of the Federal Water Pollution Control Act of 1972 (PL 92-500); EPA, Subchapter D-Water Programs 40 CFR 100-149 (105 ref); Floodplain Management-1977 (Executive Order 11990); Emergency Wetlands Resources Act of 1986 (PL 99-645); North American Wetlands Conservation Act of 1989 (PL 101-233)
Cultural Resources	National Historic Preservation Act of 1966 (16 USC 470 et seq., PL 89-665) and Amendments of 1980 (PL 96-515), 1992 (PL 102-575), and 2006 (PL 109-453); Protection and Enhancement of the Cultural Environment-1971 (Executive Order 11593); Indian Sacred Sites-1966 (Executive Order 13007); American Indian Religious Freedom Act of 1978 (PL 94-341); Antiquities Act of 1906; Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-470mm; Public Law 96-95); Native American Graves Protection and Repatriation Act of 1990 (PL 101-601); Protection of Historic Properties (36 CFR Part 800); Preserve America (EO 13287)
Solid/Hazardous Materials and Waste/Oil Pollution	Resource Conservation and Recovery Act of 1976 (PL 94-5800), as Amended by PL 100-582; EPA, subchapter I-Solid Wastes (40 CFR 240-280); Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 USC 9601) (PL 96-510); Toxic Substances Control Act (PL 94-496); EPA, Subchapter R-Toxic Substances Control Act (40 CFR 702-799); Federal Insecticide, Fungicide, and Rodenticide Control Act (40 CFR 162-180); Emergency Planning and Community Right-to-Know Act (40 CFR 300-399); Oil Pollution Prevention Act (40 CFR 112); 40 CFR 280 Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)

Construction: For new buildings, Creech AFB would submit plans and a request for location to the Nellis AFB zoning and development board. An air quality dust permit must be obtained from Clark County if construction at any site causes 0.25 acres or more of topsoil disturbance, trenching of 100 feet or more, or demolition of structures 1,000 square feet or more. Shoulder stabilization instead of paving must be maintained in compliance with the stabilization standards in section 9.3.2.1.5 of the Clark County

Air Quality Regulations. Nellis AFB would apply for a Clark County Surface Disturbance Permit after finalization of the Creech AFB building footprints and prior to construction. An Authority to Construct permit is required for construction projects, whereas, demolition projects require completion of a Clark County Demolition Notification form. Additionally, all proposals for removing or altering existing facilities would be reviewed by the Nellis AFB Cultural Resources Manager to determine and implement the appropriate consultation requirements.

Nellis AFB Plans and Protocols: In addition to the federal, state, and local regulations, Nellis AFB implements its environmental programs (and those of Creech AFB) through various plans and protocols (Table 2-8). All of these plans conform to requirements defined in federal regulations and guidance. Project managers would coordinate with Nellis AFB Environmental Flight (99 CES/CEIE) to ensure compliance with all local, state, and federal environmental regulations.

Table 2-8. Nellis AFB Environmental Plans

Resource Area	Title	Date
Cultural Resources	Integrated Cultural Resources Management Plan	2012
Air Quality	NAFB Air Emissions Inventory	2011
	NTTR Air Emissions Inventory	2011
Environmental Restoration Program	Environmental Restoration Plan. Management Action Plan	2004
Noise, Land Use and Planning	Air Installation Compatible Use Zone Study	2010 (draft)
	General Plan for Nellis Air Force Base, Nevada Includes General Plan Summary for Creech AFB	2006
Asbestos	Asbestos Management and Operations Plan	2003
Lead-Based Paint	Lead-based Paint Management Plan	2003
Environmental Emergencies	Facility Response Plan	2011
Hazardous Waste	Hazardous Waste Management Plan	2010
Hazardous Materials	Hazardous Materials Management Plan	2010
Natural Resources	Integrated Natural Resources Management Plan	2010
Stormwater	Storm Water Pollution Prevention Plan	2010
Fuels	Spill Prevention, Control and Countermeasures Plan	2013 (est, Oct)

CHAPTER 3

DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 INTRODUCTION

NEPA requires focused analysis of the areas and resources potentially affected by an action or alternative. It also provides that an EA should consider, but not analyze in detail, those areas or resources not potentially affected by the proposal. Therefore, the Air Force must provide sufficient detail and depth of both description and analysis in this EA to allow decision makers and the public to differentiate among the alternatives.

This EA focuses on those resources that would be affected by proposed facility and infrastructure construction, additions, remodels, demolition, maintenance, and repair CIP projects at Creech AFB. The analysis considers the current conditions of the affected environment at Creech AFB and compares those to conditions that might occur with implementation of projects that have not been addressed in previous NEPA documents.

3.1.1 Affected Environment

The proposed action affects the areas defined by Creech AFB. Evaluation and analysis of the proposed projects indicate that resources subjected to ground disturbing activities have the greatest potential to be affected, particularly areas that have not been previously disturbed. These areas could contain natural and cultural resources, disturbance can cause air quality impacts, and paving open areas decreases permeable areas limiting groundwater recharge and can cause greater stormwater runoff. The potential environmental impact of implementing the CIP projects on Creech AFB will be discussed in detail under each of the affected resources in Chapter 4; Environmental Consequences.

3.1.2 Resources Analyzed

Based on the components of the proposed action, the Air Force defined the environment potentially affected by construction or renovation projects at Creech AFB. This definition focused on specific resource categories. As a result of this review, nine resource categories are evaluated: land use; socioeconomics; cultural resources; biological resources; water and soil resources; air quality; hazardous materials and waste; safety; and noise.

3.1.3 Resources Eliminated from Further Analysis

The Air Force assessed numerous resources for potential to be affected by the proposed action or no-action alternative. In accordance with CEQ regulations, this evaluation determined two resources did not warrant further examination in the EA: 1) visual resources, and 2) environmental justice and protection of children.

Visual Resources

The Air Force anticipates no negative effects on or conflicts with visual resources as a result of the proposed projects for Creech AFB. The justification is that construction and/or improvement projects would: 1) take place on the installation and would be consistent with the existing visual landscapes; 2) primarily occur in the developed portion of the installation; 3) be built of similar materials as other structures on the installation; and 4) be landscaped consistent with the existing habitat. For these reasons,

implementation of the proposed action or no-action alterative would not have an adverse impact on the visual environment at Creech AFB or the lands surrounding the installation.

Environmental Justice and Protection of Children

Environmental justice addresses the disproportionate effect a federal action may have on low-income or minority populations. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* ensures the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. The existence of disproportionately high and adverse impacts depends on the nature and magnitude of the effects identified for each of the individual resources. The affected area includes locations of proposed projects within the confines of Creech AFB. Local emissions from construction activities would not approach any state or federal thresholds for the protection of human health and safety (see Section 3.8, Air Quality).

In 1997, Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks (Protection of Children),* was issued to ensure the protection of children. The proposed CIP projects at the base would not pose environmental or safety risks to children due to the fact that changes and improvements would be limited to the administrative, industrial, and operational areas on Creech AFB. Access by the general public is prohibited and procedures prevent children from visiting these areas on the base. In summary, since there would not be a disproportionately high or adverse impact to minority or low-income groups and no aspect of the proposed action or no-action alternative would increase the health or safety risk to children, further analysis of environmental justice and protection of children as a resource was eliminated from further analysis.

3.2 LAND USE

Land can be used for residential, commercial, industrial, agricultural, transportation, recreational, or conservation purposes. Management plans, policies, ordinances, and regulations determine the manner in which a specific tract of land may be used. The status of land ownership is the primary driver that determines appropriate land use in a specific area. Creech AFB is an Air Force military reservation. Thus, appropriate land use is primarily determined by federal laws, DoD directives, and Air Force policy and instructions. Transportation refers to roadway and street systems and the movement of vehicles on roadway networks on base and off-base feeder routes and intersections.

Affected Environment

Creech AFB includes developed and undeveloped lands. Main categories of developed land uses include airfield, industrial support areas, administrative services areas, and temporary lodging and services areas. Undeveloped lands are commonly called open space in planning documents and may include natural or cultural resources preservation sites, safety buffers, or other similar land uses. The affected environments are the locations proposed for CIP projects on Creech AFB.

Creech AFB lies approximately 45 miles northwest of Las Vegas, Nevada, along US-95. Creech AFB encompasses approximately 2,380 acres of land, mostly designated as open space in order to ensure safety-of-flight Clear Zones (CZ) around the airfield. The main Creech AFB runway runs east-west across the

base, whereas the northwest-southeast runway supports MQ-1 Predator and MQ-9 Reaper RPA operations. An inactive third runway extends southwest-northeast across the base.

Creech AFB serves as the home to the 432d Wing operating MQ-1 and MQ-9 RPA squadrons that are permanently based at Creech AFB. It serves as the alternate practice base for the Nellis AFB-based Thunderbirds aerial demonstration team, as well as other related squadrons. In addition, Creech AFB supports Expeditionary Readiness Training (ExpeRT), and Security Forces Training, and it also forms the primary emergency divert base for aircraft using the large Nevada Test and Training Range.

Most aircraft operations and maintenance facilities at Creech AFB lie northeast of the main and crosswind runway. Facilities including a munitions storage buildings are situated northwest of the runway. The older base area south of the main runway contains several industrial land uses (i.e., supply, vehicle maintenance, and transportation facilities) as well as the Ground Combat Training Squadron facilities. Figure 3-1 shows the existing land use as of the 2011 Creech AFB Site Master Plan. There have been a couple of modifications to the 2011 Plan, such as the acquisition of the Casino property, but the majority of Figure 3-1 is still current.

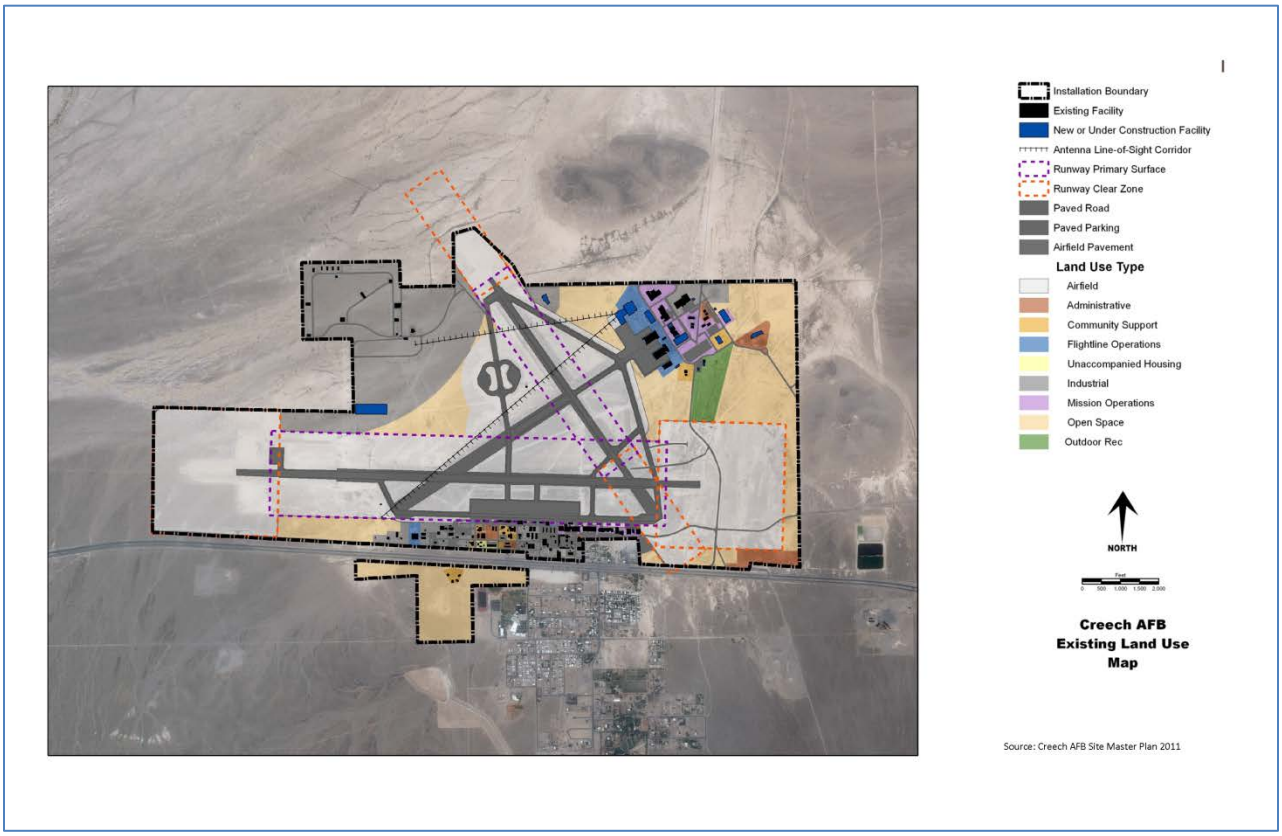


Figure 3-1. Creech AFB Existing Land Use Map

3.3 SOCIOECONOMICS

Socioeconomics is defined as the social and economic activities associated with the human environment, particularly population and economic activity. Economic activity typically includes employment, personal income, and industrial growth. Impacts on these two fundamental socioeconomic indicators can also influence other components such as housing availability and public services.

Socioeconomic data are presented at the county level in order to analyze baseline socioeconomic conditions in the context of county trends. Data have been collected from previously published documents issued by federal, state, and local agencies; from state and national databases (e.g., U.S. Census Bureau (USCB); University of Nevada Center for Business and Economic Research; and from Nellis AFB (e.g., the base's Public Affairs Office).

Affected Environment

Analyses of impacts to socioeconomic characteristics potentially resulting from implementation of ADP and other projects requires establishment of an affected environment – a primary geographical area within which direct and secondary socioeconomic effects would be noticed.

Analyses of impacts to socioeconomic characteristics potentially resulting from implementation of the proposed action require establishment of an affected environment – a primary geographical area within which direct and secondary socioeconomic effects of the Creech AFB proposed action and alternative actions would be noticed. Because direct socioeconomic effects associated with implementation of the alternative actions would occur in the immediate vicinity of Creech AFB and since infrastructure resources are generally influenced by the socioeconomic environment, the primary focus for socioeconomics at Creech AFB is the town of Indian Springs.

The community of Indian Springs has few employment opportunities, primarily limited to the combined elementary/middle/high school, the county branch library, and highway services. The population of Indian Springs has decreased in the last 10 years. In 2000 it was 1,302 (USCB 2006). However, the 2010 census puts the population of Indian Springs at 991 (USCB 2010). The primary economic influences in the area are Department of Defense (DoD) and Department of Energy (DoE) operations in the region. In 2011, Creech AFB had over 2,200 assigned personnel (Air Force 2011). The Southern Desert Correctional Center (SDCC) and Indian Springs Conservation Camp and Boot Camp, located just east of the community of Indian Springs and Creech AFB, provide additional influence on the local economy through employees and inmate visitors.

The population growth in the surrounding Clark County has slowed from the boom years of the early 2000s, and construction employment has slowed proportionally (University of Nevada Las Vegas [UNLV] 2011). The University of Nevada Las Vegas' Center for Business and Economic Research's Clark County Construction Index has maintained a steady slide, showing continued weakness in this hard-hit sector of the Southern Nevada economy. The index has fallen approximately 70 percent from its January 2007 value (UNLV 2011). Until there is sustained population growth to absorb excess real estate inventories, low levels of construction activity are likely to persist.

3.4 CULTURAL RESOURCES

Cultural resources management is directed by federal laws. Section 106 of the National Historic Preservation Act (NHPA) of 1966 requires that federal agencies take into account the effects of their undertakings on historic properties, which are locations, features, and objects older than 50 years and determined eligible for nomination to the National Register of Historic Places (NRHP). Section 101(d)(6)(A) of the NHPA provides that properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the NRHP. Section 110 of the NHPA directs federal agencies to assume responsibility and establishes procedures for the stewardship and protection of historic properties that are owned or controlled by the agency.

A cultural resource is a location of human activity, occupation, or use that is more than 50 years old and is identifiable through inventory, historical documentation, or oral evidence. A historic property is a resource that has been determined to be eligible for listing on the *National Register of Historic Places.* Cultural resources include archaeological, historic, architectural, structural, places, artifacts, and objects. Archaeological resources can be classed as either sites or isolates and may be either prehistoric or historic in age. Isolates often contain only one or two artifacts, while sites are usually larger and contain more artifacts.

Architectural resources are standing buildings, dams, canals, bridges, and other structures. Traditional cultural properties are resources associated with the cultural practices and beliefs of a living community that link that community to its past and help maintain its cultural identity. Traditional cultural properties may include archaeological resources, locations of historic events, sacred areas, sources of raw materials for making tools, sacred objects, or traditional hunting and gathering areas.

Affected Environment

The affected environment for cultural resources includes the Air Force-managed land within the boundaries of Creech AFB where construction or renovation projects under the proposed action could have an impact.

Methods for inventory and evaluation are described in Attachment A of the 2012 Integrated Cultural Resources Management Plan (Air Force 2012). Efforts to identify and evaluate cultural resources properties for this project according to 36 CFR 800.4 were initiated in 1978 and continue to the present. Nellis AFB initiated a Native American Program in 1996 as a foundation for government-to-government consultation. Activities have included annual meetings, NTTR field trips, participation in professional meetings, and the formation in 1999 of a Document Review Committee which reads and comments on cultural resources reports prior to State Historic Preservation Office (SHPO) reviews.

The affected environment for cultural resources includes the Air Force-managed land within the boundaries of Creech AFB where construction or renovation projects under the proposed action could have an impact.

Creech AFB (formerly Indian Springs Air Force Auxiliary Field) has been 100 percent inventoried for archaeological resources. No sites eligible for nomination to the NRHP exist on the installation (Air Force 2012). A historic building inventory is currently underway at Creech AFB.

3.5 BIOLOGICAL RESOURCES

Biological resources encompass plant and animal species and the habitats within which they occur. Plant species are often referred to as vegetation and animal species are referred to as wildlife. Habitat can be defined as the area or environment where the resources and conditions are present that cause or allow a plant or animal to survive at that location (Hall *et al.* 1997). Biological resources for this EA include vegetation, wetlands, wildlife, and special-status species occurring in the vicinity of the proposed projects on Creech AFB.

Vegetation

Vegetation includes all existing upland terrestrial plant communities with the exception of wetlands or special-status species. The affected environment for vegetation includes those areas subject to demolition and construction ground disturbance.

Wetlands and Jurisdictional Waters of the United States

Wetlands are considered special category sensitive habitats and are subject to regulatory authority under Section 404 of the Clean Water Act and Executive Order 11990, *Protection of Wetlands.* They include jurisdictional and non-jurisdictional wetlands. Jurisdictional wetlands are those defined by the United States Army Corps of Engineers (USACE) and Environmental Protection Agency (EPA) as those areas that meet all the criteria defined in the USACE's 1987 *Wetlands Delineation Manual* and under the jurisdiction of the USACE (USACE 1987). Wetlands are generally associated with drainages, stream channels, and water discharge areas (natural and man-made). The discussion on wetlands pertains to the potential to affect wetlands and jurisdictional waters of the U.S. due to construction or demolition activities under the proposed action.

Wildlife

For the purposes of this EA wildlife includes all vertebrate animals (i.e., fish, amphibians, reptiles, birds, and mammals) with the exception of those identified as threatened, endangered, or sensitive species. Wildlife potentially affected by demolition and construction activities and construction noise will be discussed.

Special-Status Species

Special-status species are defined as those plant and animal species listed as threatened, endangered, or proposed as such by the U.S. Fish and Wildlife Service (USFWS). The federal Endangered Species Act (ESA) protects federally listed, threatened, and endangered plant and animal species. Species of concern are not protected by the ESA; however, these species could become listed and protected at any time. Their consideration early in the planning process could avoid future conflicts that might otherwise occur. The discussion of special-status species focuses on those species with the potential to be affected by demolition, construction, and construction-related noise.

Affected Environment

The affected environment for biological resources includes areas of Creech AFB potentially affected by ground-disturbing activities such as demolition, construction, or noise. All baseline data were gathered from previous studies such as the *Integrated Natural Resources Management Plan for Nellis Air Force*

Base (Air Force 2010a). The desert tortoise and the Western burrowing owl have the potential to affect development on Creech AFB.

Vegetation

Creech AFB is located in the northeastern portion of the Mojave Desert. The surrounding landscape is typical of the Mojave Desert, with low-lying enclosed basins surrounded by low mountains and bajadas formed of coalescing alluvial fans. On the bajadas and mountain slopes, the vegetation is typically dominated by creosote bush where white bursage is commonly codominant. On valley bottoms and dry lake beds (playas) at lower elevations where soils are relatively fine, alkaline and clayey, saltbush,, shadscale (*A. confertifolia*), and allscale (*A. polycarpa*) dominate. Matchweed (*Gutierrezia sarothrae*), buckwheat (*Eriogonum* spp.), and cheesebush (*Hymenoclea salsola*) also occur in saltbush scrub (Air Force 1996).

Vegetation surrounding Creech AFB was systematically evaluated and mapped by Nellis AFB (Air Force 2010a). Mixed scrub vegetation typical of the Mojave Desert occurs on lands surrounding Creech AFB, where several associations including creosote bush, bursage, and different species of saltbush can be distinguished (Air Force 1996). Within the fenced area of the airfield, the vegetation is very sparse due to disturbance and is dominated by non-native Russian thistle. Surrounding vegetation and wildlife habitat outside of the fence consists of creosote bush scrub and saltbush scrub. Two different associations of creosote bush scrub are recognized: one dominated by creosote bush and white bursage, occurring to the southwest to southeast and to the south surrounding Indian Springs; and another including a mixed scrub association of creosote bush, fourwing saltbush, and shadscale, throughout the area north of Creech AFB. The saltbush scrub occurs on the northeast side of the airfield.

Wetlands and Jurisdictional Waters of the United States

There are no wetlands within the affected areas for the proposed actions at Creech AFB. However, there may be jurisdictional waters of the U.S. present as defined under Section 404 of the Clean Water Act. Appropriate documentation would be submitted and consultation conducted with the USACE to determine if jurisdictional waters of the U.S. are present for any project with the potential of affecting jurisdictional waters.

Wildlife

Wildlife that typically occur in creosote bush scrub and saltbush scrub habitats, have been observed on Creech AFB, primarily outside of the fenced area. Mammals include black-tailed jackrabbits (*Lepus californicus*), desert woodrat (*Neotoma lepida*), kangaroo rats (*Dipodomys* spp.), coyote, and desert kit fox (*Vulpes macrotis arsipus*). Several species of bats may occur in the general area, attracted by water and associated insects at the municipal sewage ponds and the springs in Indian Springs Valley (Air Force 1997a). Pipistrelle (*Pipistrellus hesperus*) and California myotis (*Myotis californicus*) were documented in surveys at Indian Springs (Air Force 1997b).

A diverse herpetofauna is present that includes desert iguana (*Dipsosaurus dorsalis*), zebra-tailed lizard (*Callosaurus draconoides*), side-blotched lizard, horned lizards (*Phrynosoma* spp.), western whiptail (*Cnemidophorus tigris*), and the desert tortoise. Several snakes may also be present, including kingsnake

(*Lampropeltus getulus*), rosy boa (*Lichanura trivirgata*), gopher snake (*Pituophis melanoleucus*), and Mojave rattlesnake (*Crotalus scutulatus*).

Bird species that include a variety of ground-dwelling seed or insect eaters such as jays, wrens, shrikes, towhees, sparrows, Gambel's quail, sage thrasher (*Oreoscoptes montanus)* and mourning dove; the omnivorous raven (*Corvus corax*); greater roadrunner (*Geococcyx californianus*), which feeds on snakes and lizards; and several species of raptors, including golden eagle (*Aquila chrysaetos*), redtailed hawk (*Buteo jamaicensis*), ferruginous hawk (*Buteo regalis*), and northern harrier (*Circus cyaneus*). Burrowing owls occur at the northern end of the runways at Creech AFB (Air Force 2010a).

Special-Status Species

With the exception of the desert tortoise and burrowing owl, no special-status plant or animal species are known or likely to occur in the areas subject to ground disturbance at Creech AFB. Desert tortoise occur on land surrounding Creech AFB, but were not detected in a survey of the airfield area (Air Force 2010a), and their occurrence is unlikely given the level of disturbance and activity. Burrowing owls have been observed in burrows in the disturbed soil at the north end of the runway at Creech AFB (Air Force 2010a). Prior to the initiation of any project construction, surveys coordinated through the Nellis AFB Natural Resources Manager would be conducted to determine the presence of burrowing owls or special status plant and wildlife species. The Gila monster protected by state law could potentially be found on Creech AFB. The Nevada Department of Wildlife (NDOW) protocols would be implemented if Gila Monsters are encountered during construction (See Appendix E).

3.6 WATER AND SOIL RESOURCES

Water Resources

Water resources include surface and groundwater. Lakes, rivers, and streams comprise surface water resources that are important for economic, ecological, recreational, and human health reasons. Groundwater is used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition. Attributes of water resources considered in this EA include hydrologic setting, availability, use, quality (including protection zones), floodplains, flood hazard, and adjudicated claims to water rights for both surface and groundwater. The Clean Water Act (CWA) of 1972 is the primary federal law that protects the nation's waters, including lakes, rivers, and aquifers. Jurisdictional waters of the U.S. are regulated resources and are subject to federal authority under Section 404 of the CWA. This term is broadly defined to include navigable waters (including intermittent streams), impoundments, tributary streams, and wetlands.

Criteria for water quality within the State of Nevada are contained in the Nevada Administrative Code (NAC), Chapter 445A.119, and apply to existing and designated beneficial uses of surface water bodies. Water quality standards are driven by the beneficial uses of specific water bodies. Beneficial uses include agriculture (irrigation and livestock watering), aquatic life, recreation (contact and non-contact), municipal or domestic supply, industrial supply, and wildlife propagation.

The State of Nevada has adopted drinking water standards established by the EPA, under the Safe Drinking Water Act. The Nevada Department of Health regulates drinking water quality for public supply

systems. Drinking water standards consist of maximum contaminant levels established for various water quality constituents to protect against adverse health effects.

Soil Resources

Soil refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support structures and facilities. Relative to development, soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use.

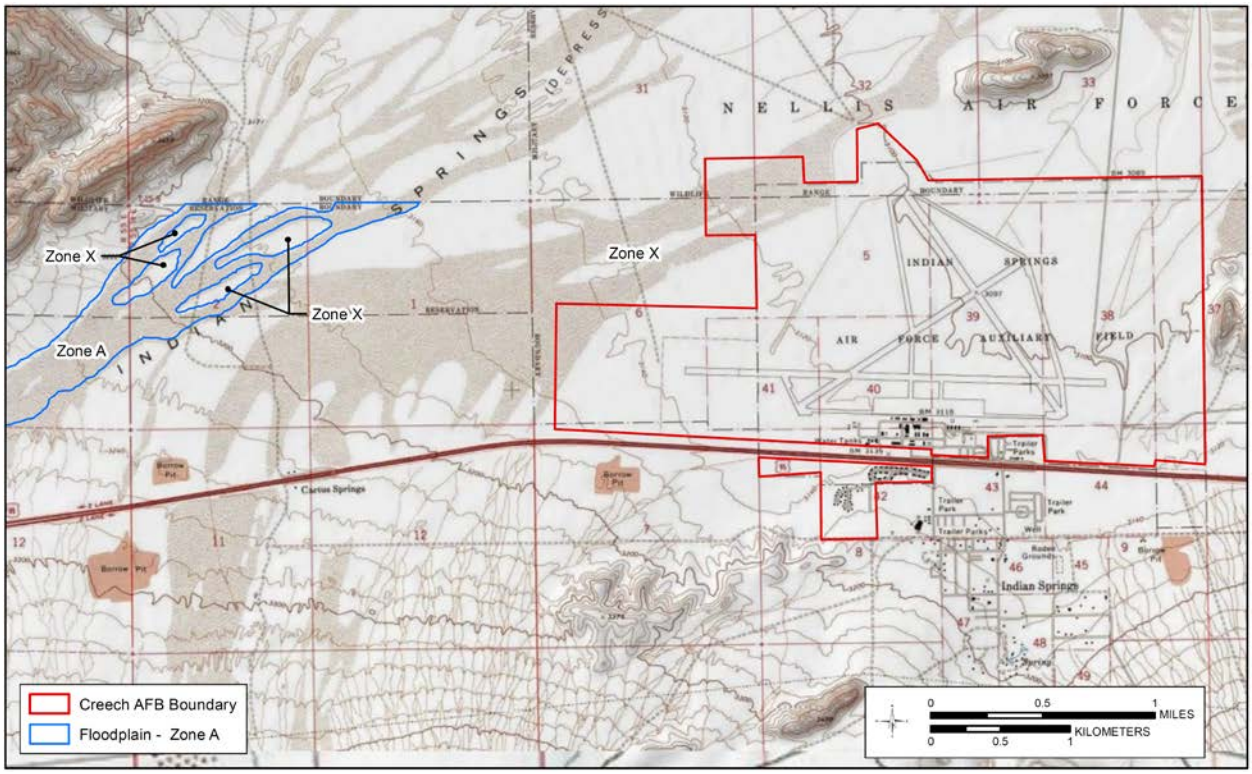
Affected Environment

Water Resources

Natural surface water is scarce on and around Creech AFB. Average annual precipitation is approximately 4 inches. Surface flow is primarily towards the two local playas, located north of the airfield where it collects and evaporates. Playas are not substantial recharge zones due to low infiltration and high evaporation rates. Evaporation rates in the area are very high and have been estimated at approximately 58 to 69 inches per year (Air Force 1999b). The Creech AFB General Plan identifies the current water supply at Creech AFB as adequate, yet stressed.

The northwest corner of the installation is reported to be within a 100-year floodplain according to a floodplain inventory performed in 1997. However, the authors of the report admit that site visits were not accomplished and the floodplain study conducted in 1997 is not considered completely accurate or comprehensive and recommended a more definitive delineation of 100-year floodplains. A review of the Federal Emergency Management Agency maps indicate the 100 year floodplain (Zone A) is located approximately one mile west of Creech AFB. Zone X shown on FEMA maps are not considered 100-year floodplains. Other than constructed ponds and structures, no permanent surface water occurs on or in the vicinity of Creech AFB. Surface water in the vicinity of Creech AFB flows through braided, ephemeral streams, which usually flow for brief periods immediately following precipitation events.

Groundwater in the region is high in total dissolved solids at levels of 500-1,000 mg/l and rich in calcium and magnesium bicarbonate; however, the groundwater is well within the EPA standards for drinking water quality (Air Force 2002b).



Note: The extents of FEMA mapping stops at the border of the NTTR

Figure 3-2. FEMA Floodplain Map

Soil Resources

Creech AFB is located in the southern opening of the Indian Springs Valley. The valley is bound by the Spotted Range and Buried Hills to the west and the Pintwater Range to the east. The valley areas are dominated by Quaternary alluvial deposits with patches of Quaternary playa and marsh deposits north of Creech AFB. The local mountains (southern Pintwater Range and Spotted Range) are primarily paleozoic limestone, dolomite, shale, and quartzite. Due to western winds, the west sides of the mountains in the area are commonly flanked by dunes on top of deep alluvial fans (Air Force 1999b).

Soils in the vicinity of Creech AFB have not been mapped in detail. Soil information for the area is based on general descriptions from various resource surveys, geologic studies in adjacent areas, and general observations. Soils in the area are aridisols developed in carbonate parent material from local mountains (Air Force 1999b). Aridisols generally have poorly developed A horizons with clear B and C horizons and are sandy, loose, and prone to erosion in areas not protected by desert pavement. Soils can form anywhere that sediments accumulate; however, soils develop very slowly in desert environments and are easily disturbed. Much of the area has a surface crust known as desert pavement, which is an armored surface crust of packed angular to sub-rounded rock fragments covering the soils surface. Desert pavement is common to arid environments and acts as a shell to softer, more vulnerable soils below. Lenses of caliche (sediment cemented together with sodium salts) and clay are also known to be present at depth (USACE 2003).

3.7 AIR QUALITY

Air quality is defined by ambient air concentrations of specific pollutants determined by the USEPA to be of concern related to the health and welfare of the general public and the environment. Widespread across the U.S., the primary pollutants of concern are called "criteria pollutants" and include carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead. Under the Clean Air Act (CAA), the USEPA has established National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for these pollutants. These standards represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety. Short-term standards (1-, 8-, and 24-hour periods) are established for pollutants contributing to acute health effects, while long-term standards (quarterly and annual averages) are established for pollutants contributing to chronic health effects.

Applicable Regulatory Requirements

The Nevada Division of Environmental Protection, Bureau of Air Pollution Control has adopted the NAAQS, with the exception of an additional 8-hour CO standard specific to elevations greater than 5,000 feet above mean seal level and a 1-hour standard for hydrogen sulfide (H_2S).The national and state ambient air quality standards are presented in Appendix B.

In addition to the ambient air quality standards for criteria pollutants, national standards exist for hazardous air pollutants (HAPs) which are regulated under Section 112(b) of the 1990 CAA Amendments. The National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulate HAP emissions from stationary sources (40 CFR Part 61). HAPs emitted from mobile sources are called Mobile Source Air Toxics (MSATs); these are compounds emitted from highway vehicles and non-road equipment (including aircraft engines) that are known or suspected to cause cancer or other serious health and environmental effects. In 2001, USEPA issued its first MSAT Rule, which identified 21 compounds as being HAPs that required regulation. In February 2007, USEPA issued a second MSAT Rule which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact on health. The rule also identified several engine emission certification standards that must be implemented. The primary control methodologies for MSATs involve reducing their content in fuel and altering engine operating characteristics to reduce the volume of pollutants generated during combustion. MSATs would be the primary HAPs emitted by mobile sources during construction and operations. The equipment used during construction would likely vary in age and have a range of pollution reduction effectiveness. Construction equipment, however, would be operated intermittently over a large area and would produce negligible ambient HAPs in a localized area. Therefore MSAT emissions are not considered further in this analysis.

The CAA requires each state to develop a State Implementation Plan (SIP) which is its primary mechanism for ensuring that the NAAQS are achieved and/or maintained within that state. According to plans outlined in the SIP, designated state and local agencies implement regulations to control sources of criteria pollutants. The CAA provides that federal actions in nonattainment and maintenance areas do not hinder future attainment with the NAAQS and conform with the applicable SIP. All federal actions must also comply with state and local regulations.

Pollutants considered in the analysis for this EA include the criteria pollutants measured by state and federal standards. These criteria pollutants are generated by the types of activities (e.g., construction and aircraft operations) associated with the proposed action.

Greenhouse Gases (GHGs)

GHGs are gases that trap heat in the atmosphere. These emissions occur from natural processes as well as human activities. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative environmental, economic, and social consequences across the globe.

Individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, an appreciable impact on global climate change would only occur when proposed GHG emissions combine with other GHG emissions from other man-made activities on a global scale.

Affected Environment

The area of potential affect for the air quality analysis includes the Las Vegas Intrastate Air Quality Control Region, which is comprised of Clark County. Air quality in a given location is described by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, lead, and some particulates, are emitted directly into the atmosphere from emission sources. Secondary pollutants, such as O_3, NO_2, and some particulates are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. Airborne emissions of lead are not addressed in this EA because there are no significant lead emission sources associated with the proposed action.

Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Clark County, which includes Creech AFB is in attainment or unclassifiable for a. Part of the County (the Las Vegas area, but excluding Creech AFB) is designated nonattainment for 8-hour ozone and PM_{10} and is a maintenance area for CO (40 CFR 81.329). Because the portion of the Air Quality Control Region containing Creech AFB is attainment for all criteria pollutants, the Clean Air Act General Conformity Rule (40 CFR Parts 51 and 93) does not apply and is not addressed in the impact analysis.

Ground-based air emissions at Creech AFB are primarily generated from maintenance shops, aerospace ground equipment (AGE), boilers, and paint booths. Emission totals from the Creech AFB 2009 stationary source emission inventory were used to reflect the baseline for this EA (Table 3-1). Clark County emission data are from the latest USEPA National Emission Inventory, which is for the year 2010. Table 3-1 provides a summary of actual emissions at Creech AFB for 2009 and compares the emissions with the overall Clark County emissions.

Table 3-1. Summary of Baseline Emissions at Creech AFB (tons/year)						
Source	**CO**	**VOCs**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Creech AFB	5.71	6.17	29.56	1.37	1.21	1.21[1]
Clark County[2]	264,408	169,725	47,822	6,725	132,741	17,977
Creech AFB Percent Contribution	0.002	0.004	0.062	0.020	0.000	0.007

Sources: Ground-based emissions, Air Emissions Inventory for 2009 at Creech AFB (Air Force 2010b); Aircraft emissions (Air Force 1999a)

[1]The 2009 Creech AFB emission inventory did not include $PM_{2.5}$. The PM_{10} data have been used for $PM_{2.5}$.

[2]Clark County 2010 Emissions (EPA 2012).

The total annual CO emissions at Creech AFB represent less than 0.01 percent of the 2010 CO emissions for Clark County. PM_{10} emissions for Creech AFB account for 0 percent of the Clark County 2010 total. VOCs and NO_x (ozone precursors) at Creech AFB represent less than 0.01 percent and approximately 0.06 percent, respectively of the total Clark County emissions. None of these pollutants represents a substantive contributor to nonattainment for the Las Vegas Valley area.

3.8 HAZARDOUS MATERIALS AND WASTE

Hazardous materials (HAZMAT), listed under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA), and the Emergency Planning and Community Right-to-Know Act (EPCRA), are defined as any substance that, due to quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health, welfare, or the environment. Examples of HAZMAT include petroleum products, synthetic gas, and toxic chemicals. Hazardous wastes, listed under the Resource Conservation and Recovery Act (RCRA), are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes, that pose a substantial present or potential hazard to human health or the environment. Additionally, hazardous wastes must either meet a hazardous characteristic of ignitability, corrosivity, or reactivity under 40 CFR Part 261, or be listed as a waste under 40 CFR Part 263.

Hazardous materials and wastes are federally regulated by the EPA, in accordance with the Federal Water Pollution Control Act; CWA; Toxic Substance Control Act; RCRA; CERCLA; and CAA. The federal government is required to comply with these acts and all applicable state regulations under Executive Order 12088 and DoD Directive 4150.7, Air Force Instruction 32-1053. Additionally, Executive Order 12088, under the authority of the EPA, ensures that necessary actions are taken for the prevention, management, and abatement of environmental pollution from HAZMAT or hazardous waste due to federal activities. Other topics commonly addressed under hazardous materials and waste include underground storage tanks and potential contaminated sites designated under the Air Force's ERP.

Asbestos-containing material (ACM) is any material containing more than 1 percent by weight of asbestos and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure. Asbestos is made up of microscopic bundles of fibers that may be airborne when distributed or damaged. Due to its availability to withstand heat, fire, and chemicals, asbestos was historically used in construction materials, and is typically found in ceiling tiles, pipe and vessel insulation, floor tile, linoleum, mastic, and on structural beams and ceilings. Laws which address the health risks of exposure to asbestos and ACMs include Toxic Substance Control Act, Occupational Health and Safety Administration regulations (29 CFR), and CAA (Section 112 of the CAA, as amended, 42 USC § 7401 *et seq*.). EPA regulations concerning asbestos are

contained in 40 CFR 61. The regulations require that the EPA or authorized state agencies be notified of asbestos removal projects.

Lead-based paint (LBP) was commonly used from the 1940s until the 1970s for exterior and interior painted surfaces. In 1978, the U.S. Consumer Product Safety Commission lowered the legal maximum lead content in most kinds of paint to trace amounts; therefore, buildings constructed after 1978 are presumed not to contain LBP. The use and management of LBP is regulated under Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992. Section 1017 requires the implementation of federally supported work involving risk assessments, inspection, interim controls, and abatement of lead-based paint hazards. Regulations relating to LBP can be found at 29 CFR, 40 CFR, and 49 CFR.

Affected Environment

This discussion of HAZMAT and waste includes the sites and facilities at Creech AFB where hazardous materials are used, stored, or disposed. The affected areas for potential impacts related to HAZMAT and waste consists of Creech AFB, with an emphasis on aircraft maintenance and munitions handling areas. Potential hazardous waste contamination areas that are under investigation as part of the Air Force ERP are also discussed. Constraints to development could occur when proposed projects are sited on or near ERP sites.

Hazardous Materials and Hazardous Waste Generation

Activities at Creech AFB require the use and storage of a variety of hazardous materials associated with general aviation and vehicle maintenance activities. These include, but are not limited to, batteries, anti-freeze, paint, aerosol cans, and solvents (Air Force 2003a). The NTTR contracts management of a 180-day storage area at the base and accepts all types of hazardous wastes from Creech AFB units. Creech AFB organizations operate satellite accumulation points storing no more than 55 gallons of hazardous wastes or 1 quart of acutely hazardous waste prior to transfer to the storage area. Both the satellite accumulation points and the 180-day storage area are subject to regular inspections, which could include operation and facility surveys, waste stream analyses, personnel review for training requirements, and documentation requirements. The Defense Logistics Agency (DLA), Disposition Services, contracts for the removal of accumulated hazardous waste and shipment for disposal.

Environmental Restoration Program Sites

For approximately 60 years, Creech AFB, formerly Indian Springs Air Force Auxiliary Field, has been used as a support area for activities at the NTTR. There are 13 ERP sites present on Creech AFB. Of these ERP sites, 11 are identified as “No Further Action Required” and two have “Long-Term Monitoring” Requirements.

3.9 SAFETY

Safety for this EA addresses ground and munitions safety. Ground safety considers issues associated with operations and maintenance activities. Munitions safety assesses the management and use of ordnance or munitions associated with air base operations.

Operations and maintenance activities are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational Safety and Health (AFOSH) requirements. In addition, Unified Facilities Criteria (UFC) 3-260-01, *Airfield and Heliport Planning and Design Criteria,* limits locations and heights of objects and facilities around and in the immediate vicinity of an airfield to minimize hazards to airfield and flight operations. Any condition not meeting these requirements is classified as an approved waiver, a permissible deviation, an exemption, or a violation (UFC 3-260-01). Quantity-distance criteria specified in DoD 6055.9-Std, *DoD Ammunition and Explosives Safety Standards* and Air Force Manual 91-201, *Explosive Safety Standards*. The standards include implementation of safe distances between non-explosive related facilities and personnel from weapons-loaded aircraft. Antiterrorism/Force protection measures are required in facility siting and construction to reduce the vulnerability of personnel and property.

Munitions are handled and stored in accordance with Air Force Manual 91-201, *Explosive Safety Standards*, and trained, qualified personnel using Air Force-approved technical data carry out all munitions maintenance.

Affected Environment

This section addresses the day-to-day operations and maintenance activities conducted at Creech AFB.

Ground Safety

Day-to-day operations and maintenance activities conducted at Creech AFB are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by AFOSH requirements. The fire department of Creech AFB is fully capable of responding to existing fires and accidents. However, on the installation, fire protection systems are degraded for Life Safety Code deficiencies at the combined briefing facility and a hangar with only water fire suppression systems. The Air Force and Clark County are party to mutual support fire suppression agreements (personal communication, Williams 2005).

Munitions Safety

Ordnance is handled and stored in accordance with Air Force explosive safety directives in Air Force Manual 91-201, and all munitions maintenance is carried out by trained, qualified personnel using Air Force-approved technical data. Safety clearance zones protect areas where munitions are stored, maintained, and handled. These zones are geographically defined as Quantity-Distance arcs, and are based on the types and amounts of explosive material involved. On Creech AFB, no encroachment into these safety areas currently occurs (Air Force 2003b).

3.10 NOISE

Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying. Response to noise varies by the type and characteristics of the noise source, distance between source and receptor, receptor sensitivity, and time of day. Noise may be intermittent or continuous, steady or impulsive, and may be generated by stationary or mobile sources.

The time of day when a sound is emitted is an important factor in its annoyance potential. Sounds that may be barely noticeable at midday may be disruptive at midnight. A number of measurement scales that attempt to account for this time factor have been developed. One of the more commonly used and accepted metrics of this type is the Day-Night Average A-Weighted Sound Level (DNL). DNL represents a 24-hour average sound level in which a 10-dBA penalty is added to any sounds occurring between the hours of 10:00 p.m. and 7:00 a.m. DNL has been widely accepted as the best metric to determine community reaction to noise.

Affected Environment

Local agencies, including cities and counties, are responsible for defining and enforcing land use compatibility in various noise environments. The Air Installation Compatible Use Zone (AICUZ) study is the Air Force's vehicle for presenting the noise environment at Creech AFB.

The AICUZ program promotes compatible land development in areas subject to aircraft noise and accident potential. Clark County has incorporated these AICUZ recommendations as an integral part of their comprehensive planning process and are regulated in the Clark County Unified Development Code, Title 30, Section 30.48, Part A, Airport Environs Overlay District, dated June 21, 2000, under the authority of Chapter 278, Planning and Zoning, of the Nevada Revised Statutes. Noise compatibility and airport environs implementing standards have also been adopted in the Clark County "Public Health and Safety Programs: Airport Environs Plan," an amendment of the Clark County Comprehensive Plan (Clark County 1998).

Modeling for the AICUZ study noise contours were developed using the following data: aircraft types, runway utilization patterns, engine power settings, altitude profiles, flight track locations, airspeed, number of operations per flight track, engine maintenance, and time of day. These studies were based on a representative day which evaluated airfield activity during a 24-hour period when the airfield is in full operation. The advantage of this approach is that it is unaffected by daily, monthly, and yearly fluctuations in the tempo (rate) of use by individual aircraft at the base. The AICUZ study employed the same fundamental computer-aided modeling approach using the NOISEMAP model.

Analysis of existing aircraft noise exposure and compatible land uses around Creech AFB was accomplished using the NOISEMAP suite of computer programs. The existing operating characteristics of Creech AFB were used with the NOISEMAP model to simulate the propagation of noise in the vicinity, and to develop noise contours. In addition to the operating data for the base, aircraft approaches, departures, and closed pattern operations were assigned appropriate flight tracks, power applications, altitudes, and speeds. Consistent with the requirements of the DNL metric, all operations between 10 p.m. and 7 a.m. were assigned a 10 dB penalty to reflect heightened sensitivity during that time period. The noise contours for Creech AFB, which cover the range of noise levels from 85 to 65 DNL in 5 dB

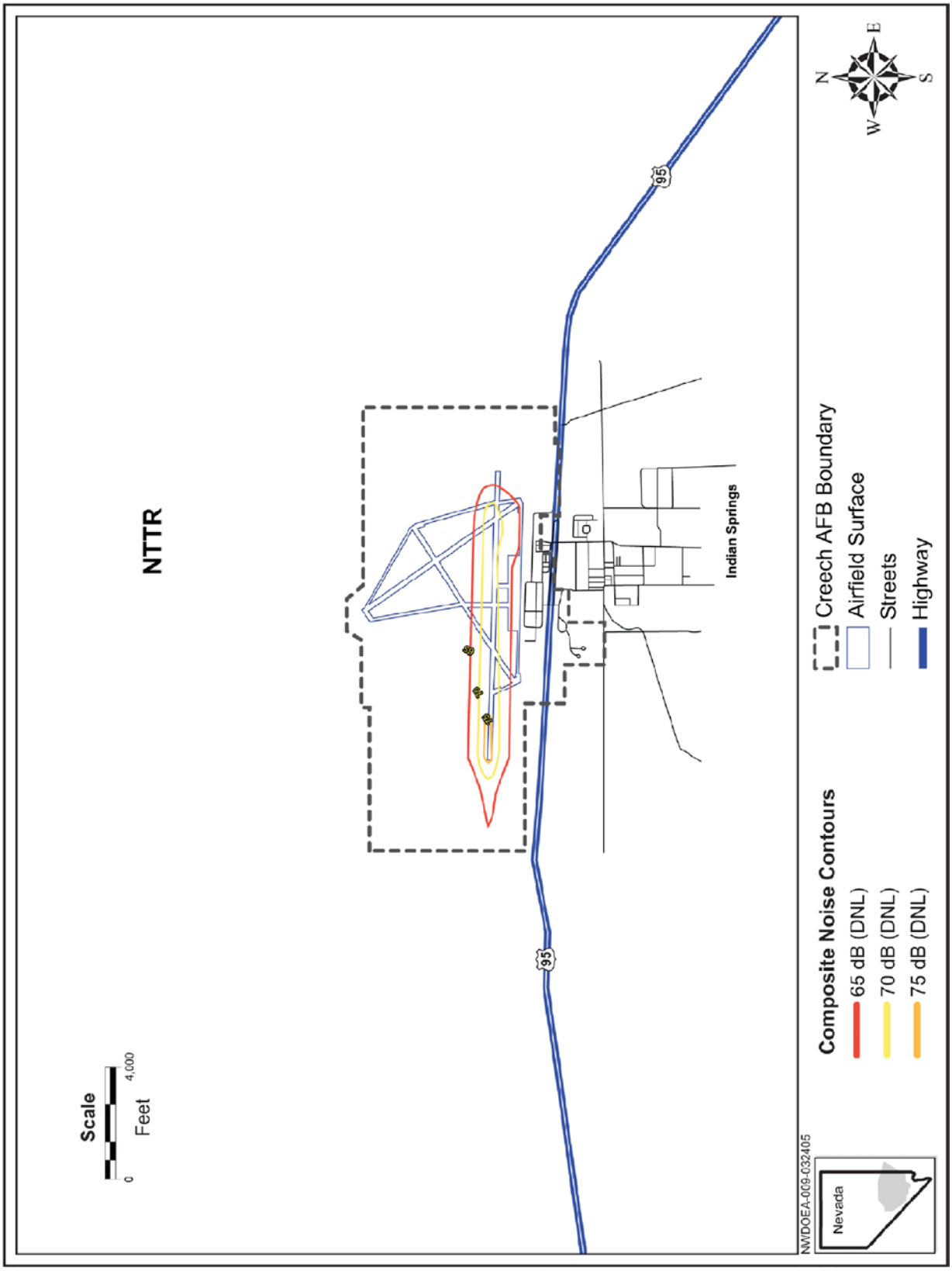
increments, are presented in Table 3-2 along with the total area within each contour. Figure 3-3 presents the existing noise contours at Creech AFB.

Table 3-2. Baseline Noise (DNL) Contours for Creech AFB

	65-70[a]	70-75	75-80	80-85	>85	Total
Acres	448	320	0	0	0	768

Source: Air Force 2003b

The Nellis-based Thunderbirds demonstration team uses Creech AFB for training and practice. Creech AFB is also used as a field for realistic military training during Red Flag and other exercises. The current noise environment at the airfield is dominated by F-15 and F-16 aircraft, which average 0.15 and 0.46 operations per day. Although these operating levels are quite low, they are equivalent in noise to over 600 UAS operations per day due to the dominant noise characteristics of these jet-powered aircraft.



Source: Air Force 2003b

Figure 3-3. Creech AFB Baseline Noise Contours

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 ANALYSIS APPROACH

The approach used for this environmental impact analysis is to assess and compare potential impacts to environmental resources with implementation of the proposed action or the no-action alternative at Creech AFB. Alternatives to the proposed action are discussed in Chapter 2 and vary from the proposed action in terms of placement of facilities within an area; therefore, the impacts associated with the alternatives would be approximately the same as the proposed action and need not be discussed further in this EA. The direct and indirect effects are identified, and where appropriate, the implementation of best management practices to minimize potential environmental impacts along with any additional practical mitigation to minimize impacts is identified. Short- and long-term impacts are identified, where possible. In general, one long-term beneficial impact from implementation of the proposed action projects would be energy conservation for Creech AFB. Potential impacts are quantified wherever possible and discussed at a level of detail necessary to determine the significance of the impacts. Cumulative effects of the proposed action and alternatives when considering past, present, and foreseeable future actions are presented in Chapter 5.

4.1.1 Environmental Effects

This portion of the analysis considers the potential environmental impact to resources from implementation of proposed construction and renovation projects. Just as cumulative effects in Chapter 5 (see Section 5.1) consider potential environmental impacts resulting from "the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions..." this analysis evaluates the potential effects to individual resources due to the projects occurring in close proximity to each other.

Each section in this chapter includes two parts: proposed action impacts, and the no-action alternative.

4.2 LAND USE

This section focuses on the impacts to land use from implementation of the proposed action. The threshold level of significance for land use is the potential for the proposed action to change the land use in such a manner as to cause incompatibility with adjacent land management or uses.

4.2.1 Proposed Action

Proposed projects at Creech AFB would not conflict with existing land uses or management plans and would occur within areas of compatible land use, not in safety zones, and away from environmentally sensitive locations. Proposed actions for Creech AFB require expansion and development of the base for existing and possible future missions. Most of the expansion planned is through infill and consolidation in addition to redeveloping existing facilities. Projects would be sited in areas of compatible land use. Neither existing, nor future land use, management, nor ownership would be changed affected by the proposed projects; no adverse impacts would be anticipated.

4.2.2 No-Action Alternative

Under the no-action alternative, Creech AFB would only implement projects identified in previous EIAP documents and analyze future projects individually on a case-by-case basis. Existing conditions to land use resources would remain unchanged under the no-action alternative.

4.3 SOCIOECONOMICS

Socioeconomic resources are defined as the basic attributes associated with the human environment, particularly population and economic activity. Population is described by the change in magnitude, characteristics, and distribution of people. Economic activity is typically composed of employment distribution, personal income, and business growth. Socioeconomics for this EA focus on the general features of the Clark County economy that could be affected by the proposed action.

4.3.1 Proposed Action

Construction activity on Creech AFB under the proposed action is unknown with respect to how many of the CIP projects would be implemented and depends upon budgeting and funding. Even under low to medium funding levels, however, there could be added expenditures of millions of dollars in the next few years. Construction activity would contribute to the Indian Springs and Clark County economy although the potential effects would be temporary. However, direct and indirect economic impacts to the town of Indian Springs are difficult to quantify because of the close proximity of Las Vegas to Creech AFB. Impacts to socioeconomics would apply to either Scenario 1, light construction, or Scenario 2, heavy construction.

4.3.2 No-Action Alternative

The CIP projects would not occur under the no-action alternative. Some construction, demolition, or renovation would still occur using the old CIP; therefore, socioeconomic impacts resulting from the no-action alternative would only be slightly increased from current conditions.

4.4 CULTURAL RESOURCES

Procedures for assessing adverse effects to cultural resources are discussed in 36 CFR Part 800 of the National Historic Preservation Act. An action results in adverse effects to a cultural resource eligible to the National Register when it alters the resource characteristics that qualify it for inclusion in the register. Adverse effects are most often a result of physical destruction, damage, or alteration of a resource; alteration of the character of the surrounding environment that contributes to the resource's eligibility; introduction of visual, audible, or atmospheric intrusions out of character with the resource or its setting; and neglect of the resource resulting in its deterioration or destruction; or transfer, lease, or sale of the property. In the case of the proposed action, potential effects to cultural resources could result from ground-disturbing activities associated with construction or demolition of significant structures.

4.4.1 Proposed Action

Under the proposed action, numerous buildings, parking lots, and concrete pads would be constructed, and roads built and rerouted over the period of the next 5 to 10 years. Some buildings would also be demolished during this time to make room for the improved facilities.

Proposals for federal actions are reviewed following 36 CFR 800 guidelines by the Nellis AFB Cultural Resources Manager. Areas of Potential Effect that have not been inspected would be field surveyed by qualified archaeologists. Native Americans would be invited to participate in the process. Actions in areas not previously reviewed through consultation, regardless of the need for field inventory or the ability to ensure avoidance of eligible properties would be subjected to consultation with Native Americans, THPOs and SHPO to ensure no adverse effects to cultural resources occur due to the proposed actions. Since each project would be assessed individually, impacts to cultural resources would be independent of either Scenario 1, light construction, or Scenario 2, heavy construction.

4.4.2 No-Action Alternative

Under the no-action alternative, CIP projects would not occur; however, some construction or renovation projects would still occur. Therefore, impacts to cultural resources would require individual analyses on a project-by-project basis to ensure there would be no impact to National Register-eligible or listed resources.

4.5 BIOLOGICAL RESOURCES

Impacts to biological resources would be considered significant if one or more of the following conditions would result:

- Substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations by the Nevada Department of Wildlife or the U.S. Fish and Wildlife Service;
- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations by the Nevada Department of Wildlife or the U.S. Fish and Wildlife Service;
- Substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act;
- Interfere substantially with the movement of native resident or migratory fish or wildlife species, wildlife corridors, or wildlife nursery sites;
- Conflict with local policies or ordinances protecting biological resources; or
- Conflict with the provisions or an approved local, regional, or State habitat conservation plan.

The definition of "substantial" is dependent on the species and habitats in question and the regional context in which the impact would occur as determined through consultation with the U.S. Fish and Wildlife Service, and the appropriate State and local natural resources management agencies. Impacts may be considered more adverse if the action affects previously undisturbed habitat or if the impact would occur over a large portion of available habitat in the region. These issues are discussed below with regard to their potential significance. Prior to the initiation of any project construction, surveys would be conducted to determine the presence of burrowing owls or special-status plant and wildlife species, coordinated through the Nellis AFB Natural Resources Manager.

4.5.1 Proposed Action

Under the proposed action, no adverse impacts to vegetation or wildlife would occur. Proposed projects would occur in previously developed or disturbed areas resulting in insignificant impacts to biological

resources. Because construction activities on Creech AFB would occur on previously developed areas within the main cantonment areas of the base, there would be no impact to water sources or wetlands, or jurisdictional waters of the U.S. located within the affected areas for the proposed infrastructure improvements. Wildlife in the area may be potentially impacted from construction noise; however, the period of construction would be short term and limited to the vicinity of the construction site. No adverse impacts to rare plants species would be expected. In addition, potential adverse impacts to wildlife special-status species from construction and infrastructure improvement activities would not be expected. If during any ground-disturbing activity the presence of desert tortoise is observed, the Air Force would comply with the requirements of the 2003 U.S. Fish and Wildlife Service Biological Opinion for the protection of the species (USFWS 2003). Since projects involving sensitive areas would be looked at individually and the vast majority of the projects would be located on previously developed portions of the base, impacts to biological resources would apply to either Scenario 1, light construction, or Scenario 2, heavy construction.

4.5.2 No-Action Alternative

The proposed CIP would not be implemented, but some construction, demolition, or infrastructure improvement projects would be implemented in accordance with the old CIP. Impacts to vegetation, wildlife, or special-status species would require individual analyses on a project-by-project basis under the no-action alternative at Nellis AFB.

4.6 WATER AND SOIL RESOURCES

In terms of water resources, no aspect of current operations at Creech AFB affects either the hydrologic setting or water resources; this would not change under the proposed action. Therefore, this analysis focuses on potential effects on water use, availability and quality. The principal factors influencing stability of structures are soil and seismic properties. Soil, in general, refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support structures and facilities. Relative to development, soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use.

A significant impact on water resources would (a) violate any water quality standards; (b) substantially deplete groundwater supplies or interfere substantially with groundwater recharge; or (c) otherwise substantially degrade water quality. A significant impact on soils would result in substantial soil erosion or loss of topsoil.

4.6.1 Proposed Action

Water Resources

Construction-related excavation and grading activities required for the proposed action could potentially impact surface water quality during stormwater run-off and erosion events. Standard erosion control measures would be included in construction procedures. Design and construction would follow all applicable and appropriate regulations and ordinances regarding stormwater retention and treatment. Additional hard surfaces from structures and paving would have the potential to concentrate rain water

and to increase stormwater run-off and erosion events. Facilities constructed as part of the proposed development would include stormwater runoff control features such as gutters, concrete swales, and culvert drain systems. If the area of disturbance for the proposed action is one acre or more, it is subject to National Permit Discharge Elimination System permit conditions. The entity executing construction will obtain a Construction Stormwater Permit in accordance with Nevada Division of Environmental Protection procedures. The entity executing construction may contact the Nellis Water-Wastewater Program Manager (702-652-2834) for additional guidance if necessary. The lack of precipitation and existing spill prevention, control, and countermeasure procedures would provide for protection of surface water during construction and use of facilities, so the potential for base or off-base surface water quality to be affected would be negligible.

Construction of new facilities with more efficient water conservation design and measures and demolition of existing facilities would help offset any increased water use. Xeriscaping (drought-tolerant landscaping) projects are planned throughout the base for conservation of water resources.

No areas of Creech AFB lie within a 100-year floodplain. The nearest FEMA floodplain is approximately one mile west of Creech AFB. Since the existing potential for flooding on Creech AFB is minimal, the proposed action would not increase flood hazards on the base.

Soil Resources

The soil erosion potential from water and wind from construction projects would be generally slight to moderate due to the type of soil as well as slight slope found at Creech AFB. Construction activities would involve removal of a minimal amount of vegetation and soils as well as grading. These activities would expose underlying soil to wind and water erosion and could result in sedimentation in surface impoundments. However, best management practices such as proper grading, stabilization, culverts to channel storm water runoff, and watering construction sites to limit fugitive dust, would minimize adverse effects.

Under the proposed action, construction of new facilities at Creech AFB would occur over several years. New construction may be subject to conditions of existing discharge permits depending on the disturbance area. The existing Storm Water Pollution Prevention Plan would be updated to reflect new facilities upon construction completion. The storm water plan would specify measures to reduce or eliminate any adverse erosion and sedimentation impacts (e.g., culvert and storm water runoff drainage). Compliance with established plans and policies and incorporation of standard erosion control measures into project design and construction requirements would reduce erosion potential to less than significant.

Generic construction projects that do not have definitive locations or designs could impact Environmental Restoration Program sites. Some proposed CIP projects may also never occur. The impact of these projects on restoration sites is only able to be assessed in a general manner, using broad assumptions; specific analysis would be accomplished upon project approval. Usually, facilities can be located on restoration sites with a waiver acquired from Headquarters Air Combat Command and the State. Design of the facility would need to make provisions for monitoring and ongoing remediation efforts if applicable. Planners would coordinate with the installation restoration manager for requirements and to apply for a waiver. A waiver must be obtained prior to construction. Impacts to soils and ERP sites would apply to either Scenario 1, light construction, or Scenario 2, heavy construction.

4.6.2 No-Action Alternative

Implementation of the no-action alternative would not implement the Capital Improvements Plan and older substandard facilities would continue to be used. Nellis AFB would continue to manage the soils and water resources found at Creech AFB in accordance with State and federal regulations.

4.7 AIR QUALITY

A significant impact would occur if the project would violate any federal or State ambient air quality standards; increase the number or frequency of violations; contribute substantially to an existing or projected air quality violation; conflict with or obstruct implementation of the applicable air quality plan; result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable ambient air quality standard; expose sensitive receptors to substantial pollutant concentrations; or create objectionable odors affecting a substantial number of people.

4.7.1 Proposed Action

Two demolition/construction scenarios were developed to calculate pollutant emissions. The primary emissions for the activities would be fugitive dust and exhaust emissions from transport vehicles and heavy equipment. Scenario 1 modeled demolition of a two-story, 2,000 square-foot concrete building located on 1 acre of land, and 3 acres of construction for a 30,000 square-foot concrete maintenance shop with a 100,000 square-foot parking lot. Scenario 2 increased demolition to 3 acres and tripled the sizes of the building and parking lot to be demolished. Construction under Scenario 2 tripled the sizes of the building and parking lot and the overall project disturbance area increased to 10 acres. These scenarios assumed that all best management practices, such as watering loose soil and avoiding unnecessary periods of engine-idle, would be in place. Table 4.1 contains the results of the emissions calculations and Appendix B provides the worksheets from which these figures were derived.

The majority of the proposed CIP projects typically would average less than a quarter acre in size. Road and airfield projects would be larger; however, most would be less than a few acres. In addition, funding and manpower constrain the amount of development that could occur in a single year. Therefore, impacts to air quality in any year would be less than significant.

Table 4-1. Creech AFB Projected Scenarios Pollutant Emissions (tons/year)

	VOCs	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$
Scenario 1	0.30	2.14	4.49	0.07	20.39	2.24
Scenario 2	1.35	8.50	20.80	0.35	66.53	7.53

Annual GHG emissions associated with the Proposed Action were compared to U.S. 2010 GHG emissions. The estimated annual GHG emissions attributed to the proposed construction activities under Scenario 2 are less than three hundred thousandth of 1 percent of the total CO_2 emissions generated by the United States in 2010. Emissions of GHGs from the Proposed Action alone would not cause appreciable global warming that would lead to climate changes. However, these emissions would increase the atmosphere's concentration of GHGs, and in combination with past and future emissions from all other sources, contribute incrementally to the global warming that produces the adverse effects of climate change. At present, no methodology exists that would enable estimating the specific impacts (if any) that this increment of warming would produce locally or globally.

Note that regardless of the results of a conformity analysis for any project, Clark County air regulations would still apply. The installation would therefore need to review each project to determine whether fugitive dust and authority to construct permits would be required and would need to apply for and follow such permits as necessary. Project specific emissions would be determined on a case-by-case basis.

4.7.2 No-Action Alternative

Under this alternative, planning for additional facilities would continue evaluating specific activities on Creech AFB on a case-by-case basis. Impacts to air quality would require individual analyses on a project-by-project basis under the no-action alternative at Creech AFB.

4.8 HAZARDOUS MATERIALS AND WASTE

The nature and magnitude of potential impacts associated with hazardous and toxic materials and wastes depends on the toxicity, storage, use, transportation, and disposal of these substances. The threshold level of significance for hazardous materials, toxic substances, and hazardous waste is surpassed if the storage, use, handling, or disposal of these substances substantially increases the risk to human health due to direct exposure, substantially increases the risk of environmental contamination, or violates applicable federal, state, Department of Defense and local regulations.

4.8.1 Proposed Action

Construction and maintenance activities associated with the CIP actions would require the use of hazardous substances, such as petroleum, oil, and lubricants. During construction, use of these substances for fueling and equipment maintenance would have the potential for minor spills and releases. Use of best management practices, such as secondary containment for construction vehicles and storage containers, would substantially reduce the probability of these substances being released into the environment.

Asbestos may be encountered as structures are remodeled or demolished to accommodate new support facilities. It is current Air Force practice to remove exposed friable (crumbling) asbestos and manage other asbestos-containing materials in place, depending on the potential threat to human health. Friable asbestos, if encountered would be removed by licensed contractors and disposed of in an appropriate disposal facility.

All materials purchased and used in construction projects on Creech AFB are tracked through the Hazardous Material Control Program which manages the procurement, handling, storage, and issuing of hazardous materials used on Creech AFB. The Air Force would continue to manage the 180-day Hazardous Waste Storage Site for hazardous waste generators. Basic processes and waste handling and disposal procedures for wastes generated at Creech AFB are identified in the Nellis AFB Plan 12, Hazardous Waste Management (Air Force 2010c). These procedures would handle potential waste increases due to implementing the capital improvement projects. It is possible, but unlikely, for one of the proposed projects to introduce a new waste stream; however, it would be characterized to determine the correct waste disposition. Nellis AFB would continue to be responsible for ensuring that any hazardous waste generated at Creech AFB is disposed of in compliance with all federal, State, and local regulations.

Standard design and construction techniques would be employed to ensure that no hazardous fumes permeate facilities, such as use of clean soil and vapor barriers. Environmental program managers review project designs and inspect construction activities to ensure that appropriate engineering controls are in place. Impacts from hazardous materials and waste operations would apply to either Scenario 1, light construction, or Scenario 2, heavy construction.

4.8.2 No-Action Alternative

Under this alternative, installation improvement projects would be implemented in accordance with the old General Plan. Pollution prevention measures are the same for all construction and demolition projects, regardless of the existence or status of a general plan.

4.9 SAFETY

In evaluating safety, the impacts would be considered adverse if human safety would be threatened.

4.9.1 Proposed Action

During construction and demolition, all actions would be performed in accordance with Air Force Occupation Safety and Health directives and Occupational Safety and Health Administration regulations. There are no specific aspects of construction or demolition projects that would create any unique or extraordinary safety issues. The handling, processing, storage, and disposal of hazardous by-products from these activities would be accomplished in accordance with all federal, State, and local requirements, as well as applicable Nellis AFB plans. All current day-to-day operations have established safety guidelines and procedures which would continue to be observed. No adverse impact to safety would be anticipated under the proposed action.

4.9.2 No-Action Alternative

Under the no-action alternative, effects to human safety would be the same for construction and demolition projects. However, planned changes to re-route traffic may not occur, resulting in maintaining the status quo rather than a potential increase in public safety.

4.10 NOISE

In terms of aircraft operations, changes in noise levels of 3 decibels or greater would constitute a significant change in the noise environment. However, to achieve such changes would require doubling of the number of operations at Creech AFB. No part of the proposed action would produce changes in operations. Relative to construction, significant effects from noise would need to exceed occupational health and safety standards. All construction would operate with appropriate time and duration constraints, thereby adhering to required standards.

4.10.1 Proposed Action

The Remotely Piloted Aircraft mission at Creech AFB is expected to expand greatly in the coming years. To that end, numerous construction projects are planned to meet operational requirements at Creech AFB. However, no specific information on the number or size of facilities, or a timeframe for any construction has yet been determined. These are variables based on funding availability, mission needs, and other unforeseen circumstances for which project priorities are established. Regardless of these unknown

factors, construction and demolition activities at Creech AFB would occur over a multi-year timeframe, and minimal to negligible impacts from construction noise would result for the following reasons:

- Heavy equipment that would generate the highest noise levels would not be used consistently enough to exceed the hourly equivalent noise level of 75 averaged decibels for more than one hour and be within the boundaries of Creech AFB.
- Noise levels from infrastructural improvements would be contained within Creech AFB and would be short-term in nature.
- Construction and demolition activities would be expected to occur between 7:30 a.m. and 4:30 p.m.

In general, construction and demolition noise at Creech AFB would be intermittent and short-term in duration, and no long-term (recurring) noise impacts would result from implementation of the proposed action. Noise contours would remain unchanged from existing conditions.

4.10.2 No-Action Alternative

Since construction and demolition would continue to occur at Creech AFB regardless of the existence of a specific plan, impacts would be the same.

CHAPTER 5

CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.0 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.1 CUMULATIVE EFFECTS

CEQ regulations stipulate that the cumulative effects analysis within an environmental assessment should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). CEQ guidance in *Considering Cumulative Effects* affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with the proposed action. The scope must consider other projects that coincide with the location and timetable of the proposed action and other actions. Cumulative effects analysis must also evaluate the nature of interactions among these actions.

Cumulative effects are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur concurrently or in a similar location. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects.

To identify cumulative effects the analysis needs to address three fundamental questions:

1. Does a relationship exist such that elements of the proposed action might interact with elements of past, present, or reasonably foreseeable actions?
2. If one or more of the elements of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
3. If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

5.1.1 Scope of Cumulative Effects Analysis

The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the affected area defines the geographic extent of the cumulative effects analysis. This area includes Creech AFB and their vicinities, including Indian Springs. Examination of other actions not occurring within or adjacent to this affected area reveals that they lack the necessary interactions to result in cumulative effects.

Past actions within the two affected areas relate predominantly to activities on and use of Creech AFB. Under the no-action alternative, the current environmental conditions of the affected area underwent analysis in this EA. Since those conditions represent the result of long-term use occurring at Creech AFB, analysis of the no-action alternative has considered those past and present effects engendered by the operation and use of the base. Previous analyses addressing the affected area include *Nellis and Creech Air Force Bases Capital Improvements Program Environmental Assessment* (Air Force 2008), *AAFES Gas Station at Creech Air Force Base Environmental Assessment* (Air Force 2009b), and *Wing*

Infrastructure Development Outlook (WINDO) Nellis Air Force Base Environmental Assessment (Air Force 2006).

Another factor influencing the scope of cumulative effects analysis involves identification and consideration of other actions. Beyond determining that the geographic scope and time frame for the actions interrelate with the proposed action, the analysis employs the measure of "reasonably foreseeable" to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to define other actions included notices of intent for EISs and EAs, management plans, land use plans, other NEPA studies, and economic and demographic projections.

5.1.2 Cumulative Effects of Reasonably Foreseeable Actions

Actions potentially relating to the cumulative effects for implementing the CIP update for Creech AFB could include those of the DoD, Department of Energy, Department of the Interior, and local counties. The following outlines these actions and assesses their relationship to the proposed action and alternative.

DoD Actions

Creech AFB are active military installations that undergo continuous change in mission and in training requirements. This process of change is consistent with the United States defense policy that the Air Force must be ready to respond to changing threats to American interests throughout the world. Mission and training requirements have resulted in facility construction and upgrades on Creech AFB.

Similar to this proposed action, the WINDO and the previous CIP projects at Nellis AFB, Creech AFB, and Tonopah Test Range included repair, maintenance, installation, renovation, construction, and demolition. The Air Force has determined the WINDO and CIP projects are necessary for Creech AFB to achieve its test, training, and evaluation missions, both now and in the future. Creech AFB would ensure that these goals are not only achieved, but also maximized.

Most of the WINDO and CIP projects previously assessed consist of minor improvements, repairs, and maintenance projects that represent routine activities as classified under 32 CFR Part 989, Air Force EIAP, and result in negligible effects to the environment. All of these proposed projects would occur within functionally compatible areas on the base. Given their functional relationships with existing facilities, these projects would be sited on previously used and disturbed ground.

Traditionally, only a fraction of these projects would be funded in ensuing years, other projects listed would be based on mission needs and priorities, and some structures would be demolished as they become non-functional. This is a typical growth pattern found in any town.

Local Actions

While not involving specific actions, planning and anticipated growth in local cities as well as Clark, Nye, and Lincoln counties in Nevada represent factors worthy of consideration for cumulative effects when combined with the proposed action. Creech AFB, the city of Las Vegas and the town of Indian Springs lie within Clark County. Census data and other information indicate that Clark County exhibited the greatest growth in population within the United States over the last 15 years. From 1990 through 2000,

the population increased approximately 86 percent. Estimates for 2005 place the county population at 1.69 million people representing a 128 percent increase since 1990. This amount exceeds that anticipated in the Regional Transportation Plan for Clark County (Regional Transportation Commission 1994), which anticipated that Clark County's population would increase to approximately 1.2 to 1.4 million persons by 2005. The growth and economic development in Clark County far overshadows the influence of Nellis and Creech AFBs. As such, the minimal effects on local socioeconomic conditions from the CIP update actions would not be perceptible given the context.

5.1.3 Assessment of Cumulative Effects by Resource Area

Analysis of the proposed action resulted in a finding of no direct or indirect effects on socioeconomics and infrastructure; cultural resources; and hazardous materials and waste. Therefore, these resources would not be discussed further in this section. This analysis of the proposed action indicated that cumulative effects of other actions could interact with potential direct or indirect effect on noise, air quality, water and soil resources, and biological resources. The following analyzes these resources further.

Conservation Measures

Energy and water conservation, recycling, and habitat conservation considerations have been incorporated into many, if not all of the proposed CIP projects. Some are specifically designed to improve the environment, such as installing water efficient landscaping, while others would utilize environmentally friendly systems such as higher efficiency HVAC systems and water conserving faucets. Similarly, many facilities in the community are also moving towards this trend of "green" construction. Cumulatively, the impacts to the rapid growth of the Las Vegas Valley and Nellis and Creech AFBs are somewhat abated through better planning and engineering to reduce the use of consumptive resources. Naturally, the impacts would be least if no growth occurred, but utilizing "green" construction techniques result in less impact than construction that doesn't attempt to conserve resources.

Noise

No change in noise would result from the proposed actions. As such, it could not combine with any other action to produce cumulative effects. Construction noise from proposed projects would be temporary and short term in nature. No location would experience a permanent increase in noise. Since the CIP would not involve any new aircraft, the noise impact associated with flying operations would be unchanged.

Air Quality

Cumulative impacts from multiple actions occurring simultaneously on the installation include emissions from construction and airfield operations due to overlap of the CIP update actions.

Water and Soil Resources

Construction of new facilities under the CIP updates, combined with the other cumulative actions poses a potential for impact on soils, including soil loss and erosion. However, several factors indicate that erosion and soil loss would be negligible. Precipitation in the Creech AFB area is low, most construction would occur on previously developed land, and the Air Force and Clark County require employment of standard construction practices. Overall, the proposed action combined with the other planned

construction would not result in potential incremental impacts from ongoing activities and no cumulative adverse impacts to soils.

This action would generally use water for construction purposes and long-term water use would typically be for office space restrooms. Additionally, a number of the projects replace heavily irrigated lawns with xeriscape and other projects designed to reduce water use. Personnel using the planned CIP projects would be personnel already located on base; the proposed actions would not include additional personnel at Creech AFB. Construction activities would be temporary and water use limited to less than one percent of the base's daily allotment. Creech AFB has a requirement for 88,000 gpd and cumulative impacts from proposed projects should not affect water supply at Creech AFB to any significant level as no additions of personnel are planned because of these proposed CIP projects.

Biological Resources

Combined impacts to vegetation would be insignificant due to the already disturbed nature found at all locations. Wildlife impacts would be minimal given the already disturbed nature of each proposed infrastructure improvement location. Areas affected by construction of CIP projects at Creech AFB would be in areas not likely to contain these rare plant species. Combined impacts to the desert tortoise known to exist in the vicinity surrounding Creech AFB would be limited to potential loss of desert tortoise habitat and individuals. However, there are no current plans to develop desert tortoise habitat in the vicinity of Creech AFB. Due to the low concentrations of the desert tortoise found in these locations and adherence to the measures required by USFWS Biological Opinions (USFWS 2007, 2003), these impacts would be insignificant.

5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

NEPA requires that environmental analysis include identification of "…any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects this use could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource).

For the CIP proposed actions, most resource commitments are neither irreversible nor irretrievable. Most impacts are short-term and temporary, or longer lasting but negligible. Those limited resources that may involve a possible irreversible or irretrievable commitment under the proposed action are discussed below.

Facilities construction and maintenance for support activities would require consumption of limited quantities of aggregate, steel, concrete, petroleum, oil, and lubricants. Construction would occur on previously disturbed areas or in areas lacking significant habitat or concentrations of wildlife, so no irreversible loss of habitat and wildlife would result. No eligible or National Register properties are in the Area of Potential effect. Similarly, construction on both bases would avoid significant cultural resources. Any discoveries of cultural resources during construction or infrastructure upgrades would evoke an investigation and evaluation according to procedures in 36 CFR Part 60 and the Nellis AFB Integrated

Cultural Resources Management Plan to ensure preservation of the resources. While construction of new facilities on the bases would incur some soil disturbance and loss, measures to localize and minimize soil loss would be implemented. The Air Force would continue to comply with all requirements of the USFWS Biological Opinions and subsequent modifications to minimize desert tortoise mortality, harassment, or habitat destruction on Creech AFB (USFWS 2007, 2003).

CHAPTER 6

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6.0 REFERENCES CITED

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CHAPTER 7

PERSONS AND AGENCIES CONTACTED

7.0 PERSONS AND AGENCIES CONTACTED

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CHAPTER 8

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8.0 LIST OF PREPARERS AND CONTRIBUTORS

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APPENDIX A

CREECH AFB CAPITAL IMPROVEMENTS PROGRAM

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CREECH AFB CAPITAL IMPROVEMENTS PROGRAM

The Creech AFB CIP is a component of the planning process that provides the installation and unit commanders with up-to-date development possibilities for the base. The CIP is used in conjunction with the Base Comprehensive Asset Management Plan (BCAMP), as well as changes to the Installation Priority List (IPL) and to assist planners in compliance with the overall vision of the respective missions of Creech AFB. Asset management principles of determining current condition of facilities and infrastructure, assignment of mission importance to the asset, and other factors such as, cost of restoration, sustainment, and or modernization or replacement of facilties combine to set priority levels for each project. Along with recommendations from installation and unit leadership, the IPL integrates the priorities of each unit and determines the overall priorities for the base. The list is forwarded to Headquarters Air Combat Command for approval and funding.

The projects described in the CIP list all of the proposed projects which have been identified as a bona fide need by the individual proponents of each action. These projects are reviewed by the Civil Engineering Facility Review Board and approved by the 99th Air Base Wing Commander based upon criteria including mission requirements, quality of life, degradation of existing facilities, and other factors. While the list includes hundreds of projects, funding for all of the projects to be completed in the next 5 years is not feasible because of the limited amount of funds available. These funding limitations are due to the war in Southwest Asia; competing funding requests from every other military installation; new missions such as the proposed F-35 Joint Strike Fighter (JSF) beddown; and general budget reductions for civil engineering projects. As a result, only a small percentage of the projects can be funded within one fiscal year. Projects not funded are carried over to the following fiscal year; in fact, many projects are still on the list that date back to the early 2000's or before. A full list of acronyms is found after the tables.

New construction, additions, remodels, demolition, maintenance, and repair comprise types of projects on the BCAMP list and are further broken down by type, such as facilities, utilities, roads, airfield, administrative, recreation, and others. Table A-1 identifies the improvement types of work, definitions and examples for improvements by the type of activity.

Table A-1. Capital Improvements Identification by Activity Type

Activity	Definition	Examples
Construction	New construction or addition, expansion, and renovation to existing facilities. All new construction must meet energy savings requirements.	Includes construction of buildings, roads, mission operation facilities, pads, access roads and parking lots and landscaping.
Repair/Replace	Repair and/or replace existing equipment and infrastructure.	Repair equipment, parking lots, manhole covers, fences, sprinkler system, as well as fuel tanks; install exterior lighting, also includes replacing existing landscaping with xeriscaping.
Installation	Installation of equipment, signs, utilities etc. to enhance the functionality of existing infrastructure.	Install equipment to maintain operational mission such as emergency power, check valves, heating and air conditioning units, force protection, under-wing foam system, and fire hydrants.

Table A-1. Capital Improvements Identification by Activity Type		
Activity	**Definition**	**Examples**
Maintenance	Routine maintenance.	Routine maintenance to landscaping, road/parking lot pavement, ramps, water tanks, and hangars.
Demolish	Demolition of existing infrastructure.	Demolish roads, aged dormitories, buildings, pads, etc., potentially not related to new construction.
Environmental	Monitoring and/or remediation of environmental spill sites, or other contracted documents such as Remedial Action Plans, Spill Response Plans, and Permit Fees.	Long-term monitoring or planned remediation of identified sites, plans and permits which do not have physical impacts.

Table A-2 identifies the infrastructure types existing on Creech AFB and the variety of activities that are accomplished on each infrastructure type. For example, airfield improvements could involve construction, repair, maintenance, demolition, and perhaps, environmental remediation activities.

Table A-2. Capital Improvements Identification by Infrastructure Type		
Facility Type	**Definition**	**Examples**
Facilities	Building construction or additions. This could include new, modular, addition/remodel, or storage facilities.	Includes all of the difference classes of buildings; industrial, administrative, community service, etc. An example of a holding pad would be a munitions storage pad.
Airfield	Maintenance, installation, and repair of airfield pavements and airfield related equipment.	Revetment, paint taxi lines, install runway shoulders, extend/repair flight line, maintain airfield pavement, and aircraft arresting systems.
Utilities	Installation and repair.	Repair and install communication, electrical, sewer, natural gas, and water lines, and water conservation projects.
Roads	Installation, repair or maintenance of roads, sidewalks and parking lots.	roads, parking lots, etc. this also includes signal lights, roundabouts, and deceleration lanes.
Security	Installation, construction, repair or maintenance of Antiterrorism/Force Protection items designed to improve the security of the installation.	Fencing, security barricades, lighting, security cameras, and vehicle inspection areas. Vegetation clearing and perimeter roads could fall in this category.
Fences/walls	Perimeter structures primary for force protection and/or aesthetics.	Fences and block walls, includes dumpster enclosures, fence line lighting and security equipment.
Energy Conservation Improvement Program (ECIP) and *Greening of the Government* Projects	Installing and/or retrofitting systems and equipment which directly or indirectly result in energy savings.	Photovoltaic Arrays, window film, HVAC controls, day-lighting projects.
Recreation and quality of life projects	Installing or repairing recreational areas, unit gathering places, or items to improve worker comfort and well being.	Volleyball courts, horseshoe pits, pavilions and barbeque areas.

Projects Further definitions of various types of CIP activities are; construction of current mission and future mission (primarily F-35 aircraft basing) facilities, restoration, modernization, and sustainment projects with definitions provided below.

MILCON (Military Construction) includes construction activity of sufficiently large scope to require Congressional approval for funding and has the most potential for environmental impacts. All new facilities would be designed to comply with the Creech AFB Design Compatibility Guidelines, August 2006 and major building projects must also comply with the Air Force Policy Memorandum requiring Leadership in Energy and Environmental Design (LEED) Green Building Rating System as the Air Force preferred self-assessment metric. The standards require energy saving building techniques, supplies and equipment to reduce environmental impacts and provide for energy savings from the construction and operation of these new facilities.

Restoration includes repair and replacement work to restore facilities damaged by inadequate sustainment, excessive age, natural disaster, fire, accident, or other causes to such a condition that it may be used for its designated purpose.

Modernization includes alterations of facilities to implement new or higher standards, including regulatory changes to accommodate new functions (including new mission beddowns), or to replace building components that typically last more than 50 years.

Sustainment includes maintenance and repair activities necessary to keep an inventory of facilities in good working order. Sustainment includes deferred sustainment such as anticipated major repairs or replacement of components that occur periodically over the expected service life of the facilities.

Table A-3 represents MILCON projects to support the RPA missions currently based and conducted from Creech AFB. Tables A-4 and A-5 provide a list of the various Operations and Maintenance (O&M) projects proposed for Creech AFB that are the more likely projects to be funded and executed over the next few years and are Restoration and Modernization projects, and Sustainment projects respectively. Table A-6 rounds out the rest of the O&M projects lists from BCAMP.

The following tables list all of the CIP projects currently on the BCAMP for Creech AFBs. The project number is broken down by base, year and project identifier number. LKTC denotes Nellis, the first two numbers are the program year, and the last four are the identifier number. For example, project number LKTC 10-3104, UAS Visitors Quarters, LKTC is on Creech AFB and programmed for FY 2010 with the unique identifier 3104.

Table A-3. MILCON Projects

Project Number	Project Title	Infrastructure Type
LKTC 10-3104	UAS Visitors Quarters	Facility
LKTC 10-3105	UAS Joint Center Of Excellence Facility	Facility
LKTC 11-3103	ADD/ALTER UAS Munitions Administration Facility	Facility
LKTC 11-3104	UAS Conventional Munitions Maintenance Facility	Facility
LKTC 11-3105	UAS Phase Maintenance Hangar	Facility
LKTC 11-3110	RPA Mission Complex Intrusion Detection Fence	Security
LKTC 11-3111	RPA Mission Complex Vehicle Denial Barrier	Security
LKTC 13-3101	RPA Mission Complex Physical Protection System	Security

Table A-4. Representative Restoration/Modernization Construction/Repair Projects		
Project Number	**Project Title**	**Infrastructure Type**
LKTC 10-1034	Repair AAS BAK 12 to BAK 14 Runway 08/26 West End	Airfield
LKTC 12-1038	Replace Base Ops/Weather Facility w/New Construction	Facility
LKTC 10-1022	Construct 432d Wing Standardization and Evaluation Facility	Facility
LKTC 12-1045	Construct Flightline Entry Gates	Security
LKTC 12-1050	Construct Flightline Perimeter Fence	Security
LKTC 12-1052	Construct Box Canyon Gate Automated Entry	Security
LKTC 12-1049	Construct Range Road Automated Entry	Security
LKTC 08-6802	Repair Aviation Gasoline (LL100) Operational Fueling System	Utility
LKTC 06-1009	Construct Apron Lighting	Utility
LKTC 10-1024	Construct Common Area Addition, Building 1005	Facility
LKTC 10-1025	Construct Volleyball and Basketball Courts, and Horseshoe Pit	Recreation
C-08015	Design and Repair Fuel System for AGE Yard, Building 1011	Utility
LKTC 12-1051	Renovate Facility for RPA Training, Building 707	Facility

Table A-5. Representative Sustainment Construction/Repair Projects		
Project Number	**Project Title**	**Infrastructure Type**
LKTC 12-1046	Repair North Side Propane and Chilled Water Lines	Utility
C-1107	Repair LOLA Road Washout	Road
C-10157	Repair Roof, Insulation for NOC, Ventilation Repair	Facility
C-10120	Replace Road 90 Deg Turn at Munitions Suspect Holding Area	Road
C-11001	Cost Analysis Expansion of Building 718 for Additional GCS's	Facility
C-10179	Hangar 1003 Floor Refinishing	Facility

Table A-6. Representative O&M Projects		
Project Number	**Project Title**	**Infrastructure Type**
LKTC036904	Repair Ground Product Piping, Bulk Storage	Utility
C-09132	Underground Storage Tank Removal Facility 24	Facility
C-09133	Underground Storage Tank Removal Facility 225	Facility
LKTC131005	Repair Electrical Service, Building 71	Facility
LKTC131006	Construct 2nd Floor Observation Deck, Building 1000	Road/Parking
LKTC131007	Install Emergency Mass Notification PA System, Building 1000 and 1004	Facility
LKTC131008	Construct Final Denial Barrier, Former Creech Main Gate	Road/Parking
LKTC131009	Repair CE Compound Entry/Exit Gates	Facility
LKTC131010	Construct East Gate Visitor Center	Facility
LKTC131011	Construct Various Parking Lots, 1000 Series Buildings	Road/Parking
LKTC131014	Repair Fire Alarm/Detection System, Building 14	Facility
LKTC131015	Renovate Interior, 11 RS Building 707	Facility
LKTC131016	Repair Chilled Water and Propane Gas Lines, Buildings1000/1003	Facility
LKTC131017	Renovate Interior Building 271 For 99 ABG Standup	Security
LKTC131018	Repair Fire Alarm/Detection System, Building 12	Facility
LKTC131019	Repair Electrical Systems, Fuel Storage Yard and Service Station	Utility
LKTC131020	Repair Airfield Headwall (Airfield Violation)	Facility
LKTC131021	Construct 78 ATKS Administrative Facility	Facility
LKTC131022	Construct 91 ATKS Administrative Facility	Facility
LKTC131023	Demolish Building 400 and 404	Facility

Table A-6. Representative O&M Projects		
Project Number	**Project Title**	**Infrastructure Type**
LKTC131025	Repair HVAC and Chiller Units, Building 1000	Utility
LKTC131026	Construct North Gate Electronic Vehicle Gate	Facility
LKTC131028	Construct RPA Parking Lot	Facility
LKTC131029	Construct GCS Pads, 42 ATKS	Demolition
LKTC131032	Demolish Airfield Support Facilities 80, 81, 82, 86, and 95	Demolition
LKTC 13-1033	Construct Addition Vehicle Maintenance Facility	Demolition
LKTC 13-1035	Construct Security Fence/Lights	Airfield
LKTC 13-1036	Construct Communications Mission Command Post	Airfield
LKTC 13-1037	Construct 42 ATKS Combat Support Facility	Utility
LKTC 13-1038	Construct 42 ATKS Fixed GCS Operations Facility	Security
LKTC 13-1039	Construct Temporary Large Area Maintenance Shelter (LAMS) Facilities	Facility
LKTC141004	Construct Secondary Power For 30 RS Relocation, Building 1009	Utility
LKTC141005	Install Backup Generator and Upgrade to SCIF Standards, Building 119	Facility
LKTC141006	Install Anti-Vehicle Boulders, 1000 Series Buildings	Utility
LKTC141007	Repair Asphalt Shoulders at Taxiway Foxtrot Fighter LOLA	Airfield
LKTC141008	Install Backup Generator, Supply Warehouse Building 52	Airfield
LKTC141009	Install Backup Generator, Supply Warehouse Building 1013	Facility
LKTC141010	Install Backup Generator, Supply Warehouse Building 1012	Facility
LKTC141011	Repair Heat Pumps and HVAC Controls, Building 91	Airfield
LKTC141013	Construct Non-Destructive Testing Facility	Recreation
LKTC141014	Install Backup Generators, Creech Fuels Yard (FAC 661)	Security
LKTC141015	Install Permanent Eyewash/Shower Station Building 256	Facility
LKTC141016	Install Lightning Protection, ESPN Trailer Pad 10132	Utility
LKTC141017	Install Additional Power Outlets, Rm 109 Building 119	Facility
LKTC141018	Repair Interior Walls, 53 TMG Building 14	Utility
LKTC141019	Repair Communications Equipment Support Structure, Building 12	Utility
LKTC141020	Install Fence Keypad Entry System, Building 1038	Energy
LKTC141021	Install Security Aspects, Building 1012	Utility
LKTC141022	Replace Duct Detectors, Building 143	Airfield
LKTC141023	Install Fire Suppress and Alarm Systems, Vehicle Maintenance Building 225	Facility
LKTC141024	Repair Building 273 To Meet AFOSI Standards	Facility
LKTC141026	Install Fire Suppress and Alarm Sys Building 6, 7, and 8	Airfield
LKTC141027	Reinforce Fenceline at Casino	Airfield
LKTC141028	Install A/C Building 1109 Communications Closet	Road/Parking
LKTC141029	Repair Fire Alarm System, Building 2	Airfield
LKTC141030	Construct Drainage Culverts Along Road	Utility
LKTC141031	Replace Heat Pump, Building 234	Utility
LKTC141033	Replace HVAC Filters/Grills, 99 GCTS Billeting Building 24	Utility
LKTC141034	Construct Parking Lot Lighting (Lots 1, 2, and 3)	Utility
LKTC141036	Design/Repair Fuel System For AGE Yard, Building 1011	Utility
LKTC141037	Repair LOLA Road Washout	Road/Parking
LKTC141038	Repair Roof, Insulation For NOC and Ventilation System, Building 1004	Facility
LKTC141039	Replace Road 90 Degree Turn at Munitions Suspect Holding Area	Road/Parking
LKTC141040	Maintain Floor, Hangar 1003	Facility
LKTC 14-1042	Repair Lift Station	Utility
LKTC 141047	Construct 926 RPA Operations Group HQ Facility	Facility
LKTC 15-1004	Repair Fuel Cell Hangar 1009	Facility

Previously mentioned CIP projects for Restoration, Modernization, and Sustainment only make up a fraction of all of the CIP projects in BCAMP. Although those projects have a higher priority, there are numberous miscellaneous construction, repair, installation and maintenance projects that also fall under the funding category for Operations and Maintenance. Table A-7 lists all of the O&M CIP projects in the BCAMP list regardless of the category.

Table A-7. O&M Construction Projects

Project Number	Project Title	Infrastructure Type
LKTC031011	Repair Fuel Tanks 1, 2, and 3	Facility
LKTC031028	Construct Munitions Storage Structure	Facility
LKTC031031	Construct Aircraft Restraint System	Airfield
LKTC041032	Construct Range Towers Silver Flag Alpha	Facility
LKTC051018	Construct Loading Ramps MSA	Facility
LKTC051020	Construct Munitions Holding Pad MSA	Facility
LKTC051021	Construct Bomb Storage Facility	Facility
LKTC051022	Construct Munitions Storage Facility MSA	Facility
LKTC061009	Construct Additional Apron Lighting	Airfield
LKTC061010	Install Airfield Signage Creech AFB	Airfield
LKTC061013	Install Edge Lights, Predator LOLA	Airfield
LKTC061014	Construct Predator Storage Creech AFB	Facility
LKTC061043	Construct Interim Facilities Predator Ops Center	Facility
LKTC071004	Construct MQ9 POS/MRSP Facility	Facility
LKTC071006	Construct 432 WG UAS HQ Facility	Facility
LKTC071010	Construct Security Enhancement GCS Pad	Security
LKTC071027	Construct Temporary Modular Facility, Air National Guard	Facility
LKTC081013	Install HVAC GSHP Mutiiple Facilities Creech AFB	Utility
LKTC081032	Annual Water Tanks Calibration, Test, And Repair	Utility
LKTC091004	Construct Gas Station	Facility
LKTC091007	Construct Highway Deceleration Lanes, W. Muns Gate	Road/Parking
LKTC101001	Construct Admin Facility, 53rd TMG	Facility
LKTC101002	Upgrade Runway Lights and Taxiway Signs	Airfield
LKTC101003	Install A/C System To Airfield Lighting And Control Vault	Utility
LKTC101004	Construct Mail Handling Facility	Facility
LKTC101005	Maintain Cathodic Protection Systems, Facility 24	Utility
LKTC101006	Maintain Cathodic Protection Systems, Facility 102	Utility
LKTC101007	Maintain Cathodic Protection Systems, Facility 105	Utility
LKTC101008	Maintain Cathodic Protection Systems, Facility 221	Utility
LKTC101009	Maintain Cathodic Protection Systems, Facility 225	Utility
LKTC101010	Maintain Cathodic Protection Systems, Facility 1001	Utility
LKTC101012	Local Facility Energy Audit	Utility
LKTC101014	Install Cardboard Bailer, Building 96	Facility
LKTC101022	Construct 432 Wing STAN/EVAL Facility	Facility
LKTC101025	Construct Volleyball and Basketball Courts, and Horseshoe Pit	Recreation
LKTC101031	Maintain Runway 08L/26R Paint, Facility 58118	Airfield
LKTC101032	Maintain Airfield Apron Marking Paint, Facility 631	Airfield
LKTC101033	Maintain Taxiway Marking Paint, Facility 649	Airfield
LKTC101034	Repair BAK-12 TO BAK-14 AAS (West Barrier)	Airfield
LKTC101035	Repair Creech AFB Perimeter Fence	Security
LKTC101036	Construct Parking Lot UAS JCOE, Buildings 55 and 56	Road/Parking
LKTC101042	Utility Study, Creech AFB	Utility
LKTC111001	Sustainable Infrastructure Assessment	Utility
LKTC111002	Construct Aircraft Power Check Pad	Airfield

Table A-7. O&M Construction Projects		
Project Number	**Project Title**	**Infrastructure Type**
LKTC111003	Map Above and Below Ground Utilities	Utility
LKTC111004	Survey West Room For OSSA, Building 64	Facility
LKTC111007	Install Backflow Prevention Devices, Various Locations	Utility
LKTC111008	Install Fire Suppress and Alarm Systems, Control Tower Building 93	Facility
LKTC111012	Install Power Upgrades and Air Conditioning, Building 707	Utility
LKTC111014	Renovate Interior, Building 1005	Facility
LKTC111015	Alter Rm 106 To SCIF, Building 703	Facility
LKTC111018	Construct Concrete Pads W/Grounding Points, Runway 08/26	Airfield
LKTC111020	Repair Water Storage Tank SCADA System, Building 1011	Utility
LKTC111024	Install Taxiway Edge Lights, Bravo North	Airfield
LKTC111028	Construct GCTS Laundry Facility	Facility
LKTC111040	Repair Rm 138 To OSSA Standards, Building 707	Facility
LKTC111041	Install Taxiway Edgelights, Fighter LOLA	Airfield
LKTC111042A	Construct Addition to SSO and IFTU, Building 12	Facility
LKTC111042B	Repair SSO and IFTU, Building 12	Facility
LKTC111054	Construct Connection Shower/Shave Facility to Fitness Center	Facility
LKTC111057	Construct RPA Secure Area Lighting	Facility
LKTC111062	Construct 2 (25)K Gallon Diesel Storage Tank	Facility
LKTC121001	Install Two Electrical Circuits, Building 1000 Perimeter Road	Utility
LKTC121002	Construct 99 CS/OL-A Storage Warehouse	Facility
LKTC121008	Renovate Interior, Building 231	Facility
LKTC121009	Replace Diesel Boiler, Building 707	Facility
LKTC121011	Maintain Landscaping, Hunter's Road Roundabout	Facility
LKTC121013	Repair Rooms For GCS Installation, Building 1005	Facility
LKTC121025	Upgrade Electrical System, Fuel Yard and Service Station	Utility
LKTC121026	Repair Age JP-8 Fuel Dispenser Piping and Bollards	Utility
LKTC121027	Repair Fuels Compound Lighting System	Utility
LKTC121028	Repair Bulk Fuel Storage Area Pipe Supports and Expansion Loops	Utility
LKTC121029	Repair Pressure Relief System On JP-8 Hydrant System	Utility
LKTC121030	Install Fence Cabling System, East and North Fencelines	Security
LKTC121031	Construct Tank Truck Unloading Stand RTB Equipment	Facility
LKTC121032	Repair 432 OG Theater Room, Building 1000	Facility
LKTC121034	Construct Brick Storage Enclosure, Building 1005	Facility
LKTC121036	Construct Security Fence, Various 1000 Series Facilities	Security
LKTC121037	Construct Perimeter Fence Around 1000 Series Building Area	Security
LKTC121038A	Demolish Flightline Facilities, Building 80, 81, 82, and 95	Facility
LKTC121038B	Construct Combined Base Ops and Weather Facility (Red Horse)	Facility
LKTC121041	Install Backup Generator, 432 WG HQ Building 1065	Utility
LKTC121042	Install Backup Generator For NOC, Building 1004	Utility
LKTC121045	Construct Flightline Entry Gates	Security
LKTC121046	Repair Chilled Water and Propane Gas Lines Buildings1000/1001/1003	Facility
LKTC121048	Repair Structural Damage, GCS Building 1005	Facility
LKTC121049	Construct Range Rd Automated Entry	Security
LKTC121050	Construct Flightline Perimeter Fence	Security
LKTC121051	Repair Facility for RPA Training, Building 707	Facility
LKTC121052	Construct Box Canyon Electronic Vehicle Gate	Security
LKTC121053	Install Grounding for Comm Equipment, Various Fac	Utility
LKTC121054	Upgrade Electr/Mech Systems for GCS Expansion, Building 718	Utility
LKTC121057	Construct Parking Lots at Northside Area	Road/Parking
LKTC121058	Construct Perimeter Fence, Creech Leased Land	Security

Table A-7. O&M Construction Projects		
Project Number	**Project Title**	**Infrastructure Type**
LKTC121060	Construct 42 ATKS Administrative Facility	Facility
LKTC121064	Repair SOC, 42 ATKS Building 1022	Facility
LKTC121066	Upgrade BAK-14 AAS at East Barrier	Airfield
LKTC121068	Construct 99 CS Storage Facility	Facility
LKTC121069	Construct 99 CS Administrative Facility	Facility
LKTC121073	Construct Outdoor Basketball Court	Recreation
LKTC131005	Repair Electrical Service, Building 71	Facility
LKTC131006	Construct 2nd Floor Observation Deck, Building 1000	Road/Parking
LKTC131007	Install Emergency Mass Notification PA System, Building 1000 and 1004	Facility
LKTC131008	Construct Final Denial Barrier, Former Creech Main Gate	Road/Parking
LKTC131009	Repair CE Compound Entry/Exit Gates	Facility
LKTC131010	Construct East Gate Visitor Center	Facility
LKTC131011	Construct Various Parking Lots, 1000 Series Buildings	Road/Parking
LKTC131014	Repair Fire Alarm/Detection System, Building 14	Facility
LKTC131015	Renovate Interior, 11 RS Building 707	Facility
LKTC131016	Repair Chilled Water and Propane Gas Lines, Building 1000/1003	Facility
LKTC131017	Renovate Interior Building 271 For 99 ABG Standup	Security
LKTC131018	Repair Fire Alarm/Detection System, Building 12	Facility
LKTC131019	Repair Electrical Systems, Fuel Storage Yard and Service Station	Utility
LKTC131020	Repair Airfield Headwall (Airfield Violation)	Facility
LKTC131021	Construct 78 ATKS Administrative Facility	Facility
LKTC131022	Construct 91 ATKS Administrative Facility	Facility
LKTC131023	Demolish Building 400 and 404	Facility
LKTC131025	Repair HVAC and Chiller Units, Building 1000	Utility
LKTC131026	Construct North Gate Electronic Vehicle Gate	Facility
LKTC131028	Construct RPA Parking Lot	Facility
LKTC131029	Construct GCS Pads, 42 ATKS	Demolition
LKTC131032	Demolish Airfield Support Facilities 80, 81, 82, 86, and 95	Demolition
LKTC 13-1033	Construct Addition Vehicle Maintenance Facility	Demolition
LKTC 13-1035	Construct Security Fence/Lights	Airfield
LKTC 13-1036	Construct Communications Mission Command Post	Airfield
LKTC 13-1037	Construct 42 ATKS Combat Support Facility	Utility
LKTC 13-1038	Construct 42 ATKS Fixed GCS Operations Facility	Security
LKTC141004	Construct Secondary Power For 30 RS Relocation, Building 1009	Utility
LKTC141005	Install Backup Generator and Upgrade to SCIF Standards, Building 119	Facility
LKTC141006	Install Anti-Vehicle Boulders, 1000 Series Buildings	Utility
LKTC141007	Repair Asphalt Shoulders at Taxiway Foxtrot Fighter LOLA	Airfield
LKTC141008	Install Backup Generator, Supply Warehouse Building 52	Airfield
LKTC141009	Install Backup Generator, Supply Warehouse Building 1013	Facility
LKTC141010	Install Backup Generator, Supply Warehouse Building 1012	Facility
LKTC141011	Repair Heat Pumps and HVAC Controls, Building 91	Airfield
LKTC141013	Construct Non-Destructive Testing Facility	Recreation
LKTC141014	Install Backup Generators, Creech Fuels Yard (FAC 661)	Security
LKTC141015	Install Permanent Eyewash/Shower Station Building 256	Facility
LKTC141016	Install Lightning Protection, ESPN Trailer Pad 10132	Utility
LKTC141017	Install Additional Power Outlets, Rm 109 Building 119	Facility
LKTC141018	Repair Interior Walls, 53 TMG Building 14	Utility
LKTC141019	Repair Communications Equipment Support Structure, Building 12	Utility
LKTC141020	Install Fence Keypad Entry System, Building 1038	Energy
LKTC141021	Install Security Aspects, Building 1012	Utility

Table A-7. O&M Construction Projects		
Project Number	**Project Title**	**Infrastructure Type**
LKTC141022	Replace Duct Detectors, Building 143	Airfield
LKTC141023	Install Fire Suppress and Alarm Systems, Vehicle Maintenance Building 225	Facility
LKTC141024	Repair Building 273 To Meet AFOSI Standards	Facility
LKTC141026	Install Fire Suppress and Alarm System Building 6, 7, and 8	Airfield
LKTC141027	Reinforce Fenceline at Casino	Airfield
LKTC141028	Install A/C Building 1109 Communication Closet	Road/Parking
LKTC141029	Repair Fire Alarm System, Building 2	Airfield
LKTC141030	Construct Drainage Culverts Along Road	Utility
LKTC141031	Replace Heat Pump, Building 234	Utility
LKTC141033	Replace HVAC Filters/Grills, 99 GCTS Billeting Building 24	Utility
LKTC141034	Construct Parking Lot Lighting (Lots 1, 2, 3)	Utility
LKTC141036	Design/Repair Fuel System For AGE Yard, Building 1011	Utility
LKTC141037	Repair LOLA Road Washout	Road/Parking
LKTC141038	Repair Roof, Insulation For NOC and Ventilation System, Building 1004	Facility
LKTC141039	Replace Road 90 Degree Turn at Munitions Suspect Holding Area	Road/Parking
LKTC141040	Maintain Floor, Hangar 1003	Facility
LKTC 14-1042	Repair Lift Station	Utility
LKTC 15-1004	Repair Fuel Cell Hangar 1009	Facility

ACRONYMS USED

AAS	Aircraft Arresting System
ABG	Air Base Group
A/C	Air Conditioning
AFOSI	Air Force Office of Special Investigations
AGE	Aerospace Ground Equipment
AT/FP	Antiterrorism Force Protection
ATKS	Attack Squadron
BAK	Barrier Arresting Kit
BCAMP	Base Comprehensive Asset Management Plan
CE	Civil Engineering
CIP	Captial Improvements Program
CS	Communications Squadron
CSAR	Combat Search and Rescue
FAC	Facility
FTD	Flight Training Device
FTI	Flight Test Instrumentation
GCS	Ground Control Station
GCTS	Ground Combat Training Squadron
GSHP	Ground Source Heat Pump
HVAC	Heating, Ventilation, and Air Conditioning
JCOE	Joint Center of Excellence
LEED	Leadership in Energy and Environmental Design
LOLA	Live Ordnance Loading Area
MPF	Military Personnel Flight
MRSP	Mobility Readiness Spare Package
MSA	Munitions Storage Area
MUNS	Munitions Squadron
MX	Maintenance
MXG	Maintenance Group
NATCF	Nellis Air Traffic Control Facility
NOC	Network Operations Center
O/H	Overhead
OSSA	Open Storage Secure Area
PA	Publis Address
POL	Petroleum, Oil, and Lubricants
POS	Pre_Operational Support
PT	Physical Training
RHS	RED HORSE Squadron
RPA	Remotely Piloted Aircraft
RS	Reconnaissance Squadron
RV	Recreational Vehicle
SCADA	System Control and Data Acquisition
SCIF	Sensitive/Secure Compartmentalized Information Facility
STAN/EVAL	Standardization/Evaluation
TMG	Tactical Missile Group
TWXY	Taxiway
UAS	Unmanned Aerial Systems
USAFWC	United States Air Force Warfare Center
UST	Underground Storage Tank
VAQ	Visiting Airmen's Quarters
VM	Vehicle Maintenance
WSA	Weapons Storage Area

APPENDIX B

AIR QUALITY ANALYSIS

APPENDIX B

AIR QUALITY ANALYSIS

Air Quality Standards

As described in Section 3.7, Air Quality in a given location is described by the concentration of various pollutants in the atmosphere. The significance of the pollutant concentration is determined by comparing it to the federal and state ambient air quality standards. These standards (Table B-1) represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety. The Nevada Division of Environmental Protection, Bureau of Air Pollution Control has adopted the NAAQS, with the exceptions of an additional 8-hour CO standard specific to elevations greater than 5,000 feet above mean seal level and a 1-hour standard for hydrogen sulfide (H2S). The state ambient air quality standards are summarized in Table B-1 along with the Federal standards.

Because Creech AFB has not determined the exact projects to be undertaken, the order in which they would occur, or when they would occur, the exact emissions from any given project during any year is impossible to calculate. Therefore, a more programmatic approach has been developed to identify the amount of land disturbance that could occur at Creech AFB during one year for light and heavy construction projects. To determine the amount of construction and demolition activities generating emissions that would meet these scenarios, the following factors were considered: contributions from engine exhaust emissions (i.e., construction equipment, material handling, and transportation), fugitive dust emissions (e.g., from digging and grading activities) and emissions from vehicles needed for transport of demolition debris offsite.

Emissions from construction worker personally owned vehicles (POVs) have also been included in the total calculated emissions. The following worksheets were developed to estimate emissions from two scenarios:

Scenario 1: demolition of 1 acre of land, including materials associated with the demolition of a 2,000 square foot, 2-story concrete building, debris removal, and site preparation; the construction portion of this scenario involved site disturbance of 3 acres to include construction of a 30,000 square-foot concrete maintenance shop with a 100,000 square-foot parking area; and

Scenario 2: combined demolition and construction acreage was increased to 13, and the sizes of the buildings and parking lots to be demolished and constructed were tripled from those used in Scenario 1.

The emissions factors and assumptions are provided in the following worksheets. In conclusion, Nellis AFB will use this worksheet to estimate the potential emissions from projects at the base during a given year in determine air pollution emissions.

Table B-1. State and National Ambient Air Quality Standards

	Nevada Standards		*National Standards*	
	AVERAGING TIME	CONCENTRATION	PRIMARY	SECONDARY
Ozone	1 Hour	0.12 ppm (235 µg/m^3)	None	None
Ozone	8 Hours	None	0.075 ppm	Same as Primary
Carbon Monoxide less than 5,000 ft above MSL	8 Hours	9.0 ppm (10,500 µg/m^3)	9.0 ppm	None
Carbon Monoxide at or greater than 5,000 ft above MSL	8 Hours	6.0 ppm (7,000 µg/m^3)	9.0 ppm	
Carbon Monoxide at any elevation	1 Hour	35 ppm (40,500 µg/m^3)	35 ppm	
Nitrogen Dioxide	1 Hour	None	100 ppb	None
Nitrogen Dioxide	Annual Mean	0.053 ppm (100 µg/m^3)	53 ppb	Same as Primary
Sulfur Dioxide	1 Hour	0.03 ppm (80 µg/m^3)	75 ppb	None
	3 Hour	0.14 ppm (365 µg/m^3)		0.5 ppm
Particulate Matter as PM10	Annual Arithmetic Mean	50 µg/m^3	None	None
	24 Hours	150 µg/m^3	150 µg/m^3	Same as Primary
[1]Particulate Matter as PM2.5	Annual	None	12 µg/m^3	15 µg/m^3
	24 Hours	None	35 µg/m^3	Same as Primary
Lead (Pb)	Rolling 3 month average	1.5 µg/m^3	0.15 µg/m^3	Same as Primary
[2]Hydrogen Sulfide (H_2S)	1 Hour	0.08 ppm (112 µg/m^3)		

Notes:
(a) µg/m^{3}means micrograms per cubic meter.
(b) ppm means part per million by volume.
[1]Published December 14, 2012. EPA anticipates making initial attainment/nonattainment designations by December 2014, with those designations likely becoming effective in early 2015.
[2] The ambient air quality standard for hydrogen sulfide does not include naturally occurring background concentrations.

Sources:
Nevada Division t of Environmental Protection, 2010. Accessed at http://ndep.nv.gov/baqp/monitoring/aaqstd.html
USEPA, 2012. Accessed at http://www.epa.gov/air/criteria.html

Department of Air Quality & Environmental Management

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Alan Pinkerton, Deputy Director • Lewis Wallenmeyer, Acting Director

February 12, 2008

Bruce W. MacDonald, P.E.
Department of the Air Force
Headquarters Air Combat Command
Langley AFB VA, 23665

Re: F-35 Beddown at Nellis AFB

Dear Mr. MacDonald:

The Clark County Department of Air Quality and Environmental Management (DAQEM) is in receipt of your letter dated January 16, 2008 with regard to Headquarters Air Combat Command's request that our agency include nitrogen oxide (NO_X) emissions from the planned F-35 Beddown at Nellis AFB in the Ozone State Implementation Plan for Clark County.

Before Air Force staff met with DAQEM regarding this request, DAQEM had already completed the ozone modeling analysis for the nonattainment area in Clark County, which includes the majority of Nellis AFB. Emissions from the proposed F-35 Beddown were therefore not included in that analysis. After reviewing the proposed emissions detailed in the letter of request, DAQEM is confident that the emissions can be incorporated in the SIP.

The ozone modeling was extensive, and at this time DAQEM is not intending to remodel. DAQEM is, however, committed to incorporating discussion of the emissions from the Nellis expansion and explain how such emissions would have little impact on the nonattainment area. DAQEM believes this should be satisfactory to EPA. If EPA requests a formal modeling reanalysis, DAQEM would accommodate that request.

It is important to note, however, that EPA is scheduled to promulgate a new ozone standard in March 2008, and issue reclassifications of the current 8-hour ozone standard in 2009. DAQEM does not know at this time how those actions may impact the County's attainment demonstration. DAQEM staff is meeting with EPA Region 9 later this month to discuss these issues, but it is anticipated that only preliminary information will be obtained.

DAQEM is committed to working with the Air Force as is within the agency's means and within EPA direction. DAQEM will contact and coordinate with your staff if concerns arise.

Please contact me if you have any questions.

Sincerely,

Stephen Deyo

Stephen Deyo
Assistant Planning Manager, DAQEM

cc: Sheryl K. Parker, Langley AFB
Shimi Mathew, Nellis AFB
Dennis Ransel, DAQEM

TAB A. CONSTRUCTION EMISSIONS - SCENARIO 1
Small/Medium Demolition and Construction Effort, Creech Air Force Base

	Basic Conversions
453.59	grams per pound
43,560	Conversion from Acre to SF
0.03704	Cubic feet to Cubic Yards
0.1111	Square Feet to Square Yards
1.4	tons/CY for Gravel
80,000	lbs/Truck Load for Delivery
1.66	CY for each CY of asphalt/concrete demo
0.333333333	asphalt thickness for demolition
0.333333333	asphalt thickness for pavement
2000	pounds per ton
145	lb/ft^3 density of Hot Mix Asphalt

Table 1. Building Demolition - 2013

2,000 SF 100 Estimated CY of debris based on 20 SF/CY

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Hydraulic excavator with breakers and jackhammer bits	17	86	0.59	0.45	3.84	4.70	0.13	0.45	0.43	594.79	0.84	7.16	8.76	0.24	0.83	0.81	1,109
Wheel Loader w/ integral Backhoe	17	87	0.23	1.43	7.35	6.35	0.15	1.06	1.03	691.66	1.05	5.40	4.67	0.11	0.78	0.76	509
Wheel mounted air compressor	17	49	0.43	0.33	2.54	4.53	0.13	0.54	0.53	595.16	0.25	1.97	3.51	0.10	0.42	0.41	461
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2]** lb/mile	**CO[2]** lb/mile	**NOx[2]** lb/mile	**SO_2[2]** lb/mile	**PM10[2]** lb/mile	**PM2.5[2]** lb/mile	**CO_2[2]** lb/mile	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Dump Truck (12 CY Capacity)	9	230	27	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	0.41	2.14	9.81	0.00	0.42	0.41	846
										Subtotal (lbs):	**3**	**17**	**27**	**0**	**2**	**2**	**2,924**

Table 2. Demo Asphalt/Concrete- 2013

50,000 SF 1,025 CY

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
D-6K Crawler Dozer with attachments	121	125	0.58	0.34	1.21	4.08	0.12	0.23	0.22	536	6.65	23.34	78.89	2.23	4.37	4.24	10,359
Wheel mounted air compressor	121	49	0.59	0.33	2.54	4.53	0.13	0.54	0.53	595	2.53	19.59	34.90	0.99	4.18	4.05	4,588
Pneumatic Paving Breaker and jackhammer on excavator (CAT 345D L or similar)	42	380	0.59	0.31	2.50	4.51	0.13	0.55	0.54	595	6.43	51.42	92.82	2.64	11.37	11.03	12,258
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2]** lb/mile	**CO[2]** lb/mile	**NOx[2]** lb/mile	**SO_2[2]** lb/mile	**PM10[2]** lb/mile	**PM2.5[2]** lb/mile	**CO_2[2]** lb/mile	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Dump Truck	94	230	27	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	4.25	21.98	100.48	0.05	4.33	4.21	8,666
										Subtotal (lbs):	**20**	**94**	**207**	**6**	**20**	**19**	**27,206**

Table 3. Site Prep for Building Construction - 2013

Grading (SY) 30,000 SF Convert 3,333 SY Assume compact 0.5 feet (0.166 yards) 556 CY compacted

Off-road Equipment	Cumulative Hours of Operation[1]	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Excavator	0	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	535.79	0.00	0.00	0.00	0.00	0.00	0.00	0
Skid Steer Loader	0	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	535.67	0.00	0.00	0.00	0.00	0.00	0.00	0
Grader	25	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	535.79	3.09	10.87	36.62	1.04	2.03	1.97	4,821
Backhoe	0	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	535.77	0.00	0.00	0.00	0.00	0.00	0.00	0
On-road Equipment	**Cumulative Hours of Operation[1]**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2]** lb/mile	**CO[2]** lb/mile	**NOx[2]** lb/mile	**SO_2[2]** lb/mile	**PM10[2]** lb/mile	**PM2.5[2]** lb/mile	**CO_2[2]** lb/mile	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Dump Truck (12 CY capacity)	0	230	16	0.00165950	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0
Delivery Truck	0	365	45	0.00165950	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0
										Subtotal (lbs):	**3**	**11**	**37**	**1**	**2**	**2**	**4,821**

Table 4. Building Construction- Structure - 2013

30,000 SF

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Crane	1,140	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530	118.19	586.63	2530.18	54.87	99.92	96.93	255,096
Concrete truck	150	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536	8.00	62.05	184.32	4.92	8.96	8.69	22,877
Diesel Generator (Assume 5 generators at 40 HP each)	120	200	0.43	0.33	2.54	4.53	0.13	0.54	0.53	595	7.46	57.82	103.01	2.91	12.33	11.96	13,541

On-road Equipment	Cumulative Hours of Operation	Engine HP	Productivity based Speed (miles/hour)	VOC[2] lb/mile	CO[2] lb/mile	NOx[2] lb/mile	SO_2[2] lb/mile	PM10[2] lb/mile	PM2.5[2] lb/mile	CO_2[2] lb/mile	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Diesel Pickup Truck	11	400	30	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	0.54	2.78	12.71	0.01	0.55	0.53	1,096
Delivery Truck	720	365	60	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	71.69	370.63	1694.32	0.79	73.05	70.94	146,121
										Subtotal (lbs):	**206**	**1080**	**4525**	**64**	**195**	**189**	**438,731**

Table 5. Concrete Work - Foundation and Sidewalks - 2013

Foundation Work 1,111 CY
Total 1,111 CY

Note: Assume all excavated soil is accounted for in Excavate/Fill and Trenching

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Concrete Mixer (3 mixers total to one tr	59	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588	0.13	0.59	1.20	0.02	0.10	0.10	114
Concrete Truck	106	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530	11.42	52.54	186.06	3.43	8.09	7.84	15,947
										Subtotal (lbs):	**12**	**53**	**187**	**3**	**8**	**8**	**16,061**

Table 6. Gravel Work for Building Construction - 2013

741 CY

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	7	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536	0.61	2.15	7.27	0.21	0.40	0.39	955
Wheel Loader for Spreading	9	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536	0.37	1.31	4.44	0.12	0.25	0.24	561
Compactor	5	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536	0.19	0.72	2.39	0.06	0.14	0.13	287
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2] lb/mile**	**CO[2] lb/mile**	**NOx[2] lb/mile**	**SO_2[2] lb/mile**	**PM10[2] lb/mile**	**PM2.5[2] lb/mile**	**CO_2[2] lb/mile**	**VOC lb**	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
Dump Truck (gravel delivery)	96	230	26	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	4.10	21.18	96.84	0.04	4.18	4.05	8,352
										Subtotal (lbs):	**5**	**25**	**111**	**0**	**5**	**5**	**10,155**

Table 7. Site Prep for Parking Area- 2013

Grading (SY) 100,680 SF Convert 11,186 SY Assume compact 0.5 feet (0.166 yards) 1,864 CY compacted

Off-road Equipment	Cumulative Hours of Operation[1]	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Excavator	0	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	535.79	0.00	0.00	0.00	0.00	0.00	0.00	0
Skid Steer Loader	0	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	535.67	0.00	0.00	0.00	0.00	0.00	0.00	0
Grader	83	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	535.79	10.38	36.47	122.90	3.48	6.81	6.61	16,178
Backhoe	0	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	535.77	0.00	0.00	0.00	0.00	0.00	0.00	0
On-road Equipment	**Cumulative Hours of Operation[1]**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2] lb/mile**	**CO[2] lb/mile**	**NOx[2] lb/mile**	**SO_2[2] lb/mile**	**PM10[2] lb/mile**	**PM2.5[2] lb/mile**	**CO_2[2] lb/mile**	**VOC lb**	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
Dump Truck (12 CY capacity)	0	230	16	0.00165950	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0
Delivery Truck	0	365	45	0.00165950	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0
										Subtotal (lbs):	**10**	**36**	**123**	**3**	**7**	**7**	**16,178**

Table 8. Paving Surface and Paving HMA - 2013

Pavement - Surface Area 100,000 SF 1,235 CY
Paving - HMA 33,333 CF

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Grader	306	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536	21.74	81.57	240.36	6.66	17.08	16.57	30,942
Steel drum roller/vibratory roller	613	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536	109.05	786.80	1,768.26	36.82	108.20	104.96	171,175
Paving Machine	613	164	0.59	0.38	1.44	4.25	0.12	0.30	0.29	536	49.65	188.48	555.58	15.06	39.20	38.02	69,991
Asphalt Curbing Machine	61	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536	4.09	16.26	47.29	1.19	3.31	3.21	5,548
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2] lb/mile**	**CO[2] lb/mile**	**NOx[2] lb/mile**	**SO_2[2] lb/mile**	**PM10[2] lb/mile**	**PM2.5[2] lb/mile**	**CO_2[2] lb/mile**	**VOC lb**	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
Dump Truck	739	230	17	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	20.49	105.93	484.24	0.22	20.88	20.27	41,762
Water Truck	980	230	10	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	16.26	84.08	384.36	0.18	16.57	16.09	33,148
Hot Mix Asphalt (HMA)	**Volume of HMA (ft^3)**	**Weight of HMA (tons)**		**VOC[3] lb/ton of asphalt**	**CO lb/ton of asphalt**	**Nox lb/ton of asphalt**	**SO_2 lb/ton of asphalt**	**PM10 lb/ton of asphalt**	**PM2.5 lb/ton of asphalt**	**CO_2 lb/ton of aspha**	**VOC lb**	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
Standard Hot Mix Asphalt	33,333	2,417		0.04	-	-	-	-	-	-	96.67	-	-	-	-	-	-
										Subtotal (lbs):	**318**	**1,263**	**3,480**	**60**	**205**	**199**	**352,565**

Table 9. Gravel Work for Parking Area - 2013

1,235 CY

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	12	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536	1.02	3.59	12.12	0.34	0.67	0.65	1,592
Wheel Loader for Spreading	15	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536	0.61	2.18	7.39	0.20	0.42	0.40	936
Compactor	9	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536	0.32	1.20	3.98	0.10	0.23	0.22	478
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2]** lb/mile	**CO[2]** lb/mile	**NOx[2]** lb/mile	**SO_2[2]** lb/mile	**PM10[2]** lb/mile	**PM2.5[2]** lb/mile	**CO_2[2]** lb/mile	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Dump Truck (gravel delivery)	159	230	26	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	6.83	35.31	161.40	0.07	6.96	6.76	13,919
										Subtotal (lbs):	**9**	**42**	**185**	**1**	**8**	**8**	**16,925**

[1]US EPA NONROAD2008a Model
[2]MOVES (Motor Vehicle Emission Simulator) 2010

Table 10. Fugitive Dust for Demolition and Construction Projects

Year	PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
2013	0.42	4	240	20.2	0.1	2.0

Table 11. Annual Construction Worker POVs 2013 ([1]while onsite)

50 construction workers

Vehicles	# vehicles	# days	[1]mi/day	[2]VOCs lb/mi	[2]CO lb/mi	[2]NOx lb/mi	[2]SO_2 lb/mi	[2]PM_{10} lb/mi	[2]$PM_{2.5}$ lb/mi	[3]CO_2 g/mi	[3]CH_4 g/mi	[3]N_2O g/mi	VOCs lb	CO lb	NOx lb	SO_2 lb	PM_{10} lb	$PM_{2.5}$ lb	CO_2 g	CH_4 g	N_2O g
passenger vehicles	125	240	4	0.00011658	0.01381833	0.00081832	0.00000618	0.00006769	0.00006138	182.00	0.02	0.02	13.99	1658.20	98.20	0.74	8.12	7.37	21,840,000	1,920	1,920
												Tons per Year	**0.01**	**0.83**	**0.05**	**0.00**	**0.00**	**0.00**			
												Metric Tons per Year							**22**	**0.00**	**0.00**
																		CO2e in metric tons/year		**22**	

[1]Construction worker vehicle emissions based on driving onsite (lunch, breaks, ingress, egress).
[2] Emission factors from MOVES2010
[3]Emission Factors from *Federal Greenhouse Gas Accounting and Reporting Guidance: Technical Support Document* (CEQ. 2010), Table D-11

Table 12. Scenario 1 Summary

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM10 T/yr	PM2.5 T/yr	CO_2e MT/yr
0.30	**2.14**	**4.49**	**0.07**	**20.39**	**2.24**	**424**

TAB B. CONSTRUCTION EMISSIONS - SCENARIO 2
Large Demolition and Construction Effort, Creech Air Force Base

	Basic Conversions
453.59	grams per pound
43,560	Conversion from Acre to SF
0.03704	Cubic feet to Cubic Yards
0.1111	Square Feet to Square Yards
1.4	tons/CY for Gravel
80,000	lbs/Truck Load for Delivery
1.66	CY for each CY of asphalt/concrete demo
0.333333333	asphalt thickness for demolition
0.333333333	asphalt thickness for pavement
2000	pounds per ton
145	lb/ft^3 density of Hot Mix Asphalt

Table 1. Building Demolition - 2013

6,000 SF 300 Estimated CY of debris based on 20 SF/CY

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Hydraulic excavator with breakers and jackhammer bits	50	86	0.59	0.45	3.84	4.70	0.13	0.45	0.43	594.79	2.52	21.48	26.29	0.72	2.50	2.42	3,327
Wheel Loader w/ integral Backhoe	50	87	0.23	1.43	7.35	6.35	0.15	1.06	1.03	691.66	3.16	16.21	14.00	0.33	2.35	2.27	1,526
Wheel mounted air compressor	50	49	0.43	0.33	2.54	4.53	0.13	0.54	0.53	595.16	0.76	5.90	10.52	0.30	1.26	1.22	1,382
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2] lb/mile**	**CO[2] lb/mile**	**NOx[2] lb/mile**	**SO_2[2] lb/mile**	**PM10[2] lb/mile**	**PM2.5[2] lb/mile**	**CO_2[2] lb/mile**	**VOC lb**	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
Dump Truck (12 CY Capacity)	28	230	27	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	1.24	6.43	29.42	0.01	1.27	1.23	2,537
										Subtotal (lbs):	**8**	**50**	**80**	**1**	**7**	**7**	**8,772**

Table 2. Demo Asphalt/Concrete- 2013

150,000 SF 3,074 CY

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
D-6K Crawler Dozer with attachments	363	125	0.58	0.34	1.21	4.08	0.12	0.23	0.22	536	19.94	70.03	236.66	6.68	13.11	12.72	31,076
Wheel mounted air compressor	363	49	0.59	0.33	2.54	4.53	0.13	0.54	0.53	595	7.58	58.78	104.71	2.96	12.53	12.16	13,765
Pneumatic Paving Breaker and jackhammer on excavator (CAT 345D L or similar)	125	380	0.59	0.31	2.50	4.51	0.13	0.55	0.54	595	19.29	154.27	278.45	7.91	34.10	33.08	36,775
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2] lb/mile**	**CO[2] lb/mile**	**NOx[2] lb/mile**	**SO_2[2] lb/mile**	**PM10[2] lb/mile**	**PM2.5[2] lb/mile**	**CO_2[2] lb/mile**	**VOC lb**	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
Dump Truck	282	230	27	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	12.75	65.94	301.44	0.14	13.00	12.62	25,997
										Subtotal (lbs):	**60**	**283**	**620**	**18**	**60**	**58**	**81,617**

Table 3. Site Prep for Building Construction - 2013

Grading (SY) 90,000 SF Convert 9,999 SY Assume compact 0.5 feet (0.166 yards) 1,667 CY compacted

Off-road Equipment	Cumulative Hours of Operation[1]	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Excavator	0	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	535.79	0.00	0.00	0.00	0.00	0.00	0.00	0
Skid Steer Loader	0	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	535.67	0.00	0.00	0.00	0.00	0.00	0.00	0
Grader	74	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	535.79	9.28	32.60	109.86	3.11	6.09	5.91	14,462
Backhoe	0	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	535.77	0.00	0.00	0.00	0.00	0.00	0.00	0
On-road Equipment	**Cumulative Hours of Operation[1]**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2] lb/mile**	**CO[2] lb/mile**	**NOx[2] lb/mile**	**SO_2[2] lb/mile**	**PM10[2] lb/mile**	**PM2.5[2] lb/mile**	**CO_2[2] lb/mile**	**VOC lb**	**CO lb**	**NOx lb**	**SO2 lb**	**PM10 lb**	**PM2.5 lb**	**CO_2 lb**
Dump Truck (12 CY capacity)	0	230	16	0.00165950	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0
Delivery Truck	0	365	45	0.00165950	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0
										Subtotal (lbs):	**9**	**33**	**110**	**3**	**6**	**6**	**14,462**

Table 4. Building Construction- Structure - 2013

90,000 SF

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Crane	3,420	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530	354.58	1759.90	7590.54	164.62	299.77	290.78	765,288
Concrete truck	450	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536	24.01	186.15	552.96	14.76	26.88	26.08	68,630

Diesel Generator for on-site power tools and office support (Assume 5 generators at 40 HP each)	360	200	0.43	0.33	2.54	4.53	0.13	0.54	0.53	595	22.37	173.46	309.02	8.74	36.99	35.88	40,623
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2]** lb/mile	**CO[2]** lb/mile	**NOx[2]** lb/mile	**SO_2[2]** lb/mile	**PM10[2]** lb/mile	**PM2.5[2]** lb/mile	**CO_2[2]** lb/mile	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Diesel Pickup Truck	32	400	30	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	1.61	8.34	38.12	0.02	1.64	1.60	3,288
Delivery Truck	2,160	365	60	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	215.07	1111.89	5082.97	2.36	219.16	212.82	438,364
										Subtotal (lbs):	**618**	**3240**	**13574**	**191**	**584**	**567**	**1,316,193**

Table 5. Concrete Work - Foundation and Sidewalks - 2013

Foundation Work 90,000 CY
Total 90,000 CY

Note: Assume all excavated soil is accounted for in Excavate/Fill and Trenching

Off-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Load Factor**	**VOC[1]** g/hp-hr	**CO[1]** g/hp-hr	**NOx[1]** g/hp-hr	**SO_2[1]** g/hp-hr	**PM10[1]** g/hp-hr	**PM2.5[1]** g/hp-hr	**CO_2[1]** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Concrete Mixer (3 mixers total to one tr	4,739	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588	10.81	47.87	97.05	1.99	8.50	8.24	9,251
Concrete Truck	8,571	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530	925.26	4,255.61	15,070.85	277.86	655.01	635.36	1,291,718
										Subtotal (lbs):	**936**	**4,303**	**15,168**	**280**	**664**	**644**	**1,300,969**

Table 6. Gravel Work for Building Construction - 2013

2,222 CY

Off-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Load Factor**	**VOC[1]** g/hp-hr	**CO[1]** g/hp-hr	**NOx[1]** g/hp-hr	**SO_2[1]** g/hp-hr	**PM10[1]** g/hp-hr	**PM2.5[1]** g/hp-hr	**CO_2[1]** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Dozer	22	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536	1.84	6.46	21.82	0.62	1.21	1.17	2,865
Wheel Loader for Spreading	28	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536	1.10	3.92	13.31	0.36	0.75	0.73	1,684
Compactor	16	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536	0.58	2.15	7.16	0.19	0.41	0.40	861
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2]** lb/mile	**CO[2]** lb/mile	**NOx[2]** lb/mile	**SO_2[2]** lb/mile	**PM10[2]** lb/mile	**PM2.5[2]** lb/mile	**CO_2[2]** lb/mile	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Dump Truck (gravel delivery)	287	230	26	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	12.29	63.55	290.52	0.13	12.53	12.16	25,055
										Subtotal (lbs):	**16**	**76**	**333**	**1**	**15**	**14**	**30,465**

Table 7. Site Prep for Parking Area- 2013

Grading (SY) 345,600 SF Convert 38,396 SY Assume compact 0.5 feet (0.166 yards) 6,399 CY compacted

Off-road Equipment	**Cumulative Hours of Operation[1]**	**Engine HP**	**Load Factor**	**VOC[1]** g/hp-hr	**CO[1]** g/hp-hr	**NOx[1]** g/hp-hr	**SO_2[1]** g/hp-hr	**PM10[1]** g/hp-hr	**PM2.5[1]** g/hp-hr	**CO_2[1]** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Excavator	0	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	535.79	0.00	0.00	0.00	0.00	0.00	0.00	0
Skid Steer Loader	0	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	535.67	0.00	0.00	0.00	0.00	0.00	0.00	0
Grader	284	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	535.79	35.63	125.20	421.86	11.95	23.38	22.68	55,534
Backhoe	0	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	535.77	0.00	0.00	0.00	0.00	0.00	0.00	0
On-road Equipment	**Cumulative Hours of Operation[1]**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2]** lb/mile	**CO[2]** lb/mile	**NOx[2]** lb/mile	**SO_2[2]** lb/mile	**PM10[2]** lb/mile	**PM2.5[2]** lb/mile	**CO_2[2]** lb/mile	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Dump Truck (12 CY capacity)	0	230	16	0.00165950	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0
Delivery Truck	0	365	45	0.00165950	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0
										Subtotal (lbs):	**36**	**125**	**422**	**12**	**23**	**23**	**55,534**

Table 8. Paving Surface and Paving HMA - 2013

Pavement - Surface Area 300,000 SF 3,704 CY
Paving - HMA 100,000 CF

Off-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Load Factor**	**VOC[1]** g/hp-hr	**CO[1]** g/hp-hr	**NOx[1]** g/hp-hr	**SO_2[1]** g/hp-hr	**PM10[1]** g/hp-hr	**PM2.5[1]** g/hp-hr	**CO_2[1]** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Grader	919	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536	65.22	244.70	721.08	19.97	51.24	49.70	92,826
Steel drum roller/vibratory roller	1,838	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536	327.16	2,360.41	5,304.79	110.46	324.61	314.87	513,524
Paving Machine	1,838	164	0.59	0.38	1.44	4.25	0.12	0.30	0.29	536	148.95	565.43	1,666.73	45.17	117.59	114.07	209,974
Asphalt Curbing Machine	184	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536	12.28	48.79	141.87	3.58	9.92	9.62	16,643
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2]** lb/mile	**CO[2]** lb/mile	**NOx[2]** lb/mile	**SO_2[2]** lb/mile	**PM10[2]** lb/mile	**PM2.5[2]** lb/mile	**CO_2[2]** lb/mile	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Dump Truck	2,217	230	17	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	61.47	317.78	1,452.72	0.67	62.64	60.82	125,285
Water Truck	2,940	230	10	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	48.79	252.23	1,153.08	0.54	49.72	48.28	99,444
Hot Mix Asphalt (HMA)	**Volume of HMA (ft^3)**	**Weight of HMA (tons)**		**VOC[3]** lb/ton of asphalt	**CO** lb/ton of asphalt	**Nox** lb/ton of asphalt	**SO_2** lb/ton of asphalt	**PM10** lb/ton of asphalt	**PM2.5** lb/ton of asphalt	**CO_2** /ton of aspha	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Standard Hot Mix Asphalt	100,000	7,250		0.04	-	-	-	-	-	-	290.00	-	-	-	-	-	-
										Subtotal (lbs):	**954**	**3,789**	**10,440**	**180**	**616**	**597**	**1,057,695**

Table 9. Gravel Work for Parking Area - 2013

3,704 CY

Off-road Equipment	Cumulative Hours of Operation	Engine HP	Load Factor	VOC[1] g/hp-hr	CO[1] g/hp-hr	NOx[1] g/hp-hr	SO_2[1] g/hp-hr	PM10[1] g/hp-hr	PM2.5[1] g/hp-hr	CO_2[1] g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	37	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536	3.06	10.76	36.36	1.03	2.01	1.95	4,775
Wheel Loader for Spreading	46	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536	1.83	6.54	22.18	0.60	1.25	1.21	2,807
Compactor	27	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536	0.96	3.59	11.93	0.31	0.69	0.67	1,435
On-road Equipment	**Cumulative Hours of Operation**	**Engine HP**	**Productivity based Speed (miles/hour)**	**VOC[2]** lb/mile	**CO[2]** lb/mile	**NOx[2]** lb/mile	**SO_2[2]** lb/mile	**PM10[2]** lb/mile	**PM2.5[2]** lb/mile	**CO_2[2]** lb/mile	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
Dump Truck (gravel delivery)	478	230	26	1.66E-03	8.58E-03	3.92E-02	1.82E-05	1.69E-03	1.64E-03	3	20.49	105.92	484.20	0.22	20.88	20.27	41,758
										Subtotal (lbs):	**26**	**127**	**555**	**2**	**25**	**24**	**50,776**

[1]US EPA NONROAD2008a Model

[2]MOVES (Motor Vehicle Emission Simulator) 2010

Table 10. Fugitive Dust for Demolition and Construction Projects

Year	PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
2013	0.42	13	240	65.5	0.1	6.6

Table 11. Annual Construction Worker POVs 2013 ([1]while onsite)

50 construction workers

Vehicles	# vehicles	# days	[1]mi/day	[2]VOCs lb/mi	[2]CO lb/mi	[2]NOx lb/mi	[2]SO_2 lb/mi	[2]PM_{10} lb/mi	[2]$PM_{2.5}$ lb/mi	[3]CO_2 g/mi	[3]CH_4 g/mi	[3]N_2O g/mi	VOCs lb	CO lb	NOx lb	SO_2 lb	PM_{10} lb	$PM_{2.5}$ lb	CO_2 g	CH_4 g	N_2O g
carpool	0	0	0	0.00011658	0.01381833	0.00081832	0.00000618	0.00006769	0.00006138	182.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
passenger vehicles	375	240	4	0.00011658	0.01381833	0.00081832	0.00000618	0.00006769	0.00006138	182.00	0.02	0.02	41.97	4974.60	294.60	2.22	24.37	22.10	65,520,000	5,760	5,760
												Tons per Year	**0.02**	**2.49**	**0.15**	**0.00**	**0.01**	**0.01**			
												Metric Tons per Year							**66**	**0.01**	**0.01**
																			CO2e in metric tons/year	**67**	

[1]Construction worker vehicle emissions based on driving onsite (lunch, breaks, ingress, egress).

[2] Emission factors from MOVES2010

[3]Emission Factors from *Federal Greenhouse Gas Accounting and Reporting Guidance: Technical Support Document* (CEQ. 2010), Table D-11

Table 12. Scenario 2 Summary

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM10 T/yr	PM2.5 T/yr	CO_2 MT/yr
1.35	**8.50**	**20.80**	**0.35**	**66.53**	**7.53**	**1844**

TAB C. CONSTRUCTION SUMMARY BY PROJECT, CREECH AIR FORCE BASE

Project Name	Scenario	Type (Demolition or Construction)	Task	FootPrint (AC)	Clearing (AC)	Grading (sf)	Demo Bldgs (SF)	Demo asphalt/ concrete (SF)	Site Prep - Excavate/Fill (CY)	Trenching (LF)	Building Construction - Total Size (sf)	Building Construction-foundation footprint (sf)	Number of Stories	Paving - Surface area (SF)	Pavement type, vehicle or aircraft	Paving - HMA (CF)	Sidewalks (sf)	Gravel Work (CY)	Concrete Work - sidewalks, etc (CY)	Concrete Work -foundation (CY)	Additional excavation, please specify type (washrack, sw pond, etc.)
CONSTRUCTION PROJECTS																					
Demolition of Concrete Building	1	Demolition	1	1	N/A	N/A	2,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Demolition of Parking Area	1	Demolition	2	1	N/A	N/A	N/A	50,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Construct Aircraft Concrete Maintenace Shop	1	Construction	3	3	N/A	30,000	N/A	N/A	370		30,000	30,000	1	N/A	N/A	N/A	N/A	741	N/A	1,111	N/A
Construct Parking Area	1	Construction	4	3	N/A	100,680	N/A	N/A	1,243	N/A	N/A	N/A	N/A	100,000	vehicle	33,333	N/A	1,235	N/A	N/A	N/A
Demolition of Concrete Building	2	Demolition	1	3	N/A	N/A	6,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Demolition of Parking Area	2	Demolition	2	3	N/A	N/A	N/A	150,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Construct Aircraft Concrete Maintenace Shop	2	Construction	3	10	N/A	90,000	N/A	N/A	1111		90,000	90,000	1	N/A	N/A	N/A	N/A	2,222	N/A	3,333	N/A
Construct Parking Area	2	Construction	4	10	N/A	345,600	N/A	N/A	4,267	N/A	N/A	N/A	N/A	300,000	vehicle	100,000	N/A	3,704	N/A	N/A	N/A

APPENDIX C

ENVIRONMENTAL CHECKLIST

ENVIRONMENTAL CHECKLIST

for Nellis Air Force Base Project Managers

Table of Contents

INSTRUCTIONS FOR USE

This environmental checklist is designed to assist project managers at Nellis Air Force Base (AFB) in ensuring compliance with all federal, state, and local environmental permitting and reporting requirements.

1. Complete each section.

The environmental checklist is divided into ten sections. Each section contains a flowchart of questions designed to identify projects or components of projects that may require environmental permits, notifications, or registrations. Answer all questions.

2. Use the terms and acronyms list.

Although this checklist has been designed to minimize the use of "enviro-speak," the user of this manual must have an understanding of certain key regulatory terms, which are defined in the glossary.

3. Talk to the experts.

The flow charts are intended to be used as a preliminary screening tool. If the screening process identifies a permit or regulatory requirement, the project manager should talk to the appropriate Nellis AFB Environmental Program Manager(s) who will assist in obtaining permit(s), implement reporting and/or testing requirements.

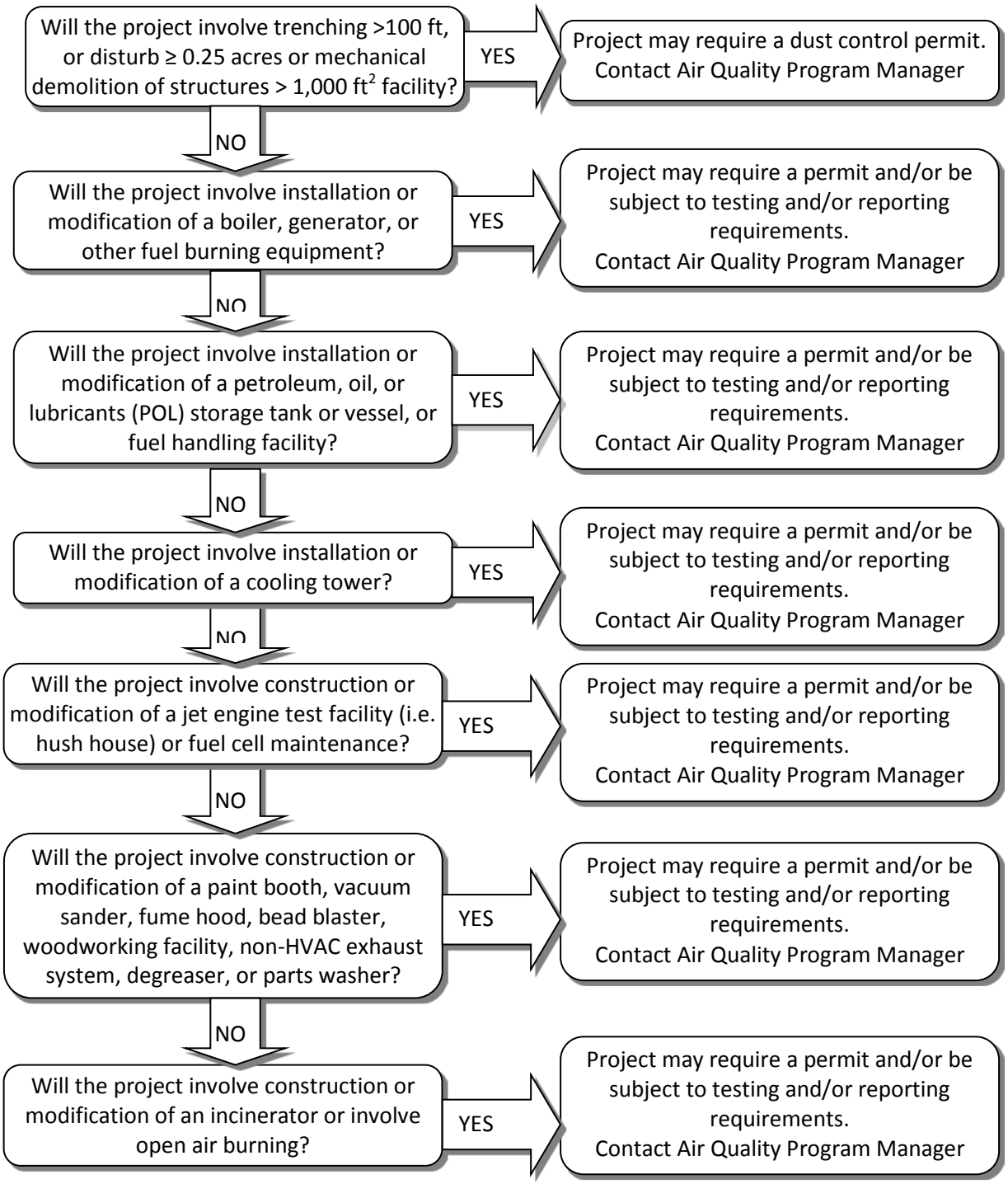
4. "I don't know" is not an acceptable answer.

If information is not provided in the AF 813, then the proponent and the environmental program managers need to get together and determine the data requirements necessary to definitively answer any questions.

AIR QUALITY
99 CES/CEIEC, 652-2882

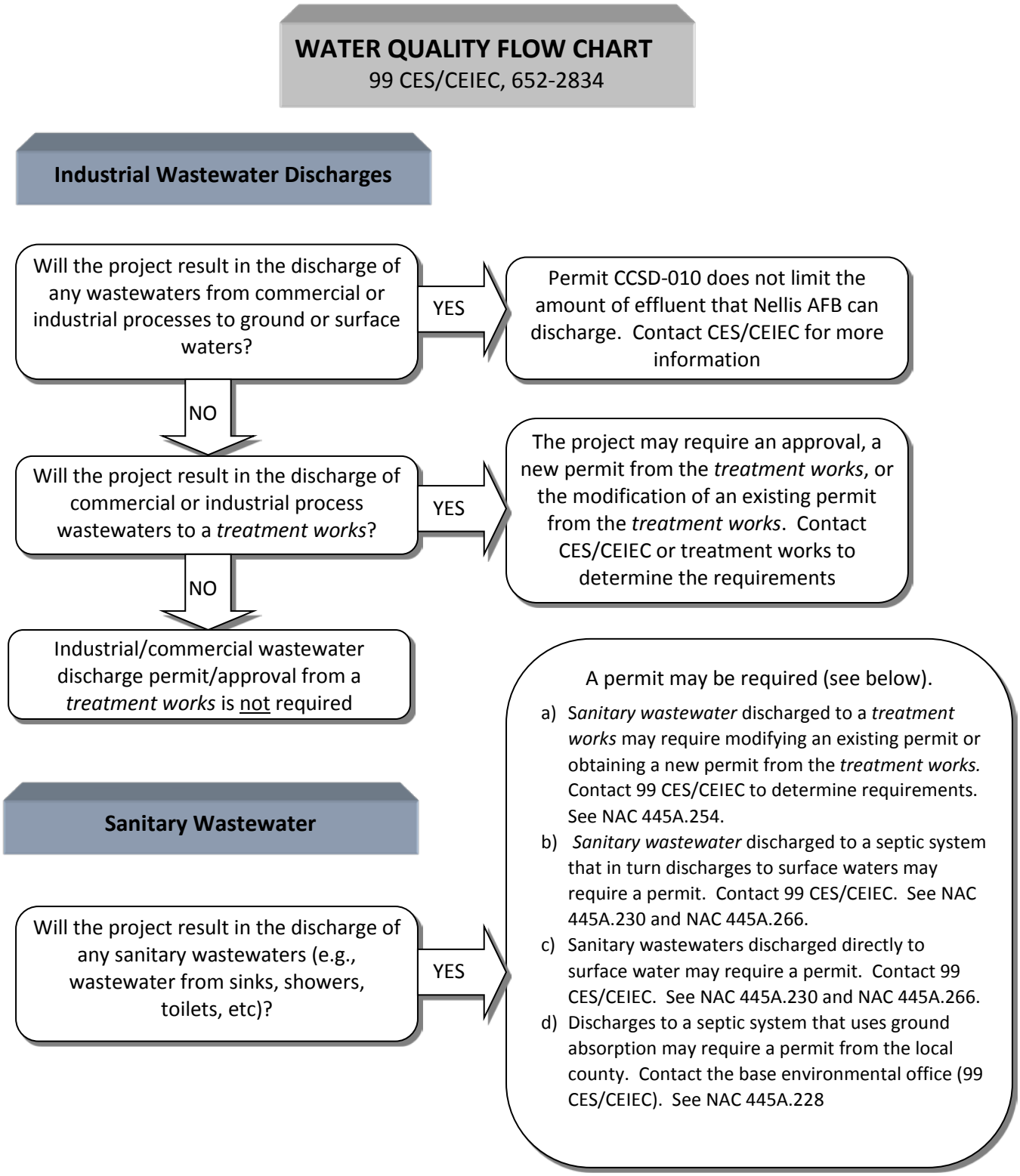
Air emissions sources may be regulated based on the type of emission source, the type and/or quantity of pollutants being emitted, and the quality of air in the region where the emission source is located. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Air Quality Program Manager at 652-2882.

AIR QUALITY FLOW CHART
99 CES/CEIEC 652-2882

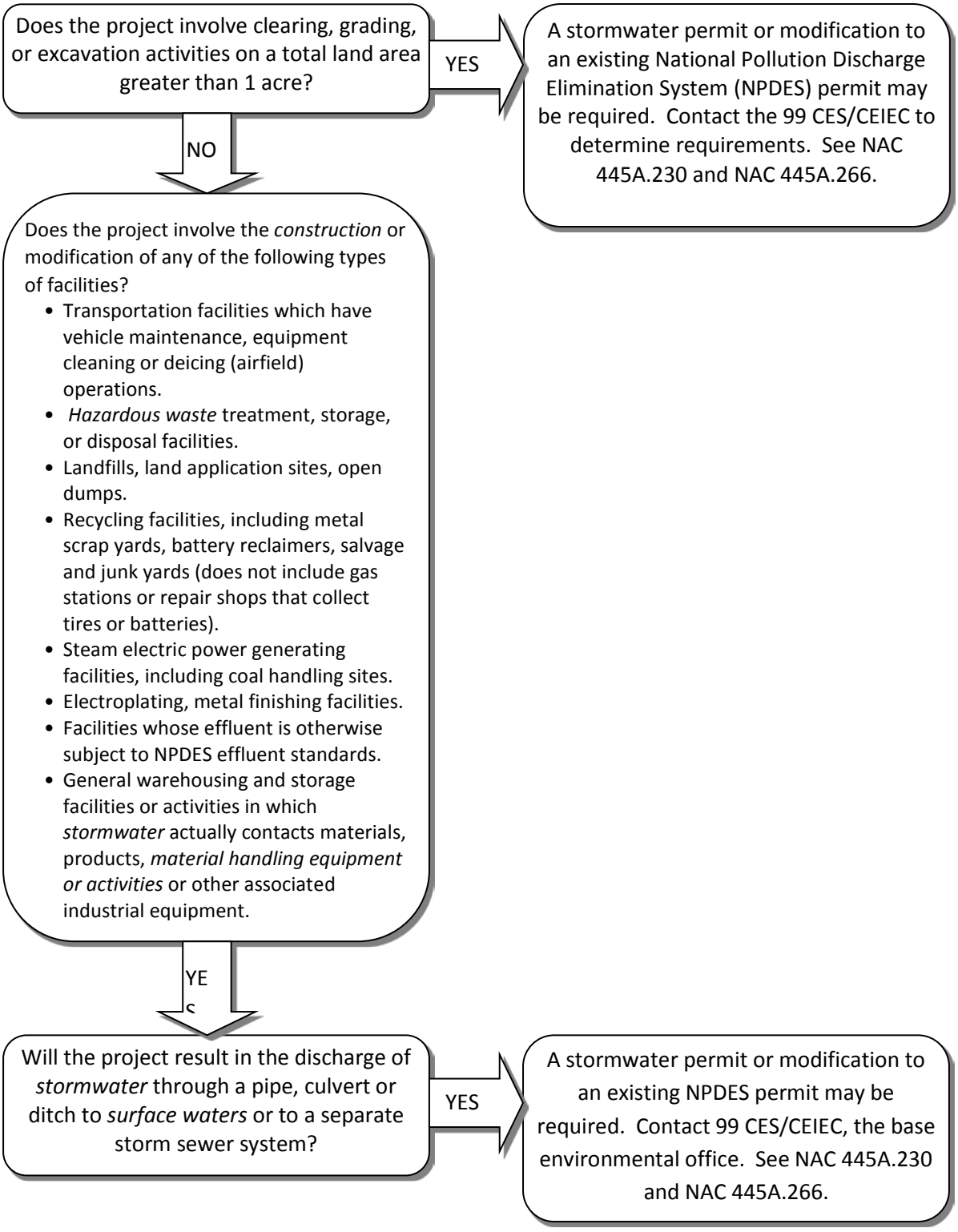


WATER QUALITY
99 CES/CEIEC, 652-2834

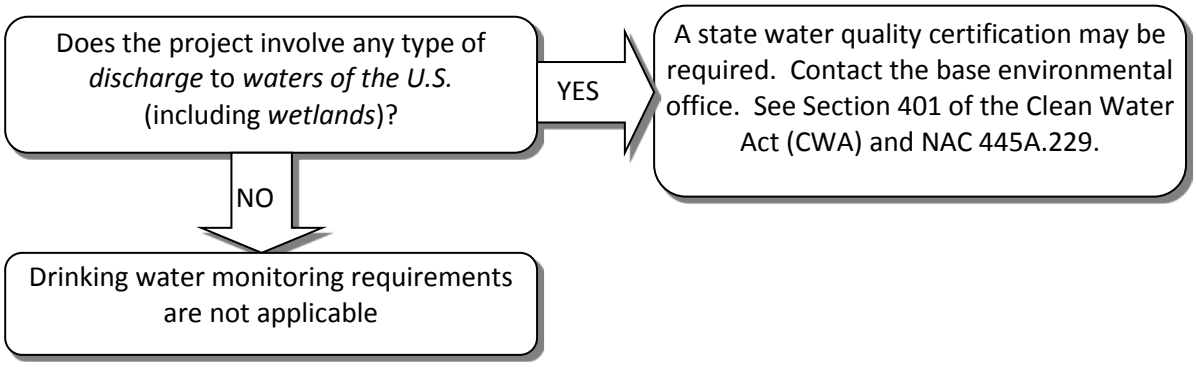
Any process that discharges to sanitary or industrial wastewater systems, storm drains or involves a discharge that can flow into surface or leech into groundwater affects water quality. Additionally, any modification to the drinking water system could require state approval. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Water Quality Program Manager at 652-2834.



Stormwater Discharges

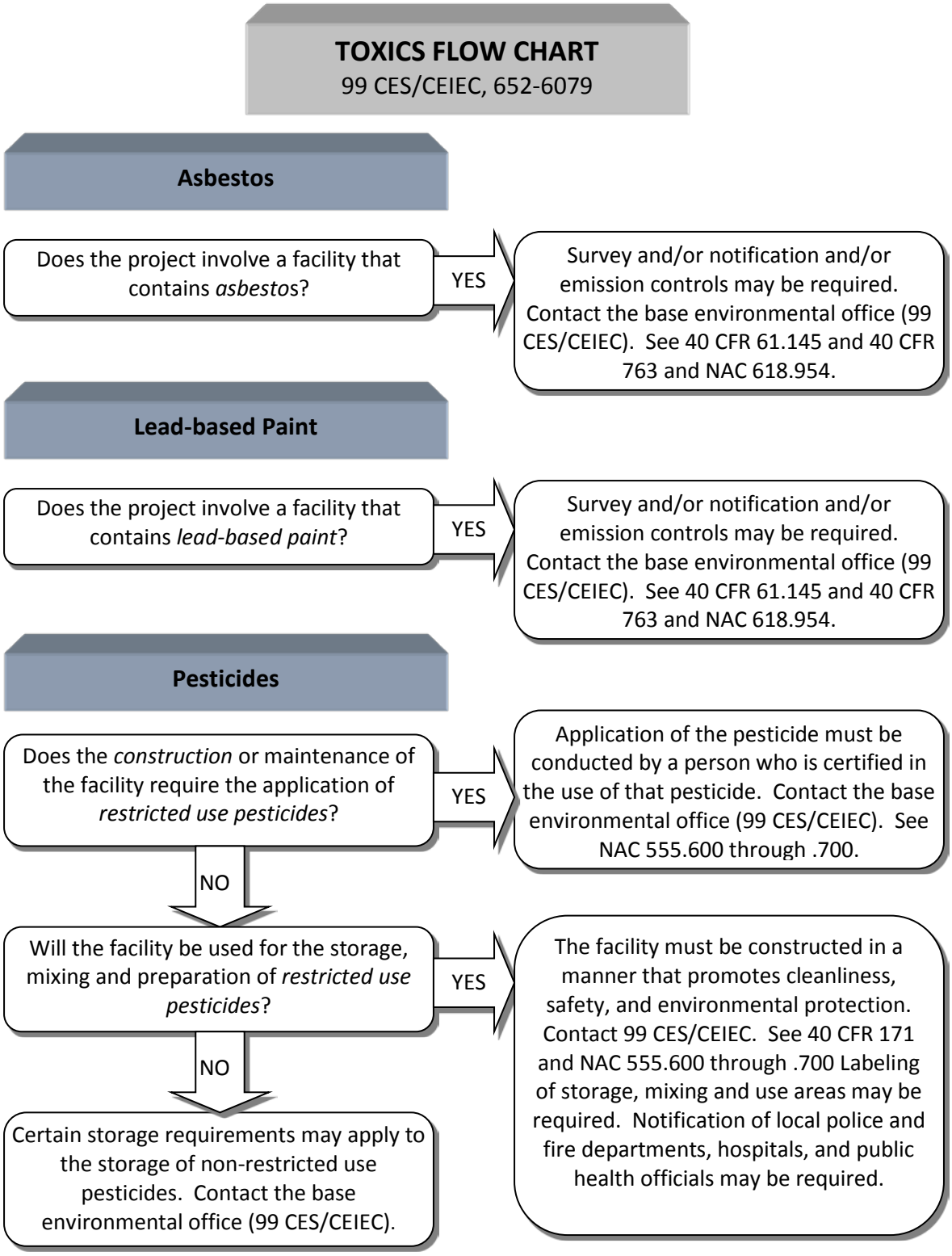


Drinking Water



TOXICS
99 CES/CEIEC, 652-6079

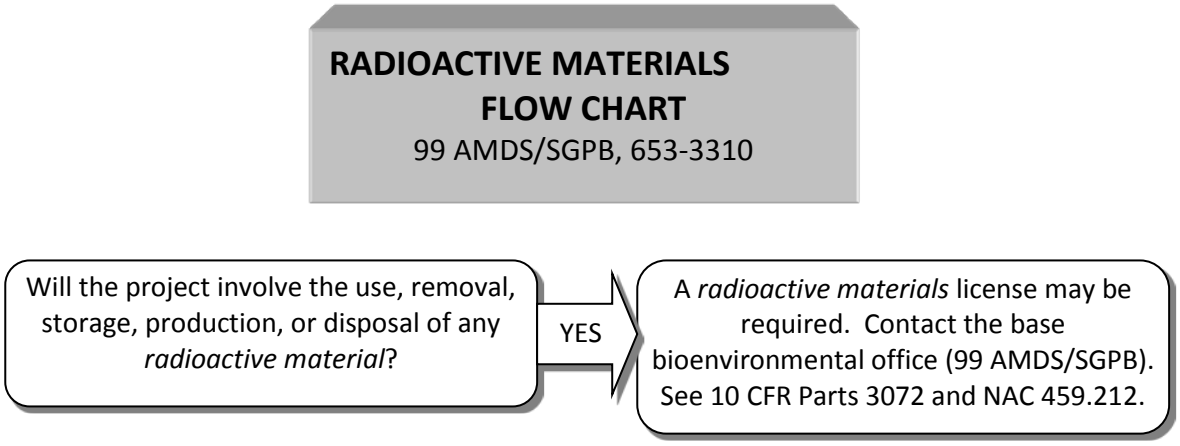
Activities involving disturbing, use, storage or disposal of asbestos, lead–based paint or pesticides require review by the toxics program manager. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Toxics Program Manager at 652-6079.



RADIOACTIVE MATERIALS/OCCUPATIONAL HEALTH

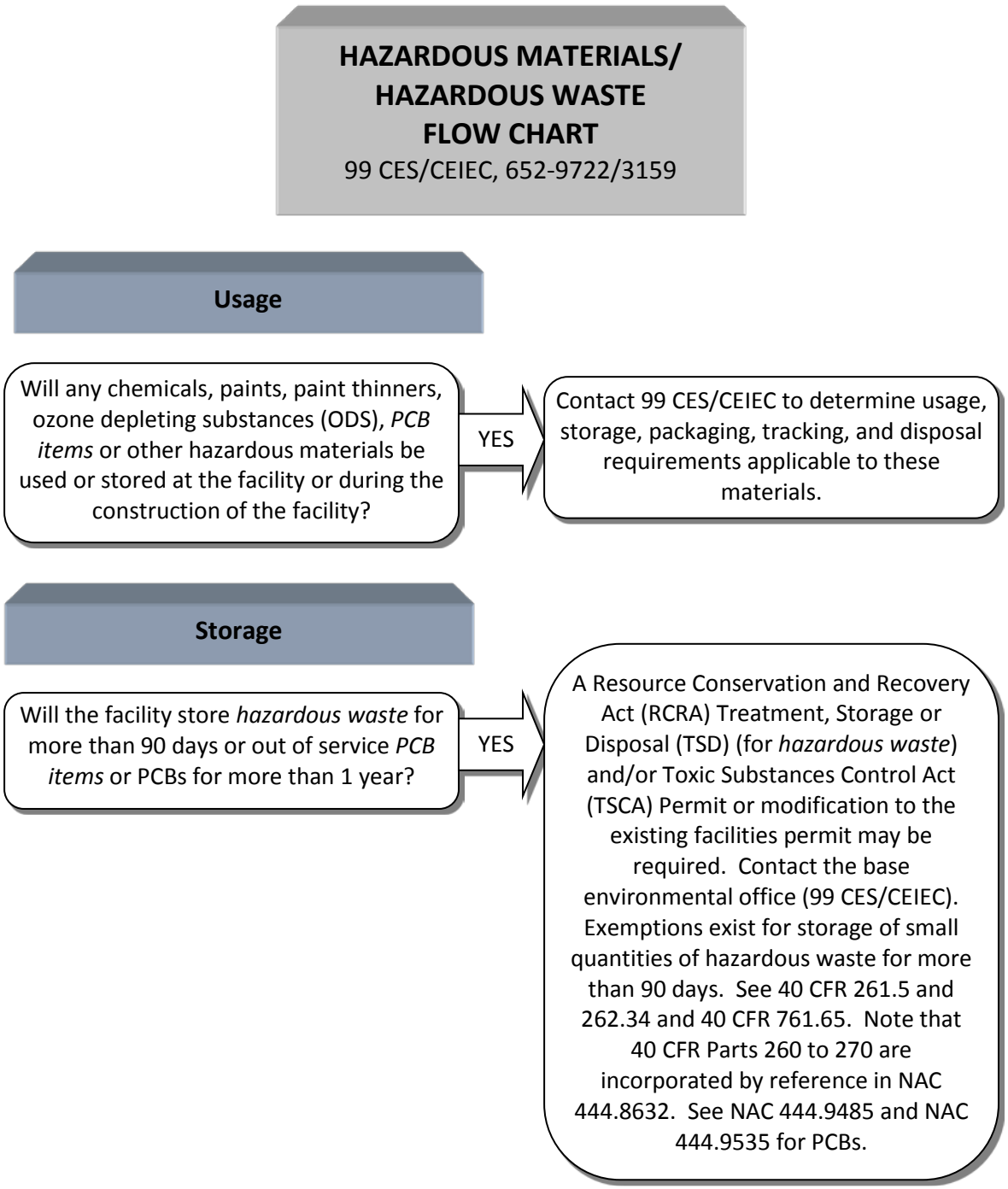
99 AMDS/SGPB, 653-3310

Activities involving disturbing, use, storage or disposal of radioactive materials require review by the Bioenvironmental Flight. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Bio-environmental Flight at 653-3310.



HAZARDOUS MATERIALS/ HAZARDOUS WASTE
99 CES/CEIEC, 652-9722/99 CES/CEIEC, 652-3159

Storage, use, treatment or disposal of hazardous materials and waste require prior approval. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB HAZMART Program Manager at 652-9722 or the Nellis AFB RCRA Program Manager at 652-3159.



Treatment

Will the facility treat *hazardous wastes* other than in a *totally enclosed treatment facility* or in an *elementary neutralization unit* or in a unit permitted under the CWA (see Section 1)?

YES

A RCRA TSD, and/or a TSCA permit or a modification to the facility's existing permit may be required. Contact 99 CES/CEIEC. See 40 CFR Parts 264 and 761 for design requirements. Note that 40 CFR Parts 260 to 270 are incorporated by reference in NAC 444.8632. See NAC 444.9485 and NAC 444.9535 for PCBs.

Will the facility treat *PCB items*?

YES

A TSCA treatment plant permit may be required. Contact 99 CES/CEIEC. See 40 CFR 761.70 and NAC 444.9485 and NAC 444.9535.

Disposal

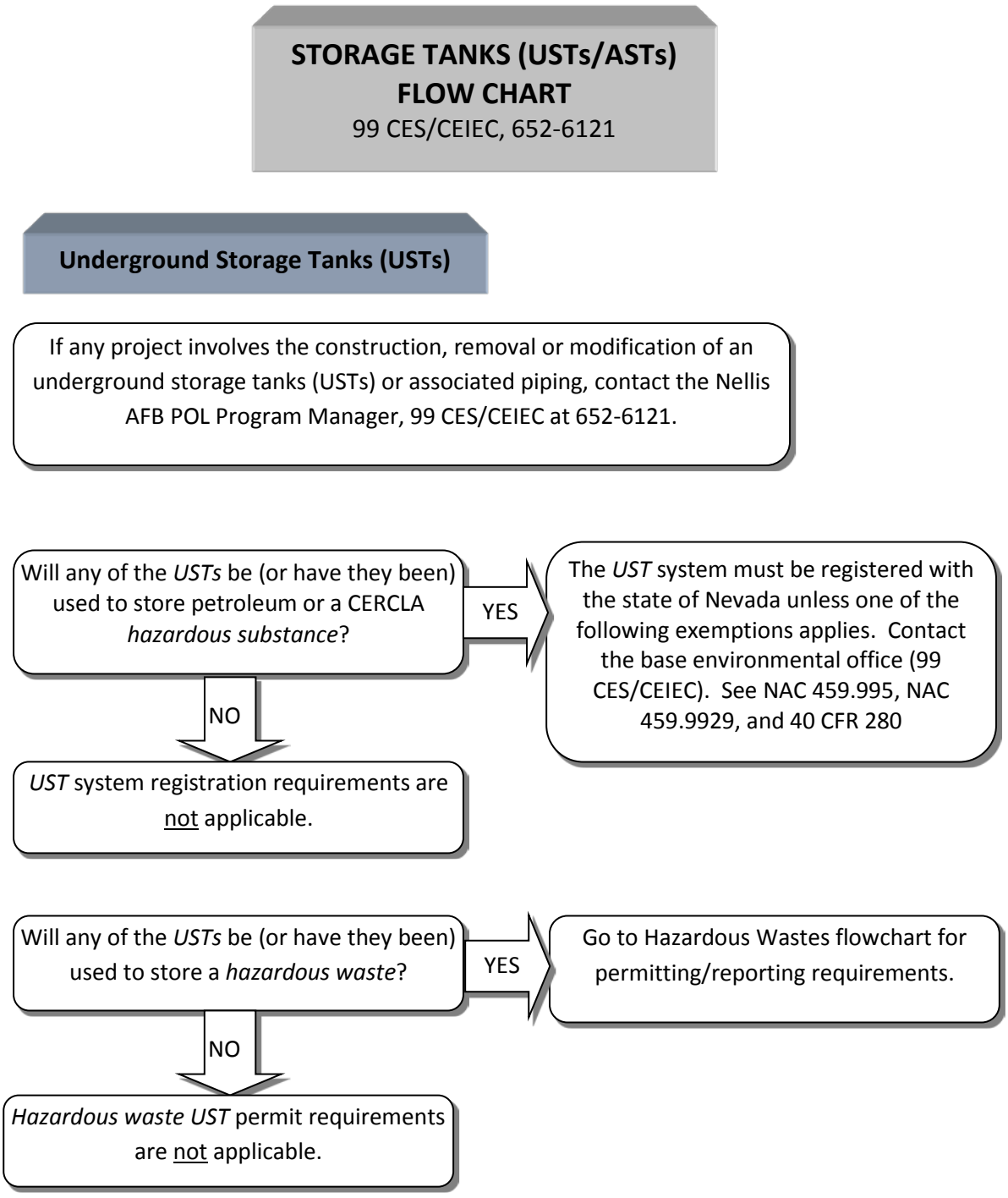
Will the facility be used for the *disposal* of *hazardous wastes* or *PCB items*?

YES

A RCRA TSD permit, or TSCA Permit, or a modification to the facilities existing permit may be required. Contact the base environmental office (99 CES/CEIEC). See 40 CFR Parts 264 and 761 for design requirements. Note that 40 CFR Parts 260 to 270 are incorporated by reference in NAC 444.8632. See NAC 444.9485 for PCBs.

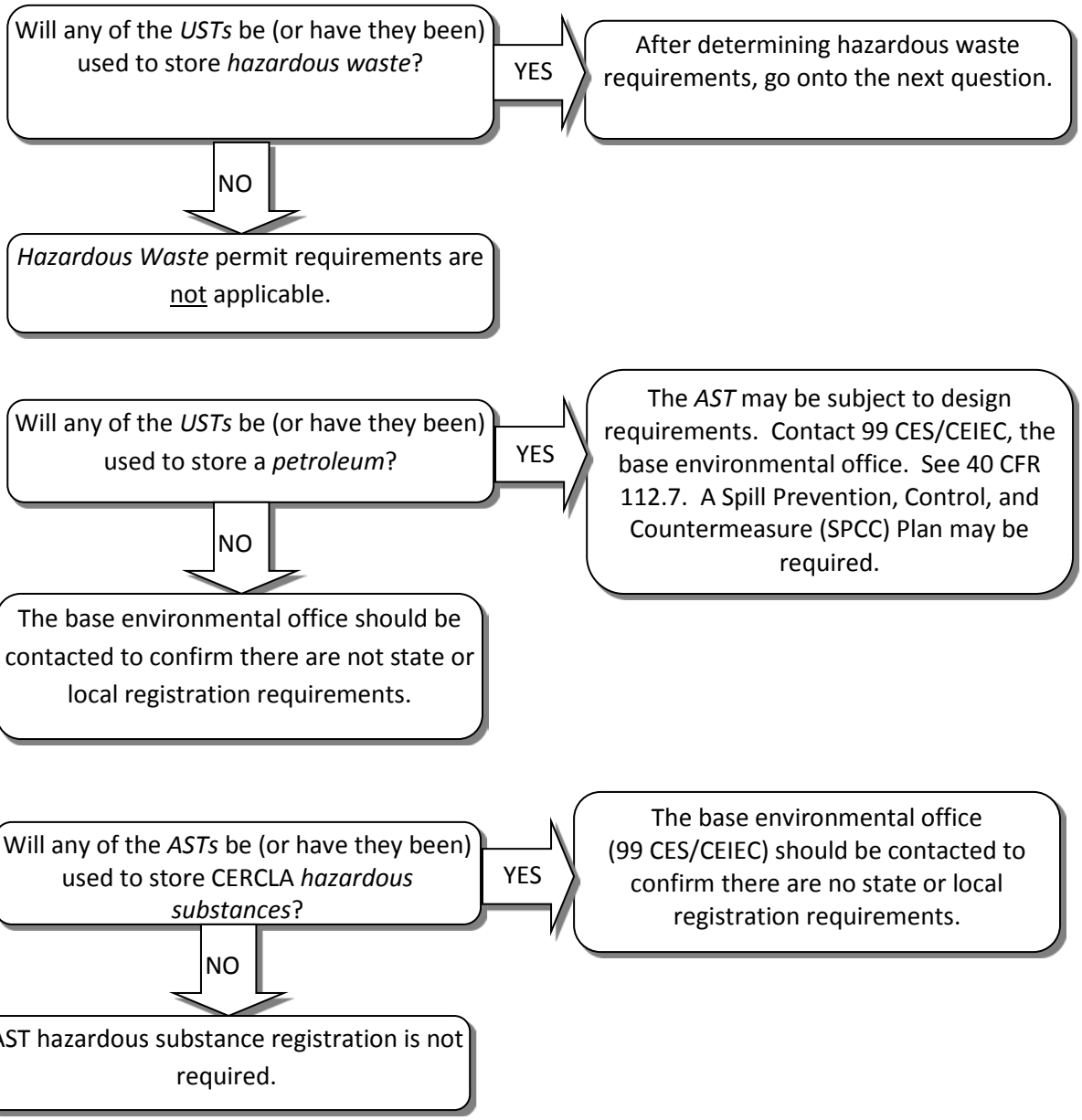
STORAGE TANK (ASTs and USTs)
99 CES/CEIEC, 652-6121

Storage tanks used for fuel, heating oil or other fluids are required to meet certain stands and could require permitting. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB POL Program Manager at 652-6121.



Aboveground Storage Tanks (ASTs)

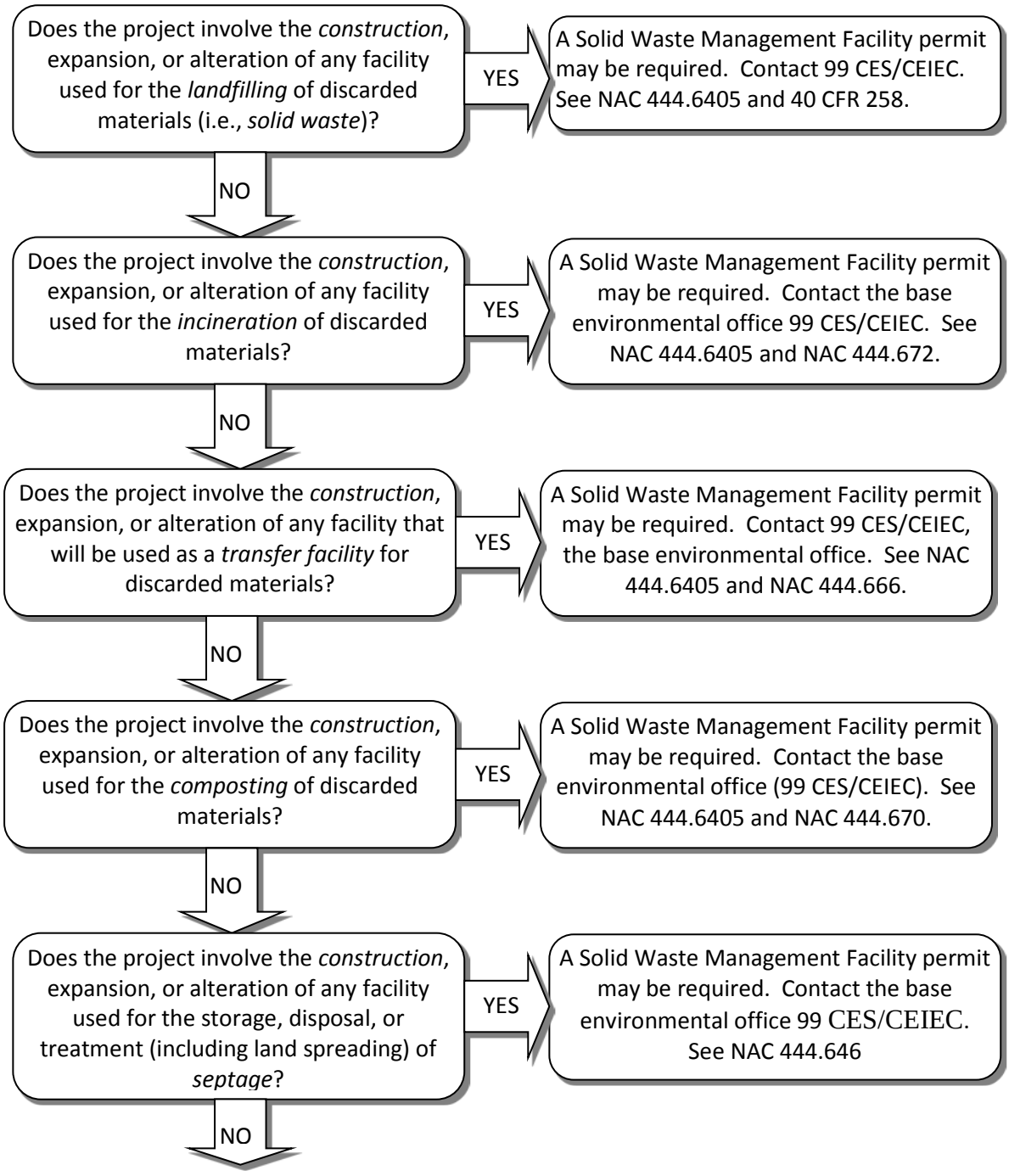
If any project involves the construction, removal or modification of an aboveground storage tanks (ASTs) or AST system, contact Nellis AFB POL Program Manager 99 CES/CEIEC at 652-6121

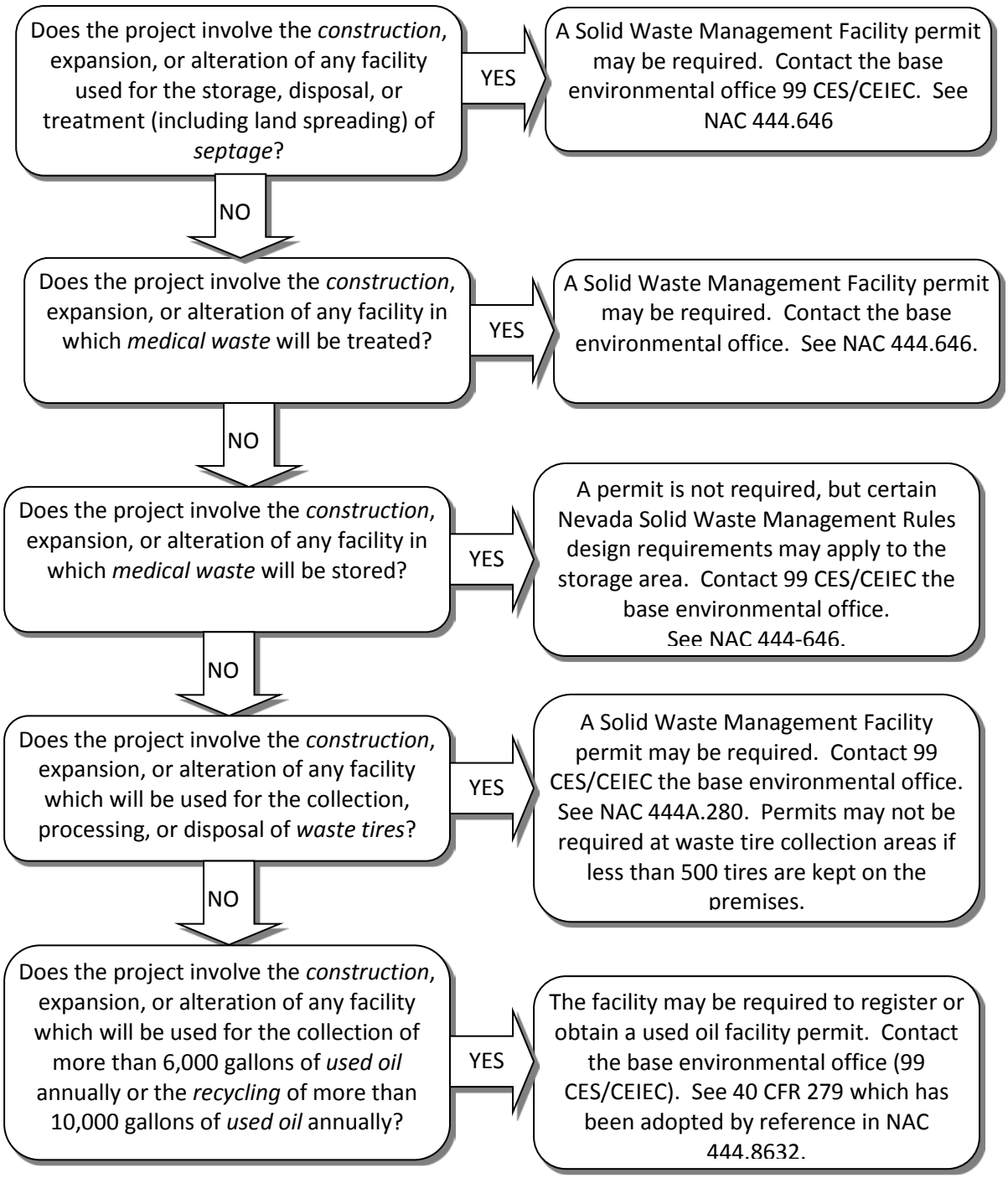


SOLID WASTE
99 CES/CEIEC, 652-9722

Waste generated by construction or other activities are required to be disposed of properly depending on the waste involved. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Solid Waste Program Manager at 652-9722.

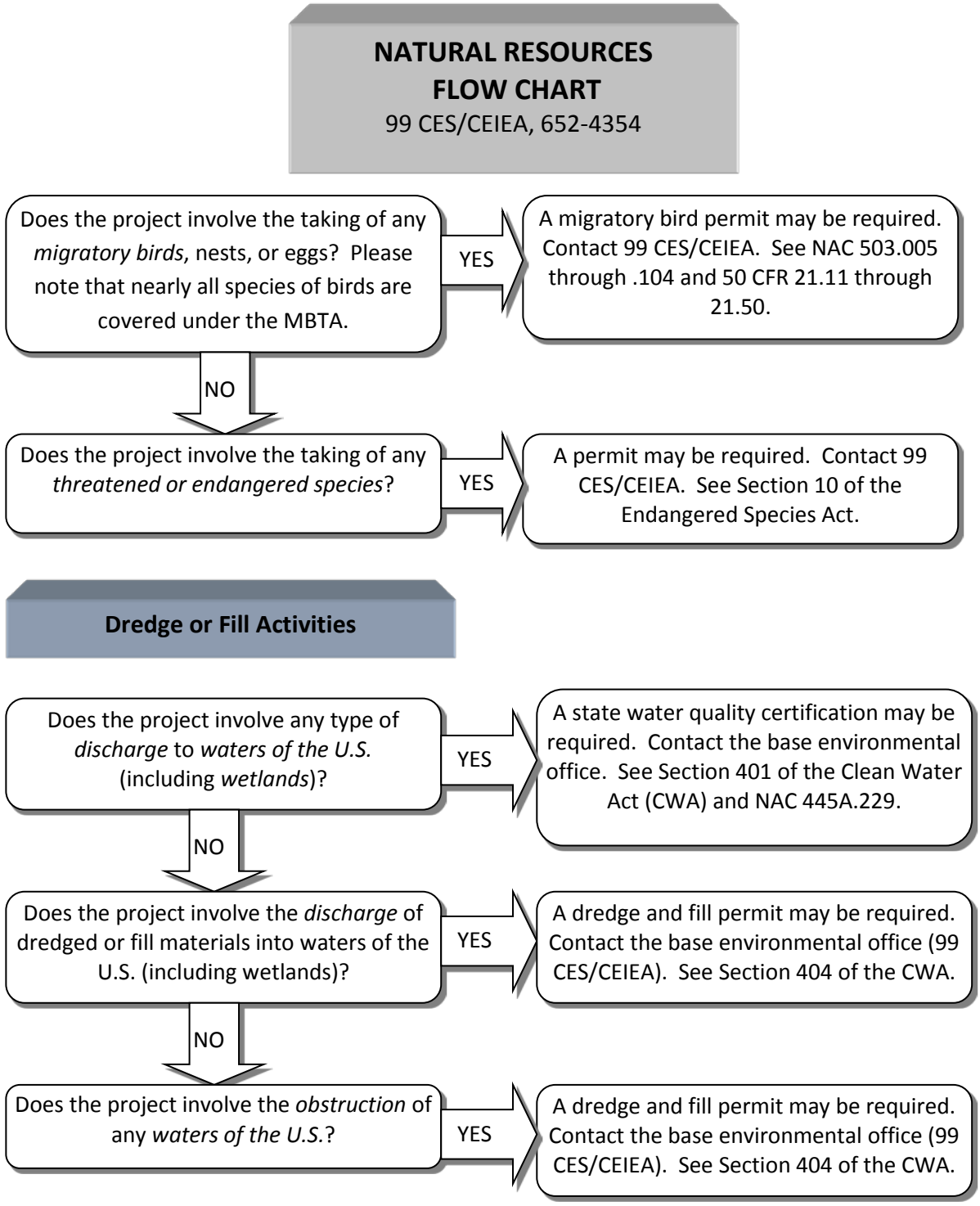
SOLID WASTE FLOW CHART
99 CES/CEIEC, 652-9722




Does the project involve the *construction*, expansion, or alteration of any facility used for the storage, disposal, or treatment (including land spreading) of *septage*?
YES
A Solid Waste Management Facility permit may be required. Contact the base environmental office 99 CES/CEIEC. See NAC 444.646
NO
Does the project involve the *construction*, expansion, or alteration of any facility in which *medical waste* will be treated?
YES
A Solid Waste Management Facility permit may be required. Contact the base environmental office. See NAC 444.646.
NO
Does the project involve the *construction*, expansion, or alteration of any facility in which *medical waste* will be stored?
YES
A permit is not required, but certain Nevada Solid Waste Management Rules design requirements may apply to the storage area. Contact 99 CES/CEIEC the base environmental office.
See NAC 444-646.
NO
Does the project involve the *construction*, expansion, or alteration of any facility which will be used for the collection, processing, or disposal of *waste tires*?
YES
A Solid Waste Management Facility permit may be required. Contact 99 CES/CEIEC the base environmental office. See NAC 444A.280. Permits may not be required at waste tire collection areas if less than 500 tires are kept on the premises.
NO
Does the project involve the *construction*, expansion, or alteration of any facility which will be used for the collection of more than 6,000 gallons of *used oil* annually or the *recycling* of more than 10,000 gallons of *used oil* annually?
YES
The facility may be required to register or obtain a used oil facility permit. Contact the base environmental office (99 CES/CEIEC). See 40 CFR 279 which has been adopted by reference in NAC 444.8632.

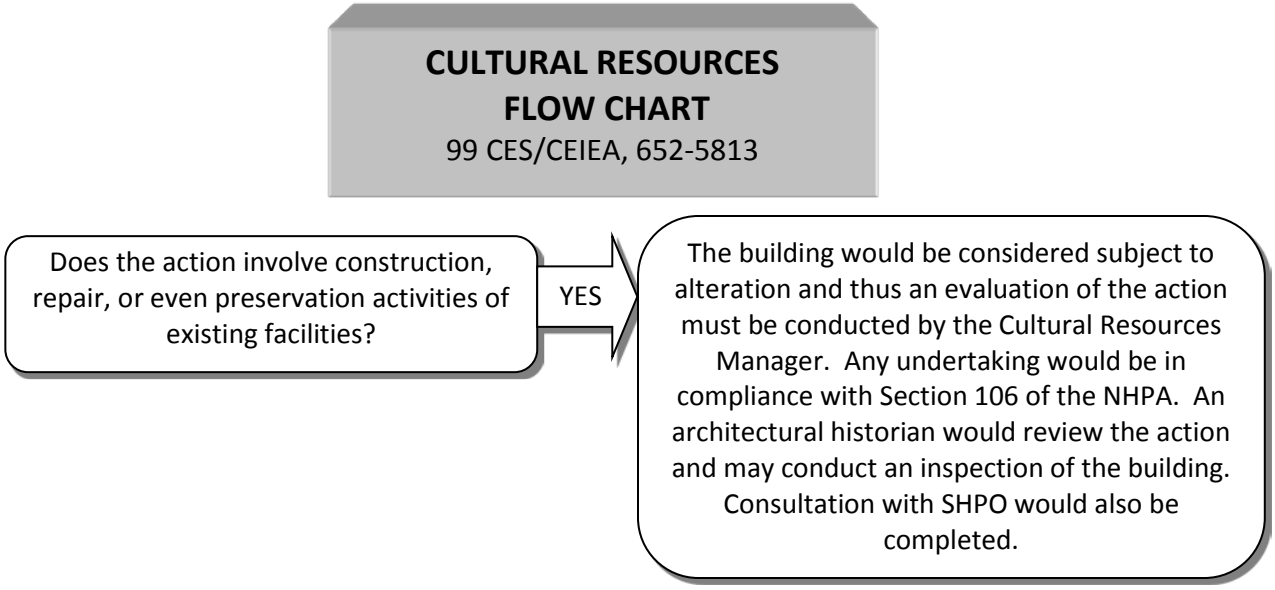
NATURAL RESOURCES
99 CES/CEIEA, 652-4354

Any project that has the potential to impact wildlife, habitat, or potential wetlands may require permitting or other management activities. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Natural Resources Program Manager at 652-4354.



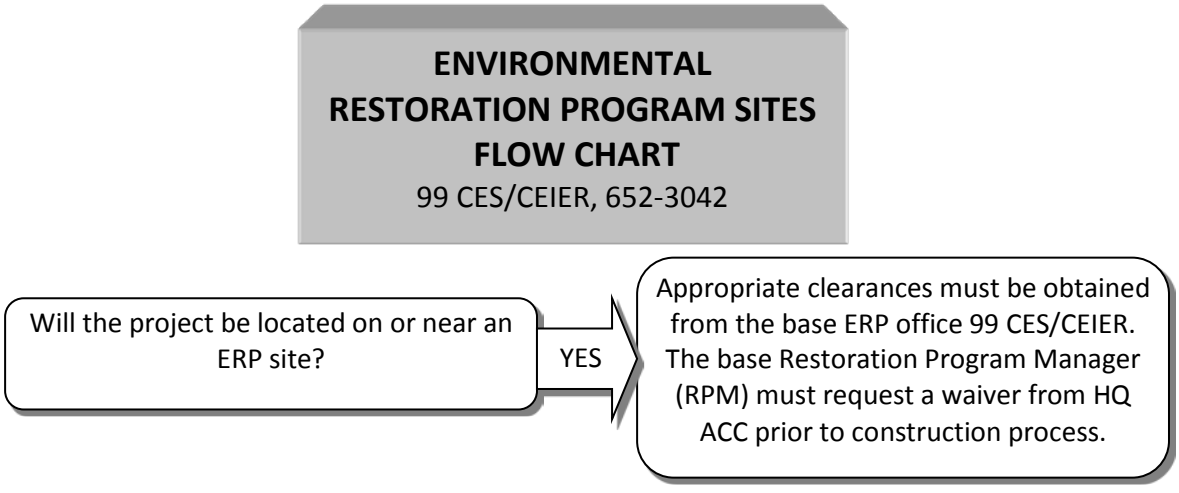
CULTURAL RESOURCES
99 CES/CEIEA, 652-5813

Federal laws require the Air Force to take efforts to identify and evaluate significant archaeological and Native American sites, and traditional cultural properties within all Areas of Potential Effect. The surface of Nellis Air Force Base land within Las Vegas Valley has been inventoried for prehistoric and historic cultural resources with consultation with the State in 2001. One eligible or significant site is located in Area II. As buildings age their cultural values may be increased. Building inventories for historic and Cold War era significance are conducted on a 5-7 year periodic basis. The last inventory was completed in 2007.The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Cultural Resources Program Manager at 652-5813.



ENVIRONMENTAL RESTORATION PROGRAM SITES
99 CES/CEIER, 652-3042

Construction activities located on or near Environmental Restoration Sites could require HQ ACC and State approval. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB ERP Program Manager at 652-3042.



TERMS AND ACRONYMS

Aboveground storage tank — a tank that is situated in such a way that the entire surface of the tank is above the plane of the ground and the entire surface area of the tank (including the bottom) can be visually inspected.

Air pollutant — an air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive substance, or matter which is emitted into or otherwise enters the ambient air. The following is a list of federally regulated air pollutants:

(1) nitrogen oxides and volatile organic compounds;
(2) any air pollutants for which a national ambient air quality standard has been promulgated including PM-10, sulfur dioxide, carbon monoxide, and lead;
(3) any air pollutant or contaminant that is subject to any standard promulgated pursuant to Section III of the Clean Air Act including new source performance standards (NSPS) in 40 CFR part 60;
(4) any class I or II substance (ozone depleting) subject to a standard promulgated pursuant to Section 601(a) of the Clean Air Act (see Appendix B);
(5) any hazardous air pollutant identified in Section 112 of the Clean Air Act (see Appendix B).

Ambient air — that portion of the atmosphere outside of buildings and other enclosed structures, stacks or ducts, and which surrounds human, animal or plant life, or property.

Asbestos — substance comprised of or derived from actinolite, amosite, anthophyllite, chrysotile, crocidolite, or tremolite (40 CFR 61.14).

Asbestos Containing Materials (ACM) — any material or product which contains more than one percent asbestos.

Category 1 Nonfriable Asbestos Containing Material (ACM) — asbestos containing packing, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1 percent asbestos.

Category 2 Nonfriable Asbestos — any material including Category 1 nonfriable ACM containing more than 1% asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure (40 CFR 61.141).

Characteristic hazardous waste — any waste that exhibits the following characteristics:

- a liquid with a flash point of less than 140° F (40 CFR 261.21).
- a liquid with a pH less than or equal to 2 or greater than or equal to 12.5 (40 CFR 261.22).
- it is normally unstable, reacts violently with water, or is readily capable of detonation (40 CFR 261.23).
- an extract from a representative sample of the waste contains a listed contaminant at levels exceeding a given concentration (40 CFR 261.24).

Composting — the controlled decomposition of organic waste by naturally occurring bacteria.

Construction — change in method of operation or any physical change, including on-site fabrication, erection, installation, replacement, demolition, or modification of a source, that results in a change in emissions or affects the compliance status.

Corrective action — abatement measures associated with a response to a release of a hazardous waste, a hazardous substance or petroleum product.

Demolition — the wrecking or cutting out of any load supporting structural member of a facility (40 CFR 61.141).

Discharge — includes, but is not limited to, spilling, leaking, pumping, pouring, emitting, emptying or dumping.

Discrete conveyance — includes, but is not limited to, any pipe, ditch, channel, conduit, well, discrete fissure, or landfill leachate collection system through which wastewater or stormwater can be collected and discharged.

Disposal — the discharge, deposit, injection, dumping, spilling, leaking or placing of waste into or on any land or water so that it may enter the environment.

Elementary neutralization unit — a tank or container used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic (40 CFR 260.10).

Fill — any materials used to replace an aquatic area with dry land or to change the bottom elevation of a waterway.

Fluid — any material or substance that flows or moves whether in a semi-solid, liquid, sludge, gas, or any other form or state.

Friable Asbestos Material — any material that contains more than 1% asbestos by weight and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure (40 CFR 61.141).

Fuel burning equipment — equipment whose primary purpose is the production of energy or power from the combustion of fuel. The equipment is generally used for, but not limited to, heating water, generating or circulating steam, heating air as in warm air furnace, or furnishing process heat by transferring energy by fluids or through process vessel walls.

Groundwater — water below the ground surface in a zone of saturation (40 CFR 144.3; 40 CFR 258.2).

Hazardous substance — any substance designated pursuant to Section 101(14) of CERCLA (including any substance regulated as a hazardous waste).

Hazardous waste — for a material to be classified as a hazardous waste it must be a *solid waste* and either exhibit a hazardous characteristic or be listed in 40 CFR 261.3 (40 CFR 261.10).

Incineration — process of burning solid waste.

Industrial wastewater — wastewater generated in a commercial or industrial process (40 CFR 503.9[n])

Landfilling — placement of waste in or on the ground.

Lead Based Paint (LBP) — lead was used as an ingredient in paint until 1978. It is highly toxic and poses a health threat, especially to children. Workers should avoid breathing dusts of fumes. Workers are covered under OSHA and contractors should comply with all requirements of 29 CFR 1926.62. Food and cosmetics should not be stored or used in work areas.

Marine mammal —any mammal that is morphologically adapted to the marine environment, or primarily inhabits the marine environment, including any part of any such marine mammal.

Material handling equipment or activities — include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product.

Medical waste — waste which is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining to or in the production of testing of biologicals.

Migratory bird — any bird, including any part, nest, or egg of any such bird, designated as such in a treaty to which the United States is a party.

Obstruction — may include construction of a wharf, pier, breakwater or any other structure and the excavation, filling or any other alteration of a navigable water.

Open burning — any outdoor fire or outdoor smoke producing process from which air contaminants are emitted directly into the outdoor atmosphere.

Ozone depleting substances (ODS) — compounds that contribute to stratospheric ozone depletion. ODS include CFCs, HCFCs, halons, methyl bromide, carbon tetrachloride, and methyl chloroform. ODS are generally very stable in the troposphere and only degrade under intense ultraviolet light in the stratosphere. When they break down, they release chlorine or bromine atoms, which then deplete ozone.

PCB Item — an article, container, or equipment that deliberately or unintentionally contains or has in part of it any PCB or PCBs (40 CFR 761.3).

Polychlorinated Biphenyl (PCB) — a synthetic, organic chemical once widely used in electrical equipment, specialized hydraulic systems, heat transfer systems, and other industrial products. PCBs are highly toxic and a potent carcinogen. Any hazardous wastes that contain more than 50 parts per million of PCBs are subject to regulation under the Toxic Substances Control Act.

Pesticide — any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, or intended for use as a plant regulator, defoliant.

Petroleum — petroleum, including crude oil or any fraction thereof that is liquid at standard temperature and pressure conditions.

Pretreatment — the reduction in the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants to a publicly owned treatment works (40 CFR 403.3[q]).

Process wastewater — any water that comes into direct contact with, or results from the production or use of, any raw material, intermediate product, finished product, or waste product during manufacturing or processing (40 CFR 401.44[q]).

Public water system — a system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

Radioactive materials — any substance that emits radiation including alpha particles, beta particles, gamma rays, x-rays, neutrons, and other particles capable of producing ions. Radioactive materials that produce ionizing radiation are not covered in this manual (e.g. radio & microwaves).

Recycling — to prepare used oil for re-use as a petroleum product.
Regulated Asbestos Containing Material (RACM) — including friable asbestos material; category I nonfriable ACM that has become friable; Category I nonfriable ACM that has been subject to grinding, casting, cutting or abrading; and Category II nonfriable ACM that has a highly probability of becoming crumbled, crushed or pulverized (40 CFR 61.141).

Renovation — means the altering of a facility or facility component in any way, including the stripping or removal of RACM from a facility component.

Restricted use pesticides — See 40 CFR 171.2 for listing of Restricted Use Pesticides.

Runoff — rainwater, leachate, or other liquid that drains overland on any part of a ground surface and runs off of the ground surface (40 CFR 503.9[v]).

Sanitary wastewater — wastewater generated by toilets, sinks, and non-industrial/domestic activities; domestic sewage.

Scrap tires — tires that are no longer suitable for their original intended purpose because of wear or damage.

Septage — a fluid mixture of untreated and partially treated sewage solids, liquids, and sludge of human or domestic origin which is removed from a wastewater system.

Solid waste — any garbage refuse or sludge or other material that is either discarded or being accumulated, stored, or treated prior to being discarded or has served its original intended use and is generally discarded. Includes industrial and municipal wastes are examples of solid wastes. Solid waste does not include wastewater discharges regulated under the Clean Water Act or domestic sewage and sludges generated in sanitary sewage collection systems designed to discharge effluents to surface waters.

Source — any stationary article, machine, process equipment, or other contrivance, or combination thereof, or any tank-truck, trailer or railroad car from which air pollutants emanate or are emitted, either directly or indirectly.

Store — hold hazardous waste for a temporary period. Accumulation time is calculated from the time hazardous waste is first place in a container.

Stormwater — stormwater runoff, snow melt runoff, and surface runoff and drainage (40 CFR 122.26[b][13]).

Surface water — all water that is open to the atmosphere and subject to surface runoff (40 CFR 141.2).

Threatened or endangered species — any species that is in danger of extinction throughout all or a significant portion of its range (see 50 CFR 81.1).

Totally enclosed treatment facility — facility for treatment of hazardous waste which is directly connected to any industrial production process (40 CFR 260.10).

Transfer station/Transfer facility — permanent structure with mechanical equipment used for the collection or compaction of solid waste prior to transportation for final disposal.

Treatment — any method, technique or process, including neutralization, designed to change the physical, chemical or biological character of a hazardous waste (40 CFR 260.10).

Treatment works — either a federally owned, publicly owned, or privately owned device or system used to treat either sanitary wastewater or a combination of sanitary wastewater and industrial or process wastewater (including recycle and reclaim) (40 CFR 503.9[aa]).

Underground Storage Tank (UST) — any one or combination of tanks (including underground pipes) the volume of which is 10% or more beneath the surface of the ground.

Underground well injection — the subsurface placement of fluids through a bored, drilled, or driven shaft (well), or a dug well, where the depth of the dug well is greater than the largest surface dimension.

Used oil — any oil which has been refined from crude oil or synthetic oil and, as a result of use, storage or handling has become unsuitable for its original purpose but which may be suitable for further use.

Wastewater reservoir — a pond, lagoon, retention basin, or other surface impoundment that is used to receive industrial or process wastewater.

Waters of the U.S. — all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including:

- all waters which are subject to the ebb and flow of the tide;
- all interstate waters, including interstate wetlands (see definition);
- all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters used for recreation, commercial fishing, and industrial purposes; impoundments of waters otherwise defined as waters of the U.S. under this definition;
- tributaries of waters identified above;
- territorial seas; and
- wetlands adjacent to waters other than wetlands identified above (40 CFR 122.2).

Wetlands — those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions; wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR 122.2).

ENVIRONMENTAL PERMIT SCREENING MODEL CHECKLIST

Base: _____

Project Name: _____

Project Number: _____

Project Location: _____

Date: _____

Name of Preparer: _____

	Potential Permit/Approval Requirements		Comments
	Y	N	
WATER (Section 1)			
Underground injection Well	☐	☐	
Industrial Wastewater	☐	☐	
Sanitary Wastewater	☐	☐	
Stormwater	☐	☐	
Dredge or Fill	☐	☐	
Drinking Water	☐	☐	
HAZARDOUS MATERIAL/HAZARDOUS WASTE/PCBs/ODSs (Section 2)			
Usage	☐	☐	
Tracking	☐	☐	
Storage	☐	☐	
Treatment	☐	☐	
Disposal	☐	☐	
SOLID WASTE (Section 3)			
Landfilling	☐	☐	
Incineration	☐	☐	
Transfer	☐	☐	
Composting	☐	☐	
Landspreading	☐	☐	
Medical Waste	☐	☐	
Scrap Tires	☐	☐	
Used Oil	☐	☐	

ENVIRONMENTAL PERMIT SCREENING MODEL CHECKLIST (con't)			
	Potential Permit/Approval Requirements		Comments
	Y	N	
AIR (Section 4)			
Boilers	☐	☐	
Incinerators	☐	☐	
Fuel Burning Equipment	☐	☐	
Miscellaneous Units	☐	☐	
Petroleum Storage	☐	☐	
Jet Engine Test Facilities	☐	☐	
Transportation Facilities	☐	☐	
STORAGE TANKS (Section 5)			
USTs	☐	☐	
ASTs	☐	☐	
PESTICIDES (Section 6)			
Application	☐	☐	
Use	☐	☐	
ASBESTOS (Section 7)			
Regulated Asbestos Containing Materials	☐	☐	
RADIOACTIVE MATERIALS (Section 8)			
Radioactive Materials	☐	☐	
WILDLIFE AND WILDLIFE HABITAT (Section 9)			
Migratory Birds	☐	☐	
Threatened or Endangered Species	☐	☐	
Marine Mammals	☐	☐	
INSTALLATION RESTORATION PROJECT (Section 10)			
Installation Restoration Project	☐	☐	

FEDERAL REGULATIONS CITED

CITATION	TITLE
10 CFR 30-72	Licensing of Radioactive Materials
29 CFR 1926	Safety and Health Regulations for Construction
40 CFR 60	Standards of Performance for New Stationary Sources
40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 112	Oil Pollution Prevention
40 CFR 122	National Pollutant Discharge Elimination System
40 CFR 141	National Primary Drinking Water Regulations
40 CFR 144	Underground Injection Control Program
40 CFR 145	State UIC Program Requirements
40 CFR 165	Pesticides
40 CFR 258	Criteria for Municipal Solid Waste Landfills
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Wastes
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities
40 CFR 279	Standards for the Management of Used Oil
40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of USTs
40 CFR 401	General Provisions
40 CFR 403	General Pretreatment Regulations for Existing and New Sources of Pollution
40 CFR 413	Electroplating Point Source Category
40 CFR 433	Metal Finishing Point Source Category
40 CFR 459	Photographic Point Source Category
40 CFR 460	Hospital Point Source Category
40 CFR 503	Standards for the Use or Disposal of Sewage Sludge
40 CFR 761	PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
40 CFR 763	Asbestos
50 CFR 21	Wildlife and Fisheries
50 CFR 81	Conservation of Endangered and Threatened Species of Fish, Wildlife, and Plants

FEDERAL LAWS CITED

Clean Water Act (CWA)	Section 401	Certification
Clean Water Act (CWA)	Section 404	Permits for Dredge and Fill Material
Rivers and Harbors Act of 1989	Section 10	Obstruction of Excavations and Filling in of Navigable Waters
Clean Air Act (CAA)	Title I	Air Pollution Prevention and Control
Clean Air Act (CAA)	Title VI	Stratospheric Ozone Protection
Endangered Species Act	Section 10	Exceptions
Marine Mammal Protection Act	Section 104	Permits

OTHER REGULATORY REFERENCES

County

Clark County Air Quality Regulations (includes regulations on NESHAP, Asbestos, boilers and steam generators, fuel burning equipment, and testing/monitoring

Construction Activities Dust Control Handbook, Clark County Department of Air Quality and Environmental Management

State

CITATION	TITLE
NAC 444	Sanitation
NAC 444A	Programs for recycling
NAC 445A	Water Controls
NAC 445B	Air Pollution
NAC 459	Hazardous Materials
NAC 555	Control of Insects, Pests, and Noxious Weeds
NAC 590	Petroleum Products and Antifreeze
NAC 503	Hunting, Fishing, and Trapping; Miscellaneous Protective Measures
NAC 618	Occupational Safety and Health

APPENDIX D

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE AND PUBLIC PARTICIPATION

PUBLIC NOTIFICATION, DISTRIBUTION, AND COMMENTS TO THE DRAFT ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

PUBLIC NOTIFICATION

As part of the public involvement process, Nellis AFB has published a Notice of Availability of the Draft Environmental Assessment and Finding of No Significant Impact on September 24, 2013 in the Las Vegas Review-Journal.

Notice of Availability
Draft Environmental Assessment
For Creech Air Force Base Capital Improvements Program

The U.S. Air Force has prepared a draft Environmental Assessment (EA) that analyzed the Capital Improvements Program (CIP) resulting from updating the 2008 Creech AFB CIP to account for significant mission changes. The CIP would include construction, demolition, renovation, and maintenance at Creech AFB. By taking a comprehensive approach to planning and implementing the facilities and infrastructure improvements over a multi-year period, Creech AFB would maximize the use of funds, conserve energy, and meet operational goals. This EA has been prepared in accordance with the National Environmental Policy Act.

A copy of the Draft EA and Draft Finding of No Significant Impact are available for review and comment at the following libraries beginning September 27, 2013.

Las Vegas Library – *Las Vegas* Indian Springs Library – *Indian Springs*

You may request a copy of the document from the Creech AFB Public Affairs Office by calling (702) 652-2750 or by writing to the address below. An electronic version of the EA is available for public review at www.Creech.af.mil/library/environment.asp. Please provide any comments on the Draft EA by October 27, 2013. Comments should be forwarded to: 99 ABW/PA Director, 4430 Grissom Avenue, Ste 107, Creech AFB NV 89191.

DISTRUBUTION AND COMMENTS OF THE DRAFT EA AND FONSI

DISTRIBUTION LIST

Nevada State Clearinghouse
Department of Administration
Division of Budget & Planning
209 East Musser Street, Room 200
Carson City, NV 89701-4298
clearinghouse@budget.state.nv.us
(electronic coordination)

Commissioner Steve Sisolak, Chairperson
Clark County Commission
500 Grand Central Parkway
Las Vegas, NV 89109

Mr. John Mendoza, S. Planner
Clark County Department of Air Quality & Environmental Management
500 S. Grand Central Parkway
P.O. Box 555210
Las Vegas, NV 89155

Ms Jennifer Olsen
Southern Nevada Regional Planning Coalition
Clark County Clearinghouse
240 Water Street Mail Stop 115
Henderson, NV 89009

Indian Springs Town Advisory Board
P.O. Box 12
Indian Springs, NV 89018

Mr. Mario Bermudez, Planning Manager
Clark County Department of Comprehensive Planning
500 S. Grand Central Parkway, First Floor
Las Vegas, NV 89155

Las Vegas Library
Reference Department
833 Las Vegas Blvd North
Las Vegas, NV 89101

Indian Springs Library
P.O. Box 629
Indian Springs, NV 89018

SAMPLE DISTRIBUTION LETTER

DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE, NEVADA

Ms. Lynn Haarklau
99 CES/CENP
6020 Beale Avenue
Nellis AFB, NV 89191-7260

Commissioner Steve Sisolak, Chairperson
Clark County Commission
500 Grand Central Parkway
Las Vegas, NV 89109

SEP 25 2013

Dear Mr. Sisolak

The United States Air Force has prepared a draft Environmental Assessment (EA) for the proposed action to update the Creech Air Force Base (AFB) Capital Improvements Program (CIP). This update reflects current conditions and make recommendations for improvements to Creech AFB. The CIP for Creech AFB describes discrete projects, such as major utility upgrades or construction of individual facilities, also reflects planned changes to enhance mission capability, correct space and/or infrastructure deficiencies, and to support future development through modernization, restoration, and sustainment projects.

In addition to the proposed action, this draft EA assesses the no-action alternative. Under the no-action alternative, the proposed CIP would not be implemented, but some construction, demolition, or infrastructure improvement projects would be implemented in accordance with the old CIP. Projects not previously identified in the 2008 CIP would be analyzed individually in a case-by-case basis.

In accordance with 32 CFR 989, the Air Force *Environmental Impact Analysis Process (EIAP)*, and 40 CFR 1500-1508, the *Council on Environmental Quality* guidelines, pursuant to the *National Environmental Policy Act*, as amended, Nellis AFB requests your agency review the assessment of the proposed action. Please send any comments no later than October 27, 2013 to Mr. Tod Oppenborn at the above address or e-mail him at tod.oppenborn@nellis.af.mil. Thank you for your participation.

Sincerely

LYNN HAARKLAU
Chief, Portfolio Optimization

Attachment
Draft Creech AFB Capital Improvements Program Environmental Assessment and FONSI

Global Power For America

STATE OF NEVADA
DEPARTMENT OF WILDLIFE
1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

Brian Sandoval
Governor

TONY WASLEY
Director

RICHARD L. HASKINS, II
Deputy Director

PATRICK O. CATES
Deputy Director

November 4, 2013

NDOW-SR#:14-050

Skip Canfield, Program Manager
Nevada State Clearinghouse
901 S. Stewart Street, Ste. 5003
Carson City, Nevada 89701-5246

SAI#: E2014-043
Project: Project: EA - Creech Air Force Base Capital Improvements Program
Due Date: November 4, 2013

Dear Mr. Canfield:

The Nevada Department of Wildlife (Department) appreciates this opportunity for review of the subject: Creech Air Force Base Capital Improvements Program Environmental Assessment. The following comments and recommendations are offered regarding potential effects associated with the proposed actions to wildlife resources.

- The Department appreciates the inclusion of our Gila monster protocol in the document. In addition, should best management practices include measures to move certain wildlife out of harm's way, like the desert tortoise, a State of Nevada authorization is necessary per NAC 503.093 and NRS 503.597. Please contact the Department's Jason Jones for additional assistance. He can be reached by phone at 702.486.5127 x3718 or by email at jljones@ndow.org.
- Birds protected under the Migratory Bird Treaty Act (MBTA), including eagles, hawks, and owls are also State protected (NAC 503.050). Ground disturbing activities should avoid the breeding and nesting season which occurs approximately between March 1 and July 31. If seasonal avoidance is not practicable, then survey of the project site by a qualified biologist prior to any ground disturbing activities to determine if nesting is underway is recommended. In the event an active nest (containing eggs or young) is discovered or frequently attended by adult birds, a buffer area around the nest appropriate for the species involved must be identified and avoided until young birds have fledged. This measure is consistent with preventive actions advocated by the U.S. Fish & Wildlife Service (Service) concerning MBTA-protected birds. An example of species-specific guidance for the burrowing owl is available online at: http://www.azgfd.gov/pdfs/w_c/owl/burrowingowlclearanceprotocol.pdf.

Thank you again for this input opportunity. The Department looks to the success of the proposed program with implementation of appropriate and reasonable considerations for wildlife resources. For other assistance regarding this letter, please do not hesitate to contact Biologist Anthony Miller at the Department's Southern Region Office in Las Vegas. He can be contacted by phone at 702.486.5127 x3613, or by e-mail at ajmiller@ndow.org.

Sincerely,

D. Bradford Hardenbrook
Supervisory Habitat Biologist
Nevada Department of Wildlife, Southern Region
4747 Vegas Drive, Las Vegas, Nevada 89108
702.486.5127 x3600; 702.486.5133 FAX
bhrdnbrk@ndow.org

Skip Canfield

From: Rebecca Palmer
Sent: Wednesday, October 30, 2013 11:36 AM
To: Skip Canfield
Subject: RE: Nevada State Clearinghouse Notice E2014-043 (EA - Creech AFB CIP)

The SHPO supports this document as written.

Rebecca Lynn Palmer
State Historic Preservation Officer
901 South Stewart Street, Suite 5004
Carson City NV 89701
Phone (775) 684-3443
Fax (775) 684-3442

Please note, my email is rlpalmer@shpo.nv.gov

From: scanfield@lands.nv.gov [mailto:scanfield@lands.nv.gov]
Sent: Thursday, October 17, 2013 3:33 PM
To: Alan Jenne; alisah@unr.edu; Alisanne Maffei; clytle@lincolnnv.com; Brad Hardenbrook; dmouat@dri.edu; djohnston@dps.state.nv.us; ed.rybold@navy.mil; gderks@dps.state.nv.us; James Morefield; Jennifer Newmark; Jennifer Scanland; JBWalker@ndep.nv.gov; Karen Beckley; kirk.bausman@us.army.mil; cohnl@nv.doe.gov; Mark Freese; Mark Harris; Madams@ag.nv.gov; mstewart@lcb.state.nv.us; Pete Konesky; Rebecca Palmer; Robert K. Martinez; Sandy Quilici; ssiegel@ndow.org; sscholley@lcb.state.nv.us; Tod.oppenborn@nellis.af.mil; zip.upham@navy.mil; Joe Strolin; Alex Lanza; Dave Marlow; Michael Visher; Kevin J. Hill; dziegler@lcb.state.nv.us; rgregg@lands.nv.gov; Shimi.Mathew@nellis.af.mil; Skip Canfield; craig.mortimore@wildnevada.org; njboland.nev@gmail.com; jvanhavel@dot.state.nv.us; kmaloy@crc.nv.gov; McClain Peterson; Jennifer Crandell; Jason Woodruff; Jim R. Balderson; Lindsey Lesmeister; Elizabeth A. Harrison; ABeltran-Martinez@dot.state.nv.us; Tim Rubald; 99abw.ccy@nellis.af.mil; whenderson@nvleague.org; Warren Turkett; Peter Lassaline; Sandy Wallace; John Christopherson; dstapleton@nvnaco.org; Stephen Foree; Alan Coyner; Edward Foster; Lowell Price; Pete Anderson; Rich Harvey; Sherry Rupert; WHowle@ag.nv.gov; Mark Enders
Subject: Nevada State Clearinghouse Notice E2014-043 (EA - Creech AFB CIP)

NEVADA STATE CLEARINGHOUSE
Department of Conservation and Natural Resources, Division of State Lands
901 S. Stewart St., Ste. 5003, Carson City, Nevada 89701-5246
(775) 684-2723 Fax (775) 684-2721

TRANSMISSION DATE: 10/17/2013

U.S. Department of Defense

Nevada State Clearinghouse Notice E2014-043
Project: EA - Creech AFB CIP

Follow the link below to find information concerning the above-mentioned project

for your review and comment.
E2014-043 - http://clearinghouse.nv.gov/public/Notice/2014/E2014-043.pdf

- **Please evaluate this project's effects on your agency's plans and programs and any other issues that you are aware of that might be pertinent to applicable laws and regulations.**

- **Please reply directly from this e-mail and attach your comments.**

- **Please submit your comments no later than Monday November 4th, 2013.**

Clearinghouse project archive

Questions? Skip Canfield, Program Manager, (775) 684-2723 or nevadaclearinghouse@lands.nv.gov

____No comment on this project ____Proposal supported as written
AGENCY COMMENTS:

Signature:

Date:

Requested By:

Distribution:
- 99ABW Nellis
- Division of Emergency Management
Alan Coyner - Commission on Minerals
Alan Jenne - Department of Wildlife, Elko
Alex Lanza -
Alisa Huckle - UNR Library
Alisanne Maffei - Department of Administration
Angelica Beltran-Martinez - NDOT
Cory Lytle - Lincoln County
Craig Mortimore - Wild Nevada

D. Bradford Hardenbrook - Department of Wildlife, Las Vegas
Dagny Stapleton - NACO
Dave Marlow -
Dave Ziegler - LCB
David Mouat - Desert Research Institute
Denesa Johnston - Fire Marshal
Ed Foster - Department of Agriculture
Ed Rybold - NAS Fallon
Elizabeth A. Harrison - Tahoe Resource Team - Division of State Lands
Gary Derks - Division of Emergency Management
J Crandell - Colorado River Commission of Nevada
James D. Morefield - Natural Heritage Program
Jason Van Havel - NDOT
Jason Woodruff - PUCN
Jennifer Newmark -
Jennifer Scanland - Division of State Parks
Jim Balderson - NDEP
John Christopherson - Nevada Division of Forestry
John Walker - Nevada Division of Environmental Protection
Joseph C. Strolin - Agency for Nuclear Projects
Karen Beckley - State Health Division
Kevin Hill - Nevada State Energy Office
Kimberly Maloy - Colorado River Commission of Nevada
Kirk Bausman - Hawthorne Army Depot
Linda Cohn - National Nuclear Security Administration
Lindsey Lesmeister - NDOW
Lowell Price - Commission on Minerals
Mark Enders - NDOW
Mark Freese - Department of Wildlife
Mark Harris, PE - Public Utilities Commission
Marta Adams - Attorney General
McClain Peterson - Colorado River Commission of Nevada
Michael J. Stewart - Legislative Counsel Bureau
Michael Visher - Division of Minerals
Nancy Boland - Esmeralda County
Pete Anderson - Division of Forestry
Pete Konesky - State Energy Office
Peter Lassaline - NDEP
Rebecca Palmer - State Historic Preservation Office
Rich Harvey - Division of Forestry
Robert Gregg - NTRT
Robert Martinez - Division of Water Resources
Sandy Quilici - Department of Conservation & Natural Resources
Sandy Wallace - State Energy Office
Sherry Rupert - Indian Commission
Shimi Mathew - Nellis AFB
Skip Canfield, AICP - Division of State Lands
Stephen Foree - NDOW
Steve Siegel - Department of Wildlife, Director's Office
Susan Scholley - Legislative Counsel Bureau
Tim Rubald - Nevada Sagebrush Ecosystem Team
Tod Oppenborn - Nellis Air Force Base
Warren Turkett - Colorado River Commission of Nevada
Wayne Howle - Attorney General
Wes Henderson - Nevada League of Cities
Zip Upham - NAS Fallon

Nevada State Clearinghouse
Department of Conservation and Natural Resources
901 South Stewart Street, Suite 5003
Carson City, NV 89701
775-684-2723
http://clearinghouse.nv.gov
www.lands.nv.gov

DATE: 10/23/2013
Division of Water Resources

Nevada SAI # E2014-043 Creech AFB CIP

_____No comment on this project X____Proposal supported as written

AGENCY COMMENTS:

Please be advised that wells and/or points of diverting water on these lands, whether new or existing, shall require prior approval from the Nevada Division of Water Resources. All waters of the State belong to the public and may be appropriated for beneficial use pursuant to the provisions of Chapters 533 and 534 of the Nevada Revised Statutes (NRS), and not otherwise, including those used for geothermal projects.

Any water used on the described project for construction, dust control, or maintenance should be provided by an established utility or under permit or waiver issued by the State Engineer's Office. Treated effluent is considered water as referred to in NRS Chapter 533, and is subjected to appropriation for beneficial use under procedures described in NRS Chapter 533, and specifically NRS § 533.440. Any water or other boreholes located on the project lands are the responsibility of the owner of the property and must be plugged and abandoned as required in Chapter 534 of the Nevada Administrative Code. If artesian water is located in any well or borehole it shall be controlled as required in NRS 534.060(3).

Protecting the air we share
Air Quality
CLARK COUNTY • DEPARTMENT OF AIR QUALITY
4701 W. Russell Road Suite 200 • Las Vegas, NV 89118-2231
(702) 455-5942 • Fax (702) 383-9994
Lewis Wallenmeyer Director

October 7, 2013

Mr. Tod Oppenborn
99 CES/CENP
6020 Beale Avenue
Nellis AFB, NV 89191-7260

E-mail: tod.oppenborn@nellis.af.mil

Re: Creech Air Force Base Capital Improvements Program Environmental Assessment

Dear Mr. Oppenborn:

The Department of Air Quality (DAQ) has reviewed the subject environmental assessment (EA) for compliance with local, state, and federal air quality regulations. Creech Air Force Base is updating the Capital Improvements Program to include improvements to the AFB that consist of demolition and construction activities. This project is not located within Hydrographic Area 212, which is a maintenance area for carbon monoxide and ozone and a nonattainment area for particulate matter with a mean aerodynamic diameter less than 10 microns. Therefore, the proposed project is not subject to General Conformity requirements, but the following provisions may still apply.

According to Section 94 of the Clark County Air Quality Regulations (AQR), a dust control permit must be obtained prior to soil disturbing or construction activities that impact 0.25 acres or greater, mechanized trenching 100 feet or greater in length, or mechanical demolition of any structure 1,000 square feet or greater. Construction activities include, but are not limited to, land clearing; soil and rock excavation, removal, hauling, crushing, or screening; initial landscaping; staging and material storage areas; parking; and access roads. Additionally, a construction project ten acres or more, trenching activities one mile or greater in length, or structure demolition using implosive or explosive blasting techniques shall include a detailed supplement to the dust mitigation plan that will become part of the dust control permit as an enforceable permit condition.

Construction activities include, but are not limited to land clearing, soil and rock excavation, removal, hauling, crushing, or screening; initial landscaping; staging and material storage areas; parking; and access roads. Additionally, Best Available Control Measures must be employed

during construction activities at all times. These measures are contained in the *Construction Activities Dust Control Handbook*, which is available online at:

http://www.clarkcountynv.gov/Depts/AirQuality/Documents/DustControl/DustForms/DUST_CONTROL_HANDBOOK.pdf

Finally, Section 12 of the AQR requires issuance of a stationary source permit for any applicable source located in Clark County that has a potential to emit a regulated air pollutant that is equal to or greater than the thresholds listed in that section. A definitive determination, however, cannot be made until a completed application is submitted to DAQ and reviewed for applicability.

DAQ appreciates the opportunity to review this document. If you have any questions regarding the comments, please contact me at (702) 455-1600.

Sincerely,

L. Wallenmeyer

Lewis Wallenmeyer
Director

LW:dll

APPENDIX E

NEVADA DIVISION OF WILDLIFE – GILA MONSTER STATUS, IDENTIFICATION AND REPORTING PROTOCOL FOR OBSERVATIONS

NEVADA DEPARTMENT OF WILDLIFE
Southern Region
4747 W. Vegas Drive, Las Vegas, Nevada 89108
Phone: 702-486-5127, Fax: 702-486-5133

7 September 2012

GILA MONSTER STATUS, IDENTIFICATION AND REPORTING PROTOCOL FOR OBSERVATIONS

Gila Monster Status

- Per Nevada Administrative Code 503.080, the Gila monster (*Heloderma suspectum*) is classified as a Protected reptile.

- Per Nevada Administrative Codes 503.090, and 503.093, no person shall capture, kill, or possess any part thereof of Protected wildlife without the prior written permission by the Nevada Department of Wildlife (NDOW).

This species is rarely observed relative to other species which is the primary reason for its Protected classification by the State of Nevada. The USDI Bureau of Land Management has recognized this lizard as a sensitive species since 1978. Most recently, the Gila monster was designated as an *Evaluation* species under Clark County's Multiple Species Habitat Conservation Plan (MSHCP). The evaluation designation was warranted because inadequate information exists to determine if mitigation facilitated by the MSHCP would demonstrably cover conservation actions necessary to insure the species' persistence without protective intervention as provided under the federal Endangered Species Act.

The banded Gila monster (*H.s. cinctum*) is the subspecies that occurs in Clark, Lincoln, and Nye counties of Nevada. Found mainly below 5,000 feet elevation, its geographic range approximates that of the desert tortoise (*Gopherus agasizii*) and is coincident to the Colorado River drainage. Gila monster habitat requirements center on desert wash, spring and riparian habitats that inter-digitate primarily with complex rocky landscapes of upland desert scrub. They will use and are occasionally encountered out in gentler terrain of alluvial fans (bajadas). Hence, Gila monster habitat bridges and overlaps that of both the desert tortoise and chuckwalla (*Sauromalus ater*). Gila monsters are secretive and difficult to locate, spending >95% of their lives underground.

The Gila monster is the only venomous lizard endemic to the United States. Its behavioral disposition is somewhat docile and avoids confrontation. But it will readily defend itself if threatened. Most bites are considered illegitimate and consequential to harassment or careless handling. These lizards are not dangerous unless molested or handled and should not be killed.

Scant information exists on detailed distribution and relative abundance in Nevada. The Nevada Department of Wildlife (NDOW) has ongoing management investigations addressing the Gila monster's status and distribution, hence additional distribution, habitat, and biological

information is of utmost interest. In assistance to gathering additional information about Gila monsters in Nevada, NDOW will be notified whenever a Gila monster is encountered or observed, and under what circumstances (see Reporting Protocol below).

Identification

The Gila monster is recognizable by its striking black and orange-pink coloration and bumpy, or beaded, skin. In keeping with its namesake, the banded Gila monster retains a black chain-link, banded appearance into adulthood. Other lizard species are often mistaken for the Gila monster. Of these, the non-venomous western banded gecko (*Coleonyx variegatus*) and non-venomous chuckwalla are most frequently confused with the Gila monster. All three species share the same habitats.

The western banded gecko is often mistakenly identified as a baby or juvenile Gila monster. Western banded geckos do have a finely granular skin and pattern that can be suggestive of the Gila monster to the untrained eye. However, western banded gecko heads are somewhat pointed at the snout and the relatively large eyes have vertical pupils. Snouts of Gila monsters are bluntly rounded and the smallish eyes have round pupils. Newly hatched Gila monsters are about 5-6 inches long with a vivid orange and black, banded pattern. Adult western banded geckos are at best cream to yellow and brown in pattern and do not exceed 5 inches.

Both juvenile and adult chuckwallas are commonly confused with the Gila monster. Juvenile chuckwallas have an orange and black, banded tail. Although banding of the tail fades as chuckwallas mature, their large adult size (up to 17 inches) rivals that of the Gila monster. Adult chuckwallas have a body shape somewhat suggestive of the Gila monster, but they lack the coarsely beaded skin and black and orange body pattern of the Gila monster.

Reporting Protocol for Gila Monster Observations

Field workers and personnel in southern Nevada should at least know how to: (1) identify Gila monsters and be able to distinguish it from other lizards such as chuckwallas and western banded geckos (see Identification section above); (2) report any observations of Gila monsters to the Nevada Department of Wildlife (NDOW); (3) be alerted to the consequences of a Gila monster bite resulting from carelessness or unnecessary harassment; and (4) be aware of protective measures provided under state law.

1) Live Gila monsters found in harms way on the construction site will be captured and then

detained in a cool, shaded environment (≤85°F) by the project biologist or equivalent personnel until a NDOW biologist can arrive for documentation, marking and obtaining biological measurements and samples prior to releasing. Despite that a Gila monster is venomous and can deliver a serious bite, its relatively slow gate allows for it to be easily coaxed or lifted into an open bucket or box carefully using a long handled instrument such as a shovel or snake hook (*Note: it is not the intent of NDOW to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistical points*). A clean 5-gallon plastic bucket with a secure, vented lid; an 18"x 18"x 4" plastic sweater box with a secure, vented lid; or, a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location, Global Positioning System (GPS) coordinates in Universal Transverse Mercator (UTM) using the North American Datum (NAD) 83 zone 11. Date, time, and circumstances (e.g. biological survey or construction) and habitat description (vegetation, slope, aspect, substrate) will also be provided to NDOW.

2) Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. In the event a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses will not be covered by NDOW. However, NDOW will be immediately notified of any injury to a Gila monster and which veterinarian is providing care for the animal. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, date, time, habitat, and mapped location (GPS coordinates in UTM using NAD 83 Z 11).

3) Should NDOW's assistance be delayed, biological or equivalent acting personnel on site should detain the Gila monster out of harms way until NDOW personnel can respond. **The Gila monster should be detained until NDOW biologists have responded**. Should NDOW not be immediately available to respond for photo-documentation, a digital (5 mega-pixle or higher) or 35mm camera will be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures will be provided to NDOW at the address above or the email address below along with specific location information including GPS coordinates in UTM using NAD 83 Z 11, date, time and habitat description. Pictures will show the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); (3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

Please contact NDOW Biologist Jason L. Jones at 702-486-5127 x3718
or by e-mail at jljones@ndow.org for additional information regarding these protocols.