Final

Environmental Assessment for Republic of Singapore Air Force F-15SG Beddown, Mountain Home AFB

Prepared for
Headquarters Air Combat Command and Mountain Home AFB, ID

March 2007

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14. ABSTRACT

The purpose of the Proposed Action is to support agreements between the U. S. Government and one of its foreign allies. The Singapore Ministry of Defense and RSAF have submitted a Letter of Request to establish a Foreign Military Sales F-15SG squadron based in the continental United States (CONUS). The Chief of Staff of the Air Force and Secretary of the Air Force for International Affairs have agreed to offer the RSAF a CONUS basing option and Headquarters Air Combat Command (ACC) selected the 366th Fighter Wing at Mountain Home AFB, Idaho, for this relationship. This combined military capability permits substantial reductions in each nation?s military force, while also creating the larger force necessary to respond to international requirements. This philosophy establishes a need for military personnel of different nations to achieve a common high standard of training and proficiency and to forge the strongest possible team. The proposal would permit the RSAF to construct operations and maintenance facilities necessary for the flight training of their aircrews. Under both the Proposed Action, the RSAF beddown, and Alternative A, the modified RSAF beddown, the RSAF would beddown and operate 10 F-15SG aircraft, add required personnel, and construct and remodel facilities. Several facility projects at Mountain Home AFB are required to support the beddown of the RSAF squadron. A total of 13 construction, modification, or infrastructure improvement projects directly related to the beddown would be implemented from 2007 to 2009. In total, the construction, modifications, and infrastructure improvements would affect about 112,567 square feet of building space. The modified proposal differs in the location of construction, demolition, and remodeling of facilities at Mountain Home AFB. Under the Proposed Action, RSAF facilities would be integrated near the northern portion of the base. Under Alternative A, a new three bay conventional munitions facility would be constructed to augment existing facilities. An additional, new squadron operations facility and ramp could be constructed at the location of Building 1327. Under the No-Action Alternative, there would be no change to the mix or number of aircraft at Mountain Home AFB after the Base Realignment and Closure actions occurring from 2007 through 2011. No beddown of the RSAF F-15SG would occur.

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ACRONYMS AND ABBREVIATIONS

AAQS	Ambient Air Quality Standards
ACC	Air Combat Command
ACM	asbestos-containing material
AFB	Air Force Base
AFI	Air Force Instruction
AFOSH	Air Force Occupational Safety and Health
AGE	Aerospace Ground Equipment
AGL	above ground level
AHZ	Airport Hazard Zone
AICUZ	Air Installation Compatible Use Zone
AMU	Aircraft Maintenance Unit
APZ	Accident Potential Zone
AQCR	Air Quality Control Region
ARFF	aircraft-rescue fire fighting
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
BASH	Bird/Wildlife Aircraft Strike Hazard
BDU	Bomb Dummy Unit
BLM	Bureau of Land Management
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CONUS	Continental United States
CWA	Clean Water Act
CZ	Clear Zone
dB	Decibel
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EO	Executive Order
ERP	Environmental Restoration Program
FAA	Federal Aviation Administration
FEBA	Forward Edge of the Battle Area
FMS	Foreign Military Sales
FONSI	Finding of No Significant Impact
FS	Fighter Squadron
FTU	Fighter Training Unit
FY	Fiscal Year
FW	Fighter Wing
GAO	General Accounting Office
GE	General Electric
gpm	gallons per minute
GSE	Ground Support Equipment
HAZMAT	hazardous materials
HWMP	Hazardous Waste Management Plan
HWSA	Hazardous Waste Storage Area
ICDC	Idaho Conservation Data Center
IDANG	Idaho Air National Guard
IDEQ	Idaho Division of Environmental Quality
IFR	Instrument Flight Rules
IR	Instrument Route
L	Sound Level
LANTIRN	Low Altitude Navigation and Targeting Infrared for Night
L_{dn}	Average Day-Night Sound Level
L_{dnmr}	Onset Rate-Adjusted Monthly Day-Night Average Sound Level
LOLA	live ordnance loading area
mgd	million gallons per day
MHRC	Mountain Home Range Complex
MHSD	Mountain Home School District
MOA	Military Operations Area
MSA	Metropolitan Statistical Area
MSL	Mean Sea Level
MTR	Military Training Route
NAAQS	National Ambient Air Quality Standards
ND	no-drop
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
nm	nautical miles
NO_x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
O_3	ozone
OSHA	Occupational Safety and Health Act
Pb	lead
PM_{10}	particulate matter equal to or less than ten micrometers in diameter
PMAI	Primary Mission Aircraft Inventory
PSD	Prevention of Significant Deterioration
Q-D	Quantity Distance
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RSAF	Republic of Singapore Air Force
SAC	Strategic Air Command
SEL	Sound Exposure Level
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
TSCA	Toxic Substance Control Act
U.S.	United States
USAF	United States Air Force
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VFR	visual flight rules
VOC	volatile organic compound
VR	Visual Route
WSA	Wilderness Study Area
WSO	Weapon Systems Officer

FINDING OF NO SIGNIFICANT IMPACT

1.0 NAME OF THE PROPOSED ACTION

Republic of Singapore Air Force F-15SG Beddown at Mountain Home Air Force Base, Idaho

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The United States Air Force (Air Force) proposes to establish a Foreign Military Sales (FMS) squadron within the 366th Fighter Wing (366 FW) at Mountain Home Air Force Base (AFB), Idaho. The Republic of Singapore Air Force (RSAF) would beddown 10 operational F-15SG aircraft, personnel, and equipment beginning in 2009 to operate the squadron. This squadron would remain under the operational control of the Air Force while in the United States (U.S.). The intent is for the squadron to operate at Mountain Home AFB for 5 to 20 years. The beddown of the RSAF squadron at Mountain Home AFB would include:

- Addition of 10 operational F-15SG aircraft to the inventory;
- Increased airfield operations and sortie-operations in nearby Restricted Areas, Military Operations Areas (MOAs), and military training routes (MTRs);
- Basing of 179 RSAF and 128 support personnel; and
- Construction, modification, and demolition of facilities.

The Air Force identified an additional action alternative (Alternative A). Under Alternative A, the RSAF would beddown and operate a squadron of 10 F-15SG aircraft in a manner identical to the Proposed Action. The same increase in RSAF personnel would occur. However, construction and building modifications would include some different structures, and several would occur in different locations at Mountain Home AFB.

The Air Force also analyzed the No-Action Alternative. Under the No-Action Alternative, the Air Force would not beddown the RSAF F-15SG squadron, nor would it implement any other component of the Proposed Action.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The Environmental Assessment (EA) provides an analysis of the potential environmental consequences resulting from implementation of 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 Mountain Home AFB. The following summarizes and highlights the results of the analysis by resource category.

Airspace Management and Safety. Implementing the Proposed Action or Alternative A would not measurably affect airspace management or aircraft safety conditions at Mountain Home AFB or in the associated training airspace. Addition of RSAF F-15SG aircraft under the Proposed Action or action alternative would result in a 25 percent increase relative to baseline sorties at the airfield. Such an increase would not be significant and would not cause any shifts in the management or structure of the local airspace as total sorties would fall well below (11 to 31 percent) recent base levels prior to the Base Realignment and Closure (BRAC) realignment. Under the Proposed Action and Alternative A, sortie-operations in the five MOAs would increase between 23 and 30 percent over baseline conditions. Such increases would not affect the capabilities of these MOAs to accommodate all training needs and would not cause a need for structural changes to the airspace. The potential for Class A mishaps would remain low. No increase in bird/wildlife-aircraft strikes would be expected under the Proposed Action or Alternative A. Airfield operations would remain at post-BRAC levels if the No-Action Alternative was selected.

Noise. Implementing the Proposed Action or Alternative A would not substantially change the noise conditions on or around the base or in the airspace. Under the Proposed Action and Alternative A, the total area affected by noise levels greater than 65 DNL would increase by 15 percent. These increases in noise, however, represent a 20 percent drop from 2002 noise levels prior to the departure of the F-16C and F-15C aircraft due to the BRAC realignment and are unlikely to affect nearby businesses and residents. There would be an imperceptible increase in subsonic noise levels (1 dB) in Owyhee and Jarbidge MOAs over baseline conditions. Average number of sonic booms per month should not increase over baseline levels. Noise levels in other MOAs should remain less than 45 DNL.

Land Use, Recreation, and Visual. Changes to noise levels generated by aircraft operations under the Proposed Action and Alternative A would not significantly affect land use in the area. The overall 25 percent increase in sorties at the base associated with the proposed beddown would result in a greater increase of land exposed to noise levels of 65 DNL or higher in the vicinity of the base over baseline levels. Although additional public (i.e., BLM) and private land would be exposed to increased noise levels, the types of land use (i.e., grazing and agriculture) are not sensitive to noise and would remain unaffected. There are no changes to recreation activities or access anticipated, as well as negligible changes to visual resources due to implementation of the Proposed Action or Alternative A. No change in existing conditions for land management and use or recreational and visual resources would occur if the RSAF beddown did not transpire.

Air Quality. Effects to air quality under the Proposed Action or Alternative A would be minor. Aircraft emissions would increase slightly. During construction, all criteria pollutants would increase by less than 1 ton per year, except for PM_{10}, which peaks at 1.61 tons in 2007 for the Proposed Action. For Alternative A, all criteria pollutants would increase less than 1 ton per year as well, with the exception of CO (1.23) and PM_{10} (2.62) in 2008. Additionally, a small increase in emissions would occur in the Owyhee and Jarbidge MOAs. The average between the two MOAs has CO increasing by 22 percent, NO_x by 27 percent, and SO_2 by 26 percent. Emissions would remain unchanged under the No-Action Alternative.

Biological Resources. Overall, there would be no adverse impact to wildlife or special-status species from implementation of the Proposed Action or Alternative A. No significant impacts would occur to threatened, endangered, or sensitive species in the affected environment. Should special-status species at Mountain Home AFB (burrowing owl and long-billed curlew) be encountered during demolition or construction activities, appropriate measures to minimize impacts to the species would be taken. No changes to existing resources would occur under the No-Action Alternative.

Cultural Resources. No National Register-eligible resources would be impacted by implementation of the Proposed Action or Alternative A. No impacts to cultural resources would occur through implementation of the No-Action Alternative.

Soils and Water. Implementation of the Proposed Action would increase the impervious surface on Mountain Home AFB by 2.6 acres, and 3.5 acres would be impacted from selection of Alternative A. Both acreages are on previously disturbed land and are fractions of the 6,844 acres that comprise Mountain Home AFB. Impacts to soils and water resources from the proposed construction would be minimized by best management practices consistent with Air Force requirements, therefore, the Proposed Action or Alternative A would not have a significant impact on soils or water resources. No changes to existing water resources or soil conditions would occur under the No-Action Alternative.

Hazardous Materials and Waste. No significant impacts would occur due to hazardous materials or waste. No new waste streams would be created through implementation of the Proposed Action or Alternative A as the RSAF F-15SG is essentially the same aircraft as the Air Force F-15E. Nor would addition of the RSAF F-15SG aircraft change the large generator status of Mountain Home AFB. One inactive ERP site is near a project location. However, no significant impacts would occur to ERP sites under the Proposed Action or Alternative A. No impacts to this resource would occur under the No-Action Alternative.

Socioeconomics. Under the Proposed Action and Alternative A, 307 RSAF-associated personnel and their dependents would relocate to Mountain Home. This small influx would occur after the BRAC drawdown at the base and would not present any adverse effect if the Proposed Action or Alternative A were implemented. The Proposed Action and Alternative A would represent a minor short-term beneficial

impact to the local communities through facility construction expenditures. Longer-term beneficial impacts in the region would be expected throughout the duration of the beddown as the Proposed Action would offset the loss of manpower positions at Mountain Home AFB following the base's realignment under the 2005 BRAC process. No change to the regional economy would occur under the No-Action Alternative. Loss of manpower through the BRAC actions without additional RSAF personnel could be an adverse impact but is not likely to be a significant adverse impact to the local economy under the No-Action Alternative.

4.0 CONCLUSION

On the basis of the analysis in the attached EA, which is hereby incorporated by reference, conducted in accordance with the requirement of the National Environmental Policy Act, the Council on Environmental Quality regulations, and Air Force Environmental Impact Analysis Process, as promulgated in Title 32 of the Code of Federal Regulations Part 989, and after careful review of the potential impacts of the Proposed Action, Alternative A, and No-Action Alternative, I find that there would be no significant impact on the quality of the human or natural environment from the implementation of the Proposed Action or Alternative A described in the EA. Therefore, I find there is no requirement to develop an Environmental Impact Statement.

David E. Clary

DAVID E. CLARY
Major General, USAF
Vice Commander

9 MAR 07

Date

COVER SHEET

ENVIRONMENTAL ASSESSMENT FOR REPUBLIC OF SINGAPORE AIR FORCE F15SG BEDDOWN, MOUNTAIN HOME AFB

Responsible Agency: United States Air Force, Air Combat Command

Proposed Action: The United States Air Force (Air Force) proposes to beddown a Republic of Singapore Air Force (RSAF) squadron of F-15SG aircraft at Mountain Home Air Force Base (AFB) in Idaho. Under the Proposed Action, the RSAF squadron of F-15SG aircraft would be co-located with Mountain Home AFB F-15E aircraft for training support and flight operations with similar aircraft.

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 http://www.accplanning.org/

Designation: Final Environmental Assessment

Abstract: The purpose of the Proposed Action is to support agreements between the U. S. Government and one of its foreign allies. The Singapore Ministry of Defense and RSAF have submitted a Letter of Request to establish a Foreign Military Sales F-15SG squadron based in the continental United States (CONUS). The Chief of Staff of the Air Force and Secretary of the Air Force for International Affairs have agreed to offer the RSAF a CONUS basing option and Headquarters Air Combat Command (ACC) selected the 366th Fighter Wing at Mountain Home AFB, Idaho, for this relationship. This combined military capability permits substantial reductions in each nation's military force, while also creating the larger force necessary to respond to international requirements. This philosophy establishes a need for military personnel of different nations to achieve a common high standard of training and proficiency and to forge the strongest possible team.

The proposal would permit the RSAF to construct operations and maintenance facilities necessary for the flight training of their aircrews. Under both the Proposed Action, the RSAF beddown, and Alternative A, the modified RSAF beddown, the RSAF would beddown and operate 10 F-15SG aircraft, add required personnel, and construct and remodel facilities. Several facility projects at Mountain Home AFB are required to support the beddown of the RSAF squadron. A total of 13 construction, modification, or infrastructure improvement projects directly related to the beddown would be implemented from 2007 to 2009. In total, the construction, modifications, and infrastructure improvements would affect about 112,567 square feet of building space. The modified proposal differs in the location of construction, demolition, and remodeling of facilities at Mountain Home AFB. Under the Proposed Action, RSAF facilities would be integrated near the northern portion of the base. Under Alternative A, a new three bay conventional munitions facility would be constructed to augment existing facilities. An additional, new squadron operations facility and ramp could be constructed at the location of Building 1327.

Under the No-Action Alternative, there would be no change to the mix or number of aircraft at Mountain Home AFB after the Base Realignment and Closure actions occurring from 2007 through 2011. No beddown of the RSAF F-15SG would occur.

Final

Environmental Assessment for Republic of Singapore Air Force F-15SG Beddown, Mountain Home AFB

United States Air Force
Air Combat Command

March 2007

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This Environmental Assessment (EA) analyzes the potential environmental consequences resulting from a United States Air Force (Air Force) proposal to beddown a Republic of Singapore Air Force (RSAF) squadron of F-15SG aircraft at Mountain Home Air Force Base (AFB) in Idaho. This EA has been prepared by the Air Force, Headquarters Air Combat Command (ACC), in accordance with the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, Air Force Environmental Impact Analysis Process, as promulgated in Title 32 of the Code of Federal Regulations (CFR) Part 989, and the Department of Defense (DoD) Directive 6050.1.

PURPOSE AND NEED FOR THE ACTION

The purpose of this action is to support agreements between the United States (U.S.) Government and one of its foreign allies. The Singapore Ministry of Defense and RSAF have submitted a Letter of Request to establish a Foreign Military Sales F-15SG squadron based in the continental United States (CONUS). The Chief of Staff of the Air Force and Deputy Under Secretary of the Air Force for International Affairs have agreed to offer the Republic of Singapore a CONUS basing option and have directed ACC to determine a suitable location. The U.S. needs to implement this beddown to provide training for effective combat readiness of allied forces, fulfilling the need to train as a team to perform in a multinational force structure. Following World War II, the U.S. Government established a policy of providing training to military personnel from countries allied with the U.S. Such training has been conducted throughout the post-World War II era. Changes in international requirements and reductions in U.S. military budgets have established a need for the military forces of many nations to work together to meet specific threats. This combined military capability permits substantial reductions in each nation's military force, while also creating the larger force necessary to respond to international requirements. This philosophy establishes a need for military personnel of different nations to achieve a common high standard of training and proficiency and to forge the strongest possible team. As U.S. military bases close overseas, this proposal shows continued U.S. commitment to support foreign allies' training requirements in a combined operational environment. Therefore, the RSAF beddown at Mountain Home AFB is necessary to continue building the U.S. relationship and interoperability with Singapore's armed forces.

PROPOSED ACTION AND ALTERNATIVES

The Proposed Action and action alternative (Alternative A) would occur at the same location—Mountain Home AFB and the Mountain Home Range Complex (MHRC) and associated airspace. With the exception of the No-Action Alternative, both action alternatives consist of four related elements that could affect the environment: aircraft inventory changes; airfield and training flight operations; personnel changes; and construction and remodeling. The Proposed Action, the RSAF beddown, and Alternative A, the modified RSAF beddown, are the same in the number of aircraft, airfield and training flight

operations, and personnel changes. They differ in the types and locations of construction, demolition, and remodeling of facilities at Mountain Home AFB. Under the Proposed Action, RSAF facilities would be integrated near the northern portion of the base. Under Alternative A, a new three-bay conventional munitions facility would be constructed to augment existing facilities. An additional, new squadron operations facility and ramp could be constructed at the location of Building 1327.

Proposed Action

After Base Realignment and Closure (BRAC) actions at Mountain Home AFB (removing F-16s in 2007, adding additional F-15Es in 2007, and removing F-15C/D aircraft in 2010), based aircraft would consist of 42 F-15Es. Under the Proposed Action and Alternative A, the RSAF would beddown and operate 10 F-15SG aircraft.

Overall, the number of sorties or airfield operations conducted at Mountain Home AFB would increase by 25 percent. However, the total number of sortie-operations with the RSAF F-15SG beddown would still be approximately 47 percent less than they were in 2001 (Air Force 2001).

Several facility projects at Mountain Home AFB are required to support the beddown of the RSAF squadron. A total of 13 construction, modification, or infrastructure improvement projects directly related to the beddown would be implemented from 2007 to 2009 under the Proposed Action. Most construction would occur in 2007 and 2008. In total, the construction, modifications, and infrastructure improvements would affect about 112,567 square feet of building space.

Alternative A: Modified RSAF Beddown

Alternative A is the same as the Proposed Action except as follows:

- Construction of a new three-Bay conventional munitions hanger would be required**.**
- An additional Bay would not be added to Building 3016, the conventional munitions shop.
- No additional munitions storage pads would be constructed in front of Bldg 3016.
- As an option, the RSAF would construct a new squadron operations, aircraft maintenance unit, and ramp at the location of Building 1327.

No-Action Alternative

Under the No-Action Alternative, there would be no change to the mix or number of aircraft at Mountain Home AFB after the BRAC actions occurring from 2007 through 2011. No beddown of the RSAF F-15SG squadron would occur. All airfield, airspace, and range use as well as munitions training would be the same as baseline conditions. No changes in personnel would occur and no building renovations would be necessary.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This EA provides an analysis of the potential environmental consequences resulting from implementing the Proposed Action, Alternative A, and No-Action Alternative, and the cumulative environmental consequences of the Proposed Action and alternatives relative to pertinent past, current, and foreseeable future actions. Nine resource categories and cumulative effects received a thorough interdisciplinary analysis to identify potential impacts. According to the analysis in this EA, implementing the Proposed Action or any of the alternatives would have a negligible to minimal affect on existing conditions at Mountain Home AFB or in its associated training airspace. The following summarizes and highlights the results of the analysis by resource category.

Table ES-1. Comparison of Alternatives by Resource

Resource Category	***Proposed Action***	***Alternative A***	***No–Action Alternative***
Airspace Management and Safety	• 25 percent increase in annual sorties; 23 percent increase in airfield operations • Sortie-operations on IR-302 and IR-304 would increase by 33 percent; 23 to 30 percent in the MOAs • No impacts to airspace management • Chance of mishaps would remain negligible	• 25 percent increase in annual sorties; 23 percent increase in airfield operations • Sortie-operations on IR-302 and IR-304 would increase by 33 percent; 23 to 30 percent in the MOAs • No impacts to airspace management • Chance of mishaps would remain negligible	• No increase in sorties and airfield operations • No increase in sortie-operations on IR-302 and IR-304 and in the MOAs • No impacts to airspace management • No change to existing conditions, with risks remaining minimal
Noise	• 15 percent increase in area affected by noise levels greater than 65 DNL over baseline • Proposed Action represents a 20 percent drop from 2002 noise levels	• 15 percent increase in area affected by noise levels greater than 65 DNL over baseline • Proposed Action represents a 20 percent drop from 2002 noise levels	• Current noise levels and noise environment would continue
Land Use, Recreation, and Visual	• No adverse impacts to land use, status, or management • No anticipated changes in recreation activities and access available • Negligible and unnoticeable physical impacts to special designation areas	• No adverse impacts to land use, status, or management • No anticipated changes in recreation activities and access available • Negligible and unnoticeable physical impacts to special designation areas	• No change from current land uses • No change in activity opportunities or access to public lands • No change in eligibility status in special designation areas

Table ES-1. Comparison of Alternatives by Resource (con't)			
Resource Category	***Proposed Action***	***Alternative A***	***No-Action Alternative***
Air Quality	• Construction emissions are less than 1 ton per year, per criteria pollutant, except for PM_{10} which peaks at 1.61 tons in 2007 • Airspace emissions for Jarbidge and Owyhee MOAs increase an average of 22 percent for CO, 27 percent for NO_x, and 26 percent for SO_2	• Construction emissions are generally less than 1 ton per year, per criteria pollutant, except for CO and PM_{10} which peak at 1.23 and 2.62 tons respectively, in 2008 • Airspace emissions for Jarbidge and Owyhee MOAs increase an average of 22 percent for CO, 27 percent for NO_x, and 26 percent for SO_2	• No changes to existing air quality conditions
Biological Resources	• No adverse impacts to wildlife, wetlands, or special-status species	• No adverse impacts to wildlife, wetlands, or special-status species	• No changes to current wildlife resources • Conditions for sensitive species would remain the same
Cultural Resources	• No impacts to National Register-eligible archaeological or architectural resources	• No impacts to National Register-eligible archaeological or architectural resources	• No changes to any National Register-eligible archaeological or architectural resources
Soils and Water Resources	• 2.6 acres of previously disturbed land would be used for construction • Adherence to BMPs would minimize impacts to construction disturbance	• 3.5 acres of previously disturbed land would be used for construction • Adherence to BMPs would minimize impacts to construction disturbance	• No land would be disturbed land for construction
Hazardous Materials and Waste	• No change to large generator status • No new waste streams anticipated • One project would be located within 200 feet of an inactive ERP site	• No change to large generator status • No new waste streams anticipated • One project would be located within 200 feet of an inactive ERP site	• No changes to existing hazardous materials and waste or ERP sites

Table ES-1. Comparison of Alternatives by Resource (con't)			
Resource Category	***Proposed Action***	***Alternative A***	***No–Action Alternative***
Socioeconomics	• Addition of RSAF associated personnel would increase payroll at Mountain Home AFB by approximately 6 percent over baseline • On-base and off-base housing sufficient to accommodate personnel changes	• Addition of RSAF associated personnel would increase payroll at Mountain Home AFB by approximately 6 percent over baseline • On-base and off-base housing sufficient to accommodate personnel changes	• No change to regional economy

According to the analysis in this EA, the potential for environmental consequences in any resource category from implementation of the Proposed Action would be minimal to neglible. Implementing the Proposed Action or Alternative A would not adversely affect existing conditions at Mountain Home AFB, or within the general area of flight activity. Minimal to negligible effects would occur to noise levels, airspace use, and soils and water resources. The Proposed Action or Alternative A would increase employment and earnings at Mountain Home AFB.

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CHAPTER 1

INTRODUCTION

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The United States Air Force (Air Force) proposes to establish a Foreign Military Sales (FMS) squadron within the 366th Fighter Wing (366 FW) at Mountain Home Air Force Base (AFB), Idaho (Figure 1.1-1). The Republic of Singapore Air Force (RSAF) would beddown 10 operational F-15SG aircraft, personnel, and equipment beginning in 2009 to operate the squadron. This squadron would remain under the operational control of the Air Force while in the United States (U.S.). The intent is for the squadron to operate at Mountain Home AFB for 5 to 20 years. The beddown of the RSAF squadron at Mountain Home AFB would include:

- Addition of 10 operational F-15SG aircraft to the inventory;
- Increased airfield operations and sortie-operations in nearby Restricted Areas, Military Operations Areas (MOAs), and military training routes (MTRs);
- Basing of 179 RSAF and 128 support personnel; and
- Construction, modification, and demolition of facilities.

The Air Force prepared this environmental assessment (EA) to determine the potential environmental consequences of implementing the proposed beddown. Specifically, the Proposed Action at Mountain Home AFB would involve all of the components mentioned above including constructing, modifying, and improving facilities for squadron operations, munitions storage, and maintenance.

The Air Force also identified an additional action alternative (Alternative A). Under Alternative A, the RSAF F-15SG squadron would beddown and operate 10 F-15SG aircraft in a manner identical to the Proposed Action. The same increase in RSAF personnel would occur. However, construction and building modifications would include some different structures, and several would occur in different locations at Mountain Home AFB.

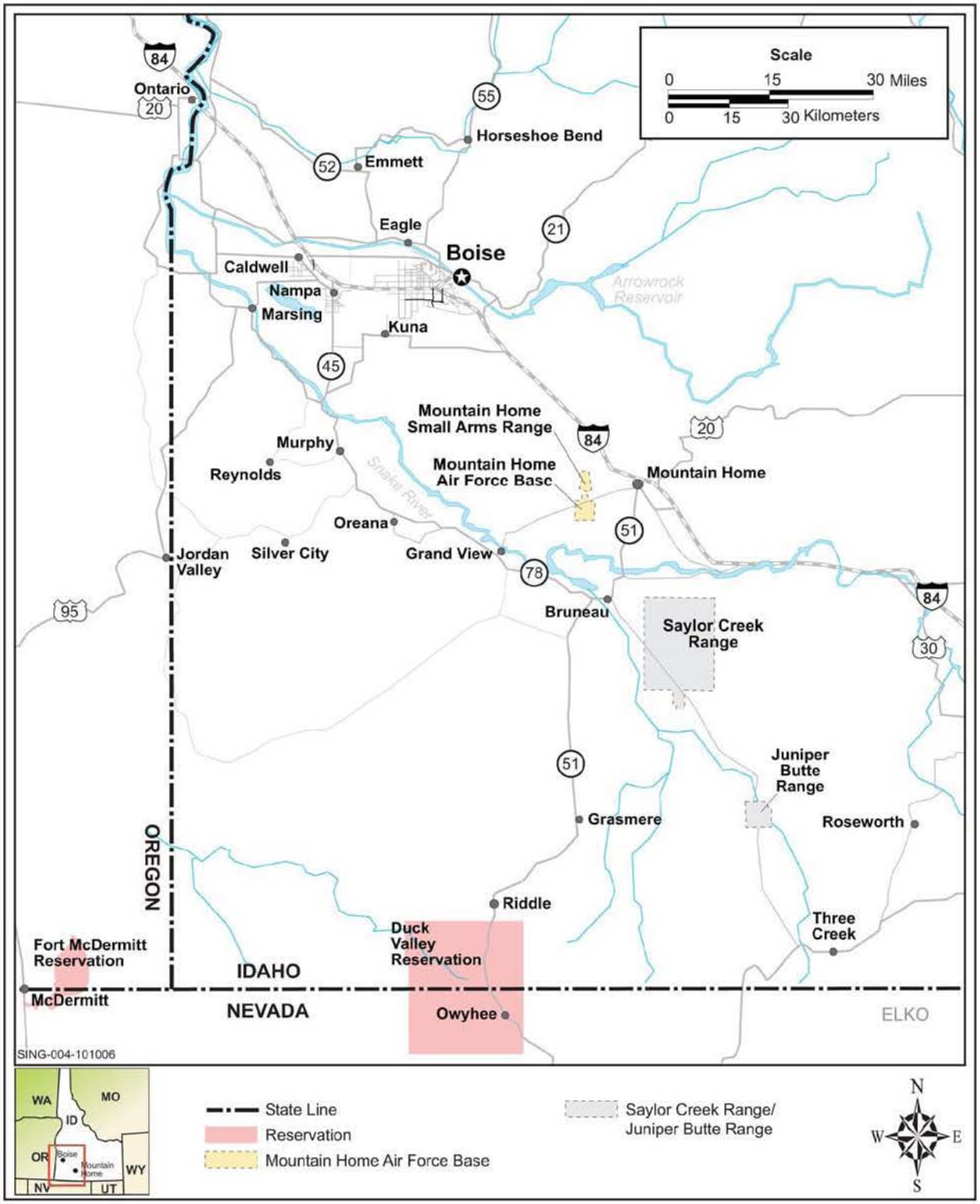


Figure 1.1-1. Regional Location of Mountain Home AFB, Idaho

In addition to the Proposed Action and Alternative A, NEPA requires the Air Force to analyze the No-Action Alternative. Under the No-Action Alternative, the Air Force would not beddown the RSAF F-15SG squadron, nor would it implement any other component of the Proposed Action. Table 1.1-1 provides a comparison of the components of the Proposed Action and Alternative A.

Table 1.1-1. Proposed Action and Alternative Components

Components	***Proposed Action***	***Alternative A***	***No Action***
Beddown 10 operational RSAF F-15SG aircraft at Mountain Home AFB	Yes	Yes	No
Augment 366 FW personnel with RSAF personnel and use associated ranges and airspace	Yes	Yes	No
Establish an integrated RSAF operations area	Yes	No	No
Establish a dispersed RSAF operations area at Mountain Home AFB	No	Yes	No

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

1.2 BACKGROUND

Mountain Home AFB

Mountain Home AFB, located in southwestern Idaho approximately 40 miles southeast of Boise and 8 miles southwest of Mountain Home (Figure 1.2-1), supports the 366 FW. On-base buildings, roads, runways, and other facilities cover approximately 25 percent of the land (see Figure 1.2-1). The most intensively developed areas are located in the central and northeastern portions of the base. Landscaped and disturbed areas account for another 25 percent of Mountain Home AFB. The remainder of the lands range from open, undeveloped fields to partially disturbed areas separating buildings and facilities. The periphery of the base contains the least development.

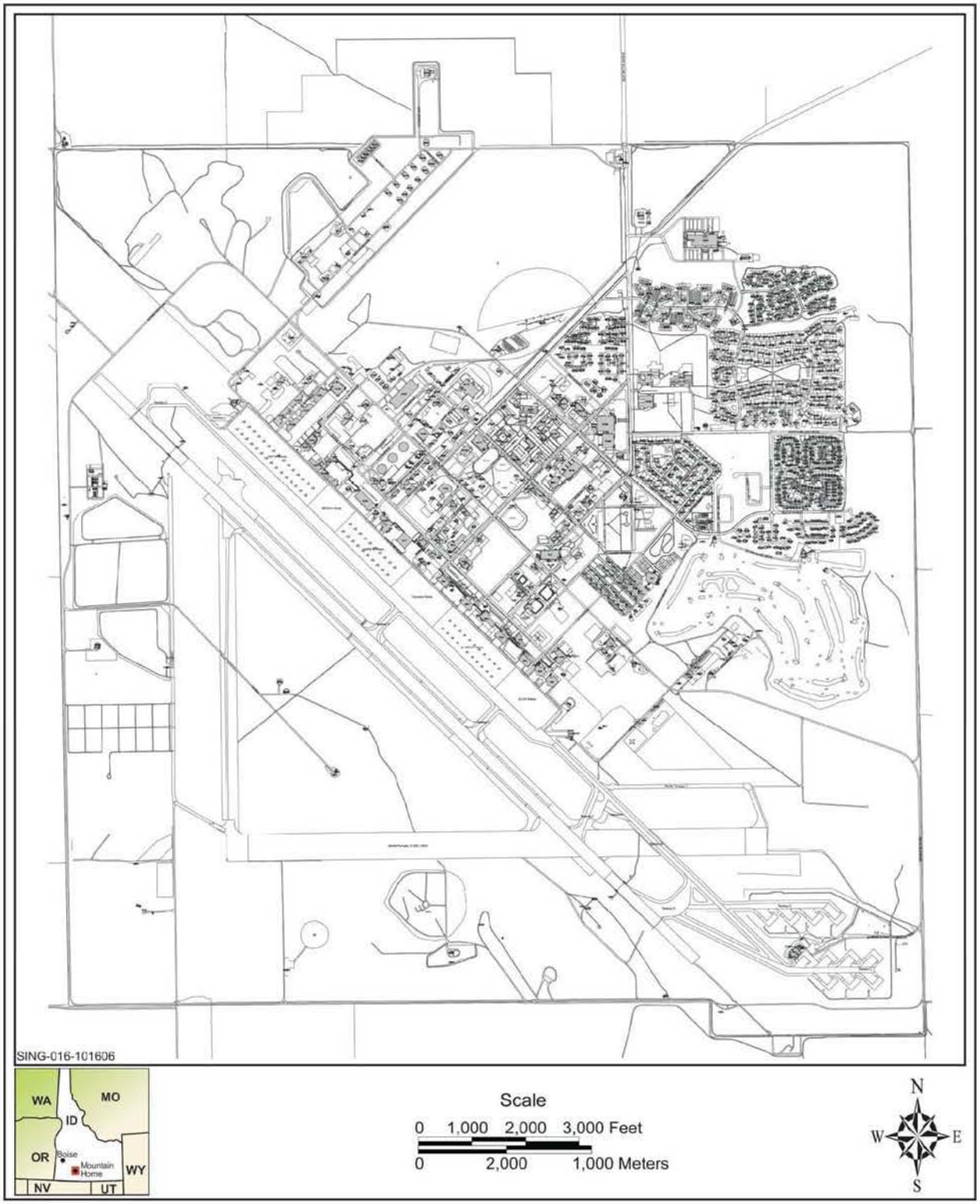


Figure 1.2-1. Mountain Home AFB

At the present, the 366 FW consists of three fighter squadrons (FS) with a variety of aircraft including F-16Cs, F-15Cs, and F-15Es (Table 1.2-1). However, as described below, as a result of action directed by the 2005 Base Realignment and Closure (BRAC) Commission, the base will lose both the F-15C and F-16CJ squadrons and gain a squadron of F-15Es. The BRAC action essentially will be complete by the time the RSAF beddown would occur.

Table 1.2-1. Composition of the 366 FW in 2006

Aircraft Type	***Aircraft***	***Squadron Designation***
F-15C Fighter	18	390th Fighter Squadron (390 FS)
F-15E Fighter	24	391st Fighter Squadron (391 FS)
F-16C Fighter	18	389th Fighter Squadron (389 FS)
Total	**60**	

Each squadron within the 366 FW consists of Primary Mission Aircraft Inventory (PMAI) aircraft and backup aircraft inventory aircraft. PMAI are defined as those operational aircraft authorized and assigned to perform the squadron's missions. Backup aircraft, as the designation implies, represent those used as substitutes for PMAI aircraft undergoing maintenance or otherwise unable to fly. For the purposes of this analysis, the EA will focus on PMAI aircraft since only they have the potential to affect the environment through flight operations and associated activities.

Mountain Home AFB controls and operates the Mountain Home Range Complex (MHRC) airspace. The MHRC airspace is comprised of the Owyhee, Jarbidge, and Paradise (East and West) Military Operations Areas (MOAs), and associated Air Traffic Control Assigned Airspace (ATCAA) up to 50,000 feet mean sea level (MSL). The MHRC incorporates two air-to-ground weapons ranges, which are overlain by restricted airspace: Saylor Creek (R-3202) and Juniper Butte (R-3204) within the Jarbidge MOA. Saylor Creek and Juniper Butte air-to-ground weapons ranges comprise tactical ranges with an associated electronic warfare capability.

2005 BRAC Commission Actions

The 2005 BRAC Commission directed realignment of Mountain Home AFB by implementing the following actions:

1. Transferring 18 F-15E aircraft from Elmendorf AFB to Mountain Home AFB no later than September 30, 2007.
2. Transferring 18 F-16 aircraft from Mountain Home AFB to meet BRAC requirements at other installations no later than September 15, 2007.
3. Relocating Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) intermediate maintenance from Mountain Home AFB to Hill AFB no later than September 30, 2007.
4. Transferring 18 F-15C/D aircraft from Mountain Home AFB to meet BRAC requirements at other installations no later than September 15, 2011.

The environmental analysis of the BRAC Commission actions for Mountain Home AFB was completed in May 2006 (Mountain Home AFB 2006f). Overall, the analysis indicated minimal to negligible impacts to resources due to the action. Replacements of similar types of aircraft resulted in no net increase in use of ranges or airspace, airfield operations, changes in flight tracks, or an increase in permanent personnel or logistics support requirements. The BRAC action will result in a net loss of 18 aircraft (Table 1.2-2) and 462 positions (Table 1.2-3) by 2011. It is also estimated that sorties, airfield operations, and sortie-operations would be reduced by 42 to 45 percent (Air Force 2006a). To ensure compliance with BRAC, the Air Force developed a schedule for the realignments (see Table 1.2-2).

Table 1.2-2. Mountain Home AFB BRAC Aircraft Inventory Changes

Aircraft	*Squadron*	*Current Inventory (2006)*	*End-State (2011)*	*Air Force Schedule*
F-16	389 FS	18	0	Depart early 2007
F-15C	390 FS	18	0	Depart October 2010
F-15E	391 FS	24	24	No change
F-15E	90 FS	0	18	Arrive June 2007
Total		**60**	**42**	

Table 1.2-3. Mountain Home BRAC Manpower Changes

Year	*Officer*	*Enlisted*	*Civilian*	*Total*
2007	+14	+239	0	+253
2009	0	-34	0	-34
2010	-36	-645	0	-681
Total	**-22**	**-440**	**0**	**-462**

Since almost all of the BRAC actions would occur before the proposed RSAF beddown begins, the environmental baseline for this assessment reflects anticipated conditions at Mountain Home AFB and its associated ranges and airspace after the completion of the BRAC action in 2011. The schedule for the BRAC action is to transfer F-15C aircraft and personnel out of Mountain Home AFB by October 2010. RSAF personnel and aircraft would arrive in April through August 2009. Although this would mean that the introduction of RSAF F-15SG aircraft and personnel would take place before the F-15Cs are removed (an overlap of approximately 1 year), the number of aircraft, use of airspace and ranges, or the number of personnel would not exceed equivalent categories at Mountain Home AFB in 1998 (Air Force 1998a).

1.3 PURPOSE AND NEED

The purpose of this action is to support agreements between the U.S. Government and one of its foreign allies. The Singapore Ministry of Defense and RSAF have submitted a Letter of Request to establish a FMS F-15SG squadron based in the continental United States (CONUS). The Chief of Staff of the Air Force and Secretary of the Air Force for International Affairs have agreed to offer the Republic of Singapore a CONUS basing option and have directed Air Combat Command (ACC) to determine a suitable location. The U.S. needs to implement this beddown to provide training for effective combat

readiness of allied forces, fulfilling the need to train as a team to perform in a multinational force structure.

Following World War II, the U.S. Government established a policy of providing training to military personnel from countries allied with the U.S. Such training has been conducted throughout the post-World War II era. Changes in international requirements and reductions in U.S. military budgets have established a need for the military forces of many nations to work together to meet specific threats. This combined military capability permits substantial reductions in each nation's military force, while also creating the larger force necessary to respond to international requirements. This philosophy establishes a need for military personnel of different nations to achieve a common high standard of training and proficiency and to forge the strongest possible team. This policy is reflected in the current U.S. National Military Strategy, emphasizing peacetime military contacts through international training and military exchanges. These actions have helped build mutual trust, effective communications, and combined operations capability. As part of this policy, the RSAF beddown a squadron of F-16 aircraft at Cannon AFB in 1998 (Air Force 1998c).

The provision of such training has proven effective in maintaining combat readiness of allied forces and ensuring that allied forces can perform effectively in a multinational force structure when needed to fight as a team. The success of the allied forces in conflicts throughout the world over the last 15 years is, in part, a result of the close and effective working relationships developed through such training experience. The beddown and operation of 10 RSAF F-15SG aircraft under the FMS program at Mountain Home AFB would help to meet the requirements of developing combined action capabilities with our allies. The RSAF squadron would operate as a combined U.S. Air Force/RSAF squadron. As U.S. military bases close overseas, this proposal shows continued U.S. commitment to support foreign allies' training requirements in a combined operational environment. Therefore, the RSAF beddown at Mountain Home AFB is necessary to continue building the U.S. relationship and interoperability with Singapore's armed forces.

CHAPTER 2

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter describes the proposed RSAF beddown at Mountain Home AFB, Idaho. The Proposed Action analyzed in this EA consists of a single action—establishing a RSAF squadron of F-15SG aircraft at Mountain Home AFB—with four component parts: 1) operating 10 RSAF F-15SG aircraft beginning in 2009; 2) using the airfield and associated airspace for training; 3) increasing personnel; and 4) constructing and modifying facilities to support the beddown. Alternative A would involve these same components, but construction and building modifications would include some different structures, and several would occur in different locations at Mountain Home AFB. The No-Action Alternative reflects baseline conditions at Mountain Home AFB, as required under NEPA and CEQ regulations.

2.1 ALTERNATIVE IDENTIFICATION PROCESS

This EA analyzes a full range of reasonable alternatives to address the purpose and need for the action—to beddown a RSAF F-15SG squadron at a U.S. Air Force installation in CONUS. The RSAF squadron would operate as a separate, but integrated, fighter squadron under the operational control of the 366 FW Commander. Operating as a Fighter Training Unit (FTU) for the first two years, the squadron would conduct core training and aircraft systems familiarization purposes. Following FTU operations, the squadron would transition to training RSAF pilots in high end continuation training. Approximately 10 RSAF technicians per operational aircraft would be stationed within the squadron for direct maintenance of the aircraft. The basing agreement could be extended for an additional 20 years, subject to renewals every 3 years. The RSAF would have the rights to withdraw the overseas fleet any time due to national commitments.

Alternatives form the core of the NEPA process. In compliance with NEPA, 32 CFR 989, which implements the Air Force's EIAP process, and CEQ regulations, the Air Force must consider reasonable alternatives to the proposed action. Only those alternatives determined as reasonable relative to their ability to fulfill the need for a proposed action warrant detailed analysis. To be considered reasonable, an alternative must not only fulfill the purpose and need for the action, it must be technically and fiscally feasible. It must also involve an action that is reasonably foreseeable. Through rigorous evaluation, an agency needs to examine a range of alternatives, determining those deemed reasonable and those not carried forward for detailed analysis.

To identify alternatives for the RSAF beddown, the Air Force undertook a multi-step process (Table 2.1-1) that considered several criteria. The first step centered on examining all Air Force and related installations worldwide to identify those supporting existing F-15E squadrons. Co-location of the RSAF squadron with an existing F-15E squadron forms a core requirement of the proposed action. Since the RSAF unit would be under Air Force command, fly essentially identical aircraft, and employ the same

F-15 maintenance processes and equipment, the RSAF squadron needs to be located on a base with other F-15 squadrons. The need to ensure organizational synergy and maximization of support facilities and equipment also dictates the need for the co-location of the RSAF squadron on an existing base with F-15s. A total of six installations worldwide met these criteria: Royal Air Force (RAF) base, Lakenheath, England; Elmendorf AFB, Alaska; Eglin AFB, Florida; Nellis AFB, Nevada; Seymour Johnson AFB, North Carolina; and Mountain Home AFB, Idaho.

Table 2.1-1 Alternatives Screening Analysis

Installation	*F-15E Squadron*	*CONUS Location*	*Combat-Coded Operational F-15E Squadron*	*Capability to Accommodate Beddown*	*Airspace/Range Suitability and Accessibility*	*Carried Forward for Analysis*
RAF Lakenheath	Yes	No				
Elmendorf AFB	Yes	No				
Eglin AFB	Yes	Yes	No			
Nellis AFB	Yes	Yes	No			
Seymour Johnson AFB	Yes	Yes	Yes	Yes (but with constraints)	No	
Mountain Home AFB	Yes	Yes	Yes[1]	Yes	Yes	Yes

[1] Mountain Home AFB would receive the F-15Es in 2007

In the second step, the Air Force narrowed the potential alternatives down to those locations in CONUS. A CONUS location provides ready access to the necessary training exercises (e.g., Red Flag, Combat Archer, and Air Warrior, among others). It would also provide substantially greater training opportunities at a variety of CONUS range complexes and in training airspace, as well as greater interaction with other Air Force units. Based on these needs, the Air Force eliminated all candidate locations outside the CONUS. These included RAF Lakenheath and Elmendorf AFB.

For the third step, the Air Force considered the type (i.e., operational vs. testing/specialized training) of F-15E squadron present at the four remaining candidate bases. The RSAF squadron would be an operational combat unit under Air Force command, it would need to train and operate identically to an Air Force combat-coded operational F-15E unit. It would need to function organizationally, logistically, and tactically as a combat F-15 unit. In contrast, beddown of the RSAF squadron with F-15 units dedicated to testing, weapons school functions, or other specialized activities (e.g., Force Development Evaluation, weapons testing) would fail to provide the necessary synergy and training. For these reasons, only those bases supporting combat-coded operational F-15E units were carried forward as viable candidate alternatives. While both support F-15Es, the squadrons at Nellis AFB and Eglin AFB do not comprise combat-coded operational units. At Nellis AFB, the F-15Es perform test and evaluation, weapons school,

and force development and evaluation functions. Test and evaluation, in addition to weapons testing, form the major functions of the F-15Es at Eglin AFB.

Application of the first three steps of the alternative identification process resulted in narrowing the potential candidates to two locations, Seymour Johnson AFB and Mountain Home AFB. Since both bases support combat-coded operational F-15E squadrons, the identification effort needed to examine more specific criteria. To assist in determining the viability of the proposed beddown at each base, the Air Force assessed each installations training assets. These assessments considered the capabilities of both bases to accommodate the RSAF beddown, reviewing facilities, infrastructure, communications, and training opportunities. The following addresses each base.

Seymour Johnson AFB

Seymour Johnson AFB, located near Goldsboro, North Carolina, met the preliminary criteria as a candidate alternative. The 4th Fighter Wing (4 FW) is the host unit at Seymour Johnson AFB, and accomplishes its training and operational missions with 92 F-15E Strike Eagles. Two of the wings' four fighter squadrons comprise combat-coded operational units, capable of deploying worldwide on short notice and immediately generating combat power. The other two squadrons provide fighter training for all F-15E aircrews for the Air Force.

The assessment concluded that 3,300 acre base could accommodate the proposed RSAF squadron. However, implementation would require significant construction, substantial costs, and result in an even more constrained flightline. Base flight operations, maintenance and logistics, facilities, and services would be severely affected by the proposed beddown.

Another criteria for the beddown consisted of the sufficiency and availability of local ranges and airspace to provide the needed training for the RSAF squadron. To ensure consistent and effective training, the Air Force sought to beddown the RSAF squadron at a base with a range located within 40 nautical miles (nm). A local range allows aircrews to perform effective training without wasting finite flying hours on transit that provides little to no training value. The 4 FW conducts ordnance training (a primary F-15E role) at Dare County Range, located more than 70 nm from the base. As such, the range lies at a distance almost twice as great as that desired by the Air Force. Dare County Range encompasses 46,000 acres of marshland, forest, and open space, and contains targets for inert weapons delivery practice. While usable, the range is smaller than that available to Mountain Home AFB. Furthermore, the Air Force must share use of the range with the Navy and both services have requirements for the range that can exceed range capacity in any given training day. Therefore, little to no capacity to expand training opportunities to accommodate the RSAF exists.

The need to use other training airspace (i.e., MOAs) also forms a part of the proposed action. For the beddown, the Air Force sought contiguous airspace measuring 100 by 60 nm, but recognized that an area covering 70 by 40 nm would meet basic requirements. Review of the airspace within the region of Seymour Johnson AFB identified one MOA within 40 nm – the Seymour Johnson Echo MOA. Overlying the base, this MOA measures approximately 45 by 35 nm, far less than the required size. Other training airspace, the Warthog MOA , Phelps MOA, and Pamlico/Stumpy Point MOA complex, lie more than 40 nm distant and do not meet the size criteria. Even combined, the Phelps MOA and the Pamlico/Stumpy Point MOA complex measure only 55 by 50 nm. Based on size and proximity, the airspace associated with Seymour Johnson AFB would limit the training opportunities for the RSAF squadron.

Conflicts have also occurred with the use of the Phelps MOA and with low altitude civil aviation at a nearby airport. Future fighter force structure moves to the same area (the addition of F-22A to Langley AFB and the current F/A-18 Super Hornets at NAS Oceana) would result in increased competition for available training airspace.

The identification process revealed issues related to the base's capability to accommodate the RSAF beddown. It also identified limitations with the suitability and availability of the range and airspace. For these reasons, Seymour Johnson AFB was not considered a reasonable alternative to be carried forward for further analysis.

Mountain Home AFB

Section 1.2 of this EA provides the background on the size, composition, and mission of Mountain Home AFB. It also describes the airspace and ranges. As such, the following will focus on a comparison to Seymour Johnson AFB.

Based on their review, the Air Force determined that Mountain Home AFB met all the basing criteria and offered the capability to accommodate the beddown with modest cost, some construction, and no constraints to existing missions or functions. The survey recommended Mountain Home AFB since it offered the required infrastructure, support facilities, communications control, and other requirements for the RSAF beddown. With only 42 aircraft at the base, the flightline offers much greater flexibility and capacity than Seymour Johnson AFB with 92 aircraft.

For training, the MHRC and its associated airspace lie within 25 miles of the base. This complex consists of contiguous training airspace measuring approximately 220 by 150 nm and containing 2 tactical ranges, 6 separate no-drop targets, numerous emitters, and 4 contiguous MOAs. In terms of proximity and size, the MHRC more than meets the beddown requirements. Airspace availability is also good. Mountain Home AFB units share the airspace and ranges with A-10 aircraft from the Idaho Air National Guard and

limited numbers of transient users. With the realignment of the F-16 and F-15C squadrons from the base (Mountain Home AFB 2006f), use of the ranges and airspace will decrease up to 50 percent in some cases. Sufficient capacity to accommodate training by the RSAF would be available.

Comparatively, Mountain Home AFB meets all the criteria that Seymour Johnson does not. As a result, the identification process defined Mountain Home AFB as the only reasonable location capable of fulfilling the purpose and need. Mountain Home AFB will be carried forward for further analysis along with the No-Action Alternative.

2.2 PROPOSED ACTION AND ALTERNATIVES

The Proposed Action and Alternative A would all occur at the same location—Mountain Home AFB and its associated training airspace and ranges. With the exception of the No-Action Alternative, both the Proposed Action and Alternative A consist of four related elements that could affect the environment: an aircraft beddown; airfield and training flight operations; personnel increases; and construction and remodeling. The Proposed Action, the RSAF beddown, and Alternative A, the modified RSAF beddown, match completely in terms of the number of aircraft, airfield and training flight operations, and personnel changes. They differ in the types and locations of construction, demolition, and remodeling of facilities at Mountain Home AFB. Under the Proposed Action, RSAF facilities would be integrated near the northern portion of the base. Under Alternative A, this consolidation would occur, but a new 3-bay hangar and ramp area would be constructed to augment existing facilities.

2.2.1 Aircraft Inventory Changes

After BRAC actions at Mountain Home AFB (removing F-16s in 2007, adding additional F-15Es in 2007, and removing F-15C/D aircraft in 2010), based aircraft would consist of 42 F-15Es. Under the Proposed Action and Alternative A, the RSAF would beddown and operate 10 F-15SG aircraft. The following discussion presents information on the F-15E and the F-15SG aircraft.

Air Force F-15E

The F-15E Strike Eagle is a dual-role fighter designed for sophisticated air-to-ground attack capabilities and air-to-air superiority missions, using two crewmembers, a pilot and a weapon systems officer (WSO). The mission of the F-15E is an aircraft capable of fighting its way to a target over long ranges, destroying enemy ground positions, and fighting its way out. To accomplish this goal, the F-15E can be equipped with both laser-

guided weapons and air-to-air missiles, and use low-altitude navigation and targeting infrared for night (LANTIRN) system, to find and destroy targets with unequaled accuracy, day or night, in all kinds of weather.

The additions of the rear cockpit and the WSO are the biggest difference between the F-15C air superiority fighter and the F-15E dual-role fighter. With these additions, during the air-to-surface weapons delivery, the pilot is capable of detecting, targeting, and engaging air-to-air targets while the WSO designates the ground target.

For air-to-ground missions, the F-15E can carry most weapons in the Air Force inventory. It also can be armed with AIM-7F/M Sparrows, AIM-9M Sidewinders and AIM-120 advanced medium range air-to-air missiles for the air-to-air role. The "E" model also has an internally mounted 20 millimeter (mm) gun that can carry up to 500 rounds.

RSAF F-15SG

The RSAF version of the Air Force F-15E Strike Eagle is designated the F-15SG. The RSAF F-15SG represents an advanced version of the Air Force F-15E, with minor customization to Singapore's specifications and the most up-to-date avionics available. An updated radar system, electronics, and self-defense system will be added, as well as enhanced surveillance and targeting pods. A new higher-thrust General Electric (GE) F110 engine powers the aircraft instead of the Pratt & Whitney F100 engine in the F-15E. The GE F110 is designed to provide significantly higher performance (more than 5,000 pounds of thrust), greatly improved reliability, and sharply reduced operation and support costs.

The RSAF beddown would result in 10 additional operational aircraft at Mountain Home AFB (Table 2.2-1). The RSAF has signed a commercial contract with Boeing for the delivery of 20 F-15SG aircraft. The first four aircraft would be delivered to Mountain Home AFB in April 2009, with additional deliveries expected at a rate of one to two per month until a total of 20 aircraft have been delivered in 2011. The RSAF has indicated they would reduce the number of aircraft to 10 at Mountain Home AFB by late 2011. Although there will be a short period of time when more than 10 F-15SG aircraft are present at Mountain Home AFB, only 10 aircraft would be operational at any time. Therefore, the analysis in this EA focuses on the effects provided by 10 F-15SGs.

Table 2.2-1. Aircraft Inventory Changes Associated with the Proposed Action and Alternative A			
***Aircraft*[1]**	***Proposed Action***	***Alternative A***	***No Action*[2]**
F-15E	42	42	42
RSAF F-15SG	10	10	0
Total	**52**	**52**	**42**

[1] PMAI aircraft only
[2] Equivalent to baseline

2.2.2 Airfield Flight Operations

Throughout this EA, three terms are used to describe aircraft operations: sortie, airfield operation, and sortie-operation. A *sortie* is the flight of a single aircraft from takeoff through landing. An *airfield operation* represents the single movement or individual portion of a flight in the base airfield airspace environment (e.g., a takeoff, a landing, or a closed pattern). A *sortie-operation* is defined as the use of one airspace unit (e.g., a training route) by one aircraft.

Overall, the number of sorties conducted at Mountain Home AFB would increase under the Proposed Action and Alternative A (Table 2.2-2 and Table 2.2-3). Under the Proposed Action and Alternative A, sorties from Mountain Home AFB would increase by 25 percent over baseline (i.e., post-BRAC) numbers. However the total sortie numbers with the RSAF F-15SG beddown would still be approximately 31 percent less than they were in 2001 (Air Force 2001) and approximately 49 percent less than the 21,000 analyzed in 1992 (Air Force 1998a). Currently, the based F-16Cs and F-15C/Ds conduct approximately 6,400 sorties annually, and combined, all aircraft at Mountain Home AFB fly 10,400 sorties. Under BRAC, the number of sorties would be reduced to 8,224. With the additional sorties under the Proposed Action and Alternative A, total sorties would increase to 10,264 from baseline, post-BRAC numbers, or about 136 less than currently flown at Mountain Home AFB.

Table 2.2-2. Comparison of Alternatives—Sorties			
	Proposed Action	***Alternative A***	***No Action***
F-15E	7,530	7,530	7,530
Transients[1]	694	694	694
RSAF F-15SG	2,040	2,040	0
Total	**10,264**	**10,264**	**8,224**
Percent Change from Baseline	+25%	+25%	0%

[1]Includes EA-6B, F-15C, KC-135, C-21, A-10, and others

Total airfield operations would increase by 23 percent compared to baseline (post-BRAC) levels under the Proposed Action and Alternative A. However, as noted previously, this increase would fall below current (2006) levels.

Table 2.2-3. Comparison of Alternatives—Airfield Operations[1]			
	Proposed Action	***Alternative A***	***No Action***
F-15E	20,079	20,079	20,079
Transients[2]	3,846	3,846	3,846
RSAF F-15SG	5,440	5,440	0
Total	**29,365**	**29,365**	**23,925**
Percent Change from Baseline	+23%	+23%	0%

[1]Includes landings, takeoffs, and closed patterns

[2]Includes EA-6B, F-15C, KC-135, C-21, A-10, and others

2.2.3 Training Flight Operations

Airspace Structure

Aircraft from Mountain Home AFB currently conduct training operations in MOAs and overlying ATCAA, Restricted Areas, and on MTRs. MOAs are special use airspace designated by the Federal Aviation Administration (FAA) to identify areas where nonhazardous military operations are conducted and to separate these activities from nonparticipating (civil and military) traffic. MOAs provide the horizontal and vertical space to permit military aircraft to maneuver and train. Mountain Home AFB uses five MOAs within the region: Jarbidge, Owyhee, Paradise East, Paradise West, and Saddle. Figure 2.2-1 presents the boundaries of these MOAs associated with the MHRC.

ATCAA overlies each of these MOAs and provides additional maneuvering airspace, especially for air combat training. ATCAA airspace extends upward from 18,000 feet MSL to the altitude assigned by the FAA. ATCAA are activated only when assigned by the FAA.

Restricted areas separate potentially hazardous military activities, such as air-to-ground training, from other aviation activities. Aircraft must have permission from air traffic control to enter a restricted area when active. Mountain Home AFB aircraft use two restricted areas, R-3202 overlying Saylor Creek Range and R-3204 (A-C) overlying Juniper Butte Range (refer to Figure 2.2-1). The Jarbidge MOA encompasses both of these restricted areas and their underlying air-to-ground training ranges. The Jarbidge MOA, as a range support MOA, subsumes all the training activities and sortie-operations associated with these two ranges. Often, Mountain Home AFB splits the Jarbidge MOA into a northern and southern half to facilitate range use.

The two local MTRs affected by the Proposed Action and Alternative A consist of Instrument Route (IR)-302 and IR-304. These MTRs, like all others, provide opportunities for low-altitude training within a defined corridor (refer to Figures 2.2-1 and 2.2-2). IR routes are used by military aircraft for low-altitude, high-speed navigation training under both instrument and visual flight conditions.

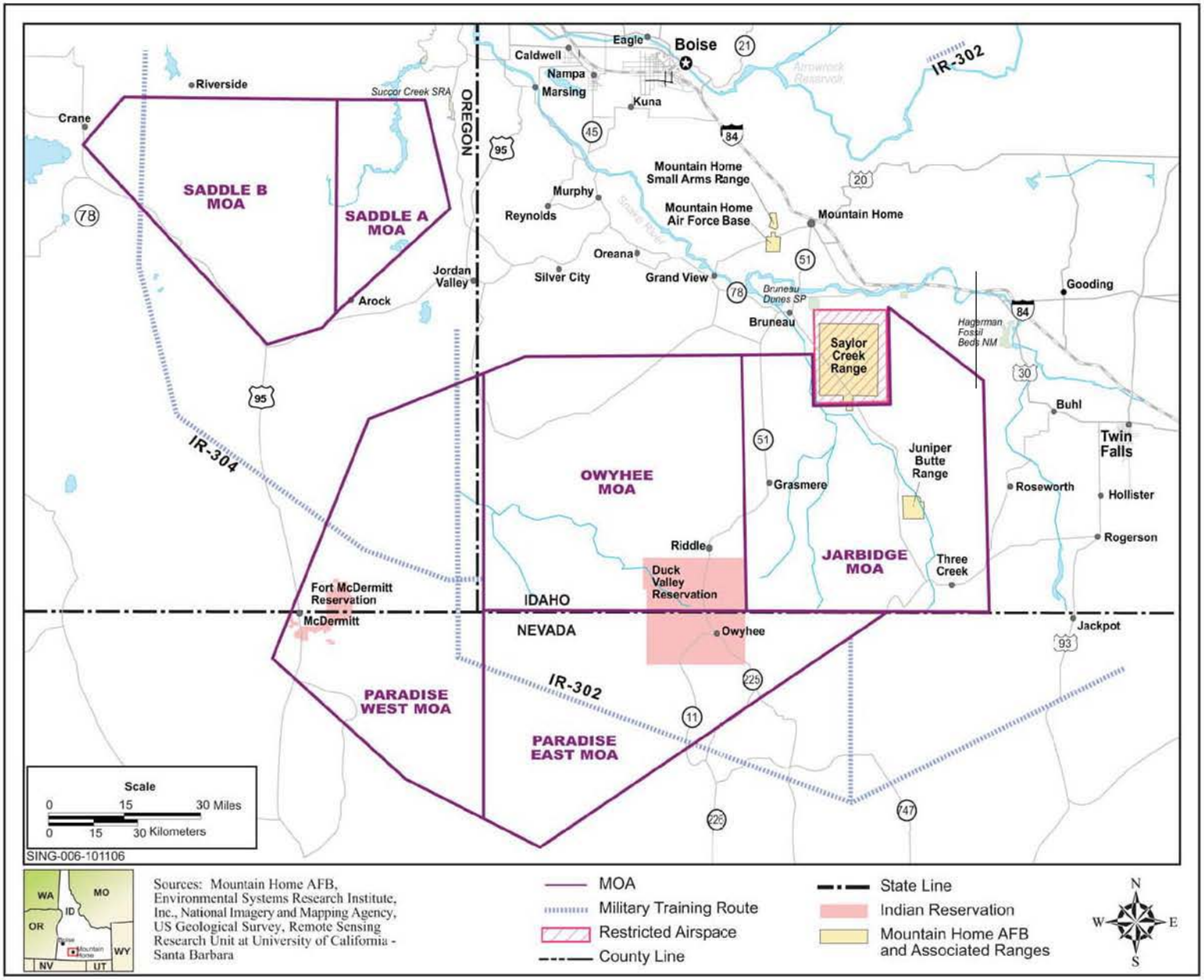


Figure 2.2-1. Mountain Home Range Complex

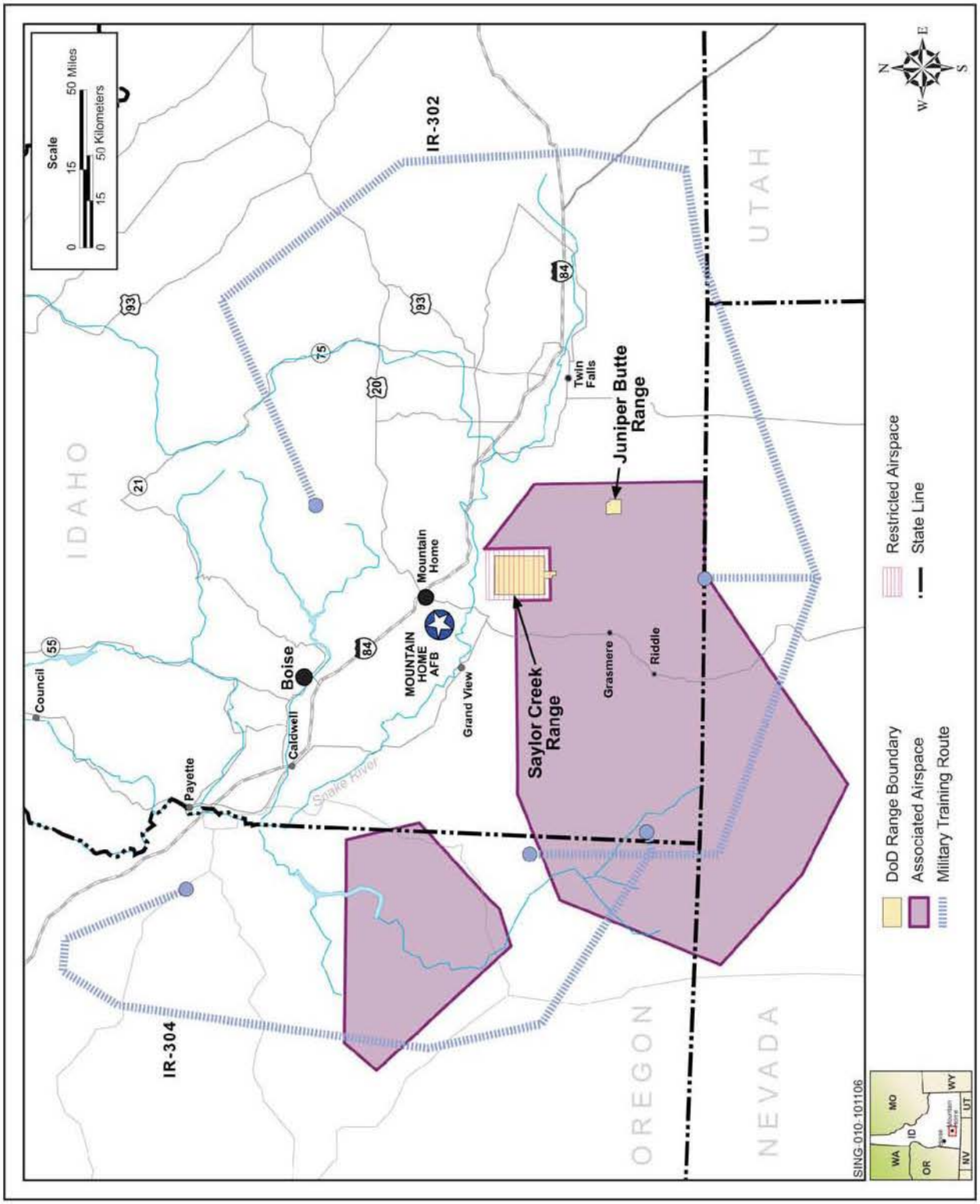


Figure 2.2-2. Training Ranges, Special Use Airspace, and Military Training Routes Used by Mountain Home AFB Aircraft

Mountain Home AFB aircraft also occasionally use remote MOAs, restricted areas, and MTRs. This remote training airspace, such as at the Nevada Test and Training Range and Utah Test and Training Range, receives use by thousands of aircraft from other bases (Air Force 1999); Mountain Home AFB aircraft account for a minimal proportion of total training activities. For this reason, these remote airspace units receive no further analysis in this EA. No aspect of the Proposed Action or Alternative A would alter the structure or overall nature or use of the local or remote airspace units. Rather, changes to the aircraft inventory at Mountain Home AFB would, as described below, only result in minor modifications to the amount of activity in the airspace.

Sortie-Operations

Table 2.2-4 presents the projected changes in sortie-operations for the five MOAs associated with Mountain Home AFB. These data reflect changes in use by RSAF F-15SGs relative to the Proposed Action and Alternative A. As this table indicates, sortie-operations would increase 25 percent overall for the Proposed Action and Alternative A, although increase within individual MOAs would range from 23 to 30 percent. Based on 260 flying days per year, sortie-operations in any of the MOAs under baseline conditions range from 34 per day in the Jarbidge MOA to 9 per day in the Saddle MOA. Under the Proposed Action and Alternative A, average sorties per flying day would range from 41 in the Jarbidge MOA to 11 in the Saddle MOA. To place this increase in context, inclusion of the F-16C and F-15C/D squadrons designated for realignment under BRAC generated a range of 64 sorties per flying day (Jarbidge MOA) to 17 per flying day (Saddle MOA). As such, the airspace has accommodated greater numbers of sortie-operations than proposed for the RSAF.

Table 2.2-4. Comparison of Alternatives—Annual Sortie-Operations in MOAs

MOA	*Proposed Action*	*Percent Change*	*Alternative A*	*Percent Change*	*No Action*
Jarbidge[1]	10,827	23%	10,827	23%	8,832
Owyhee	9,646	25%	9,646	25%	7,704
Paradise East	3,695	30%	3,695	30%	2,852
Paradise West	4,756	30%	4,756	30%	3,653
Saddle	2,875	23%	2,875	23%	2,345
Total	**31,799**	**25%**	**31,799**	**25%**	**25,386**

[1] Includes sortie-operations at Saylor Creek Range and Juniper Butte Range

The addition of RSAF F-15SGs would also affect sortie-operations on the two MTRs: IR-302 and IR-304. Under the baseline, the F-15Es account for all sortie-operations on either MTR (Table 2.2-5), with low use levels less than one sortie-operation per flying day. Under the Proposed Action and Alternative A, total annual sortie-operations would increase by 33 percent on both IR-302 and IR-304. Despite these increases, less than 1 sortie-operation per flying day would continue to occur on IR-302 and less than 2 per flying day on IR-304.

Table 2.2-5 Comparison of Alternatives—Annual Sortie-Operations on MTRs						
	Proposed Action		***Alternative A***		***No Action***	
Aircraft	*IR-302*	*IR-304*	*IR-302*	*IR-304*	*IR-302*	*IR-304*
F-15E	168	282	168	282	168	282
RSAF F-15SG	56	93	56	92	0	0
Total	**224**	**375**	**224**	**375**	**168**	**282**
Percent Change	+33%	+33%	+33%	+33%	0	0

Flight Profiles

While F-15Es have dual air-to-air and air-to-ground roles as reflected in their flight profiles (Table 2.2-6), the air-to-ground function is primary. Primary air-to-ground training occurs in the Jarbidge MOA, whereas use of the Owyhee and other MOAs tends to emphasize higher altitude air-to-air training. However, low-altitude training does occur in the Owyhee MOA. The higher floors (base altitudes) of the Paradise East, Paradise West, and Saddle MOAs preclude low-altitude flight.

Table 2.2-6 F-15E Flight Profiles – MOAs				
MOA	***Average Duration in MOA (minutes)***	***Percent Time at Altitude (feet)***		
		500 - 2,000	*2,000 - 10,000*	*>10,000*
Jarbidge[1]	38	19%	37%	44%
Owyhee	20	13%	17%	70%
Paradise East	20	NA	NA	100%
Paradise West	20	NA	NA	100%
Saddle	60	NA	NA	100%

[1] Includes Saylor Creek Range and Juniper Butte Range

If the Air Force implements the Proposed Action or Alternative A, the additional 10 RSAF F-15SGs at Mountain Home AFB would conduct the same types of missions and training programs as the currently based F-15Es. The Air Force expects that the F-15SG would use the training airspace associated with Mountain Home AFB in a manner similar to the F-15Es current use of the airspace. For example, training during environmental night (i.e., from 10 p.m. to 7 a.m.) would occur about 10 percent of the time.

As with the existing F-15Es, the RSAF F-15SGs would employ supersonic flight within the Owyhee and Jarbidge MOAs where such activity is already authorized. The Air Force anticipates that approximately 4 percent of the time spent in air combat maneuvers of the F-15Es involve supersonic flight; the F-15SGs would fly supersonic at the same rate. All supersonic flight would be conducted between 10,000 feet AGL and 30,000 feet MSL. Supersonic flight would continue to be performed under current restrictions, including avoiding the portions of the MOAs overlying the Duck Valley Reservation.

Defensive Countermeasures and Ordnance

For the F-15E and F-15SG, training involves use of defensive countermeasures (chaff and flares). Inert ordnance (including both guided and unguided munitions) is also used during training for the purpose of ensuring bombing proficiency and to simulate combat-loaded aircraft. Information on chaff, flares, and ordnance use associated with the force structure changes is included in Table 2.2-7.

Table 2.2-7. Annual Ordnance, Chaff, and Flare Use

	Proposed Action	*Percent Change*	*Alternative A*	*Percent Change*	*No Action*
Inert Ordnance	14,932	+59%	14,932	+59%	9,410
Chaff	74,519	+37%	74,519	+37%	54,519
Flares	62,070	+19%	62,070	+19%	52,070

Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid detection or attack by enemy air defense systems. A bundle of chaff consists of approximately 0.5 to 5.6 million fibers smaller than the size of a hair that reflect radar signals and, when dispensed in sufficient quantities from aircraft, form a "cloud" that breaks the radar signal and temporarily hides the maneuvering aircraft from radar detection. Flares ejected from aircraft provide high-temperature heat sources that mislead heat-sensitive or heat-seeking targeting systems. Chaff and flares are used to keep aircraft from being successfully targeted by weapons such as surface-to-air missiles, anti-aircraft artillery, and other aircraft.

Chaff and flare deployment is governed by a series of regulations based on safety and environmental considerations and limitations. These regulations establish procedures governing the use of chaff and flares over ranges, other government-owned and controlled lands, and nongovernment-owned or controlled areas. Air Combat Command (ACC) has set standard minimum-release altitudes (ACC Supplement to Air Force Instruction 11-214) for flares over government-owned and controlled lands. These standards, which vary from 400 to 900 feet AGL according to aircraft type, are designed to allow the flares to burn out completely by at least 100 feet above the ground.

The Government Accountability Office has reviewed the available information on environmental effects and health risks of chaff (General Accounting Office [GAO] 1998). The Air Force also evaluated chaff in relation to the environment (Air Force 1997). These reviews and studies indicated that chaff poses no significant health risks nor does it adversely affect livestock, wildlife, land use, or visual resources.

Like the F-15Es, the RSAF F-15SGs would deploy chaff and flares as defensive countermeasures in training. Chaff and flare use would continue in the Jarbidge, Owyhee, Paradise East, and Paradise West MOAs. Chaff and flares are not used in the Saddle MOA or on the MTRs. Other seasonal and locational restrictions apply to the use of chaff and, especially, flares in these MOAs (Air Force 1998). Chaff and

flare use by the RSAF aircraft would follow all current locational, seasonal, and altitude restrictions for the MOAs.

Ordnance use for the aircraft based at Mountain Home AFB has varied over the past decade as a result of deployments, exercises, and changes in tactics. Total annual use of inert ordnance has ranged from 35,000 devices (Air Force 1992) to a current annual use of 9,410. Under the Proposed Action and Alternative A, inert ordnance use would increase 59 percent over baseline, but would still be on the lower limit of the range of use within the last 15 years.

Under the Proposed Action and Alternative A, flare use would increase by 19 percent and chaff use would increase by 37 percent over baseline levels (refer to Table 2.2-7). However, projected chaff use would still fall below current 2006 levels of 77,883 bundles per year.

2.2.4 Personnel Changes

Basing the RSAF squadron at Mountain Home AFB would add a total of 307 personnel to operate and maintain the squadron, and to provide necessary support services. Projected civilian manpower, composed primarily of maintenance personnel, would total 123, while the total RSAF contingent is expected to number 179 permanent personnel. Five Air Force military personnel would also provide support. The transition of additional personnel is expected to take place in 2009 and 2010 concurrent with the basing of aircraft. Overall, base personnel would increase 6.9 percent as a result of the beddown (Table 2.2-8) under the Proposed Action and Alternative A when compared to baseline levels. However, pre-baseline BRAC actions will result in a decrease of 462 personnel at Mountain Home AFB between 2007 and 2011. Therefore, the addition of RSAF and support personnel in 2009 would result in a net loss of 155 individuals over current (2006) levels.

Table 2.2-8. Proposed Personnel Changes

	Proposed Action	***Percent Change***	***Alternative A***	***Percent Change***	***No Action***
Military	3,746	5.2	3,746	5.2	3,562
Civilian	1,001	14	1,001	14	878
Total	**4,747**	**6.9**	**4,747**	**6.9**	**4,440**

2.2.5 Facility Requirements

Several facility projects at Mountain Home AFB are required to support the beddown of the RSAF squadron (Table 2.2-9). At total of 13 construction, modification, or infrastructure improvement projects directly related to the beddown would be implemented from 2007 to 2009 under the Proposed Action. Most construction would occur in 2007 and 2008. In total, the construction, modifications, and infrastructure improvements would affect about 112,567 square feet of building space. Affected areas

represent the area covered by the construction footprints. The surrounding lands where construction-related clearing and grading would occur, plus infrastructure upgrades, such as connecting new facilities to water and power systems would also add to the affected areas on base.

Table 2.2-9. Construction Elements under the Proposed Action and Alternative A

Approximate Construction Dates	*Description*	*Construction Activity*	*Affected Area (square feet)*	*Action Alternative*
March 2007	Demolish Building 272	Demolish	9,343	Proposed Action/A
April 2007 to September 2008	Build 391 FS Squadron Operations	Construct	16,000	Proposed Action/A
October 2008	Demolish Building 273	Demolish	8,224	Proposed Action/A
April 2007 to September 2008	Build 391 FS AMU and parking lot	Construct	11,000	Proposed Action/A
April 2007 to March 2009	Add one additional bay (2,500 square feet) to the Conventional Munitions Shop (Building 3016); upgrade dividing wall and add a 15,000 square foot pad	Addition	17,500	Proposed Action
October 2008	Add office to Building 3023	Addition	2,500	Proposed Action/A
April 2007 to March 2009	Add 8,100 square feet to Engine Shop (6,600 square feet to Building 1339 and 1,500 square feet to Building 1345)	Addition	8,100	Proposed Action/A
October 2007 to March 2009	Add two outdoor storage pads for AGE and wing tanks	Addition	30,000	Proposed Action/A
October 2007 to March 2009	Add two additional fillstands in the petroleum, oils, and lubricants area	Addition	400	Proposed Action/A
October 2007 to March 2009	Apron Striping Adjacent to RSAF AMU	Remodel	n/a	Proposed Action/A
October 2008 to March 2009	Refurbish RSAF Operations and AMU Buildings (Buildings 1364 and 1365)	Remodel	n/a	Proposed Action/A
April 2007 to September 2008	Construct 3-Bay Hangar	Construct	20,500	A
March 2007	Demolish Building 1327	Demolish	8,000	A
April 2007 to September 2008	Construct Ramp/Squadron Operations	Construct	30,000	A
2007 to July 2008	Construct F-15 Parts Store	Construct	9,000	Proposed Action/A
April 2007 to August 2008	Addition to Cowboy Control, Building 1795	Construct	500	Proposed Action/A

Construction of a new Squadron Operations center and Aircraft Maintenance Unit (AMU), additions to the Engine Shop, and additions to the Conventional Munitions Shop (Building 3016) represent the most substantial construction projects under the Proposed Action. The RSAF would demolish Buildings 272 and 273 and construct a Squadron Operations and AMU facility for the 391 FS northwest of Building 205 and a parking lot across Thunderbolt Street. This construction would provide operations and maintenance support to the 391 FS in close proximity to their aircraft. After the 391 FS relocation, the RSAF would occupy Building 1364, Squadron Operations and Building 1365, AMU. The RSAF occupation of Buildings 1364 and 1365 would locate them in proximity to their aircraft and other support structures (Figure 2.2-3a,b,c).

The current engine shop (Building 1339) would require an addition to support maintenance activities for the F-15SG GE engine. The shop would also require an addition to store tooling equipment unique to the GE engine. An addition to Building 1345 would be required for the secondary power function moving out of Building 1339. A new F-15 Parts Store would be constructed, along with an addition to Building 1795 (Cowboy Control). Apron striping would also be required to support parking for up to 20 RSAF aircraft.

An additional office would be constructed in Building 3023 and an additional bay would be constructed to Building 3016. Outdoor storage pads would be constructed for RSAF fuel tanks and Aerospace Ground Equipment (AGE) and RSAF wing tanks.

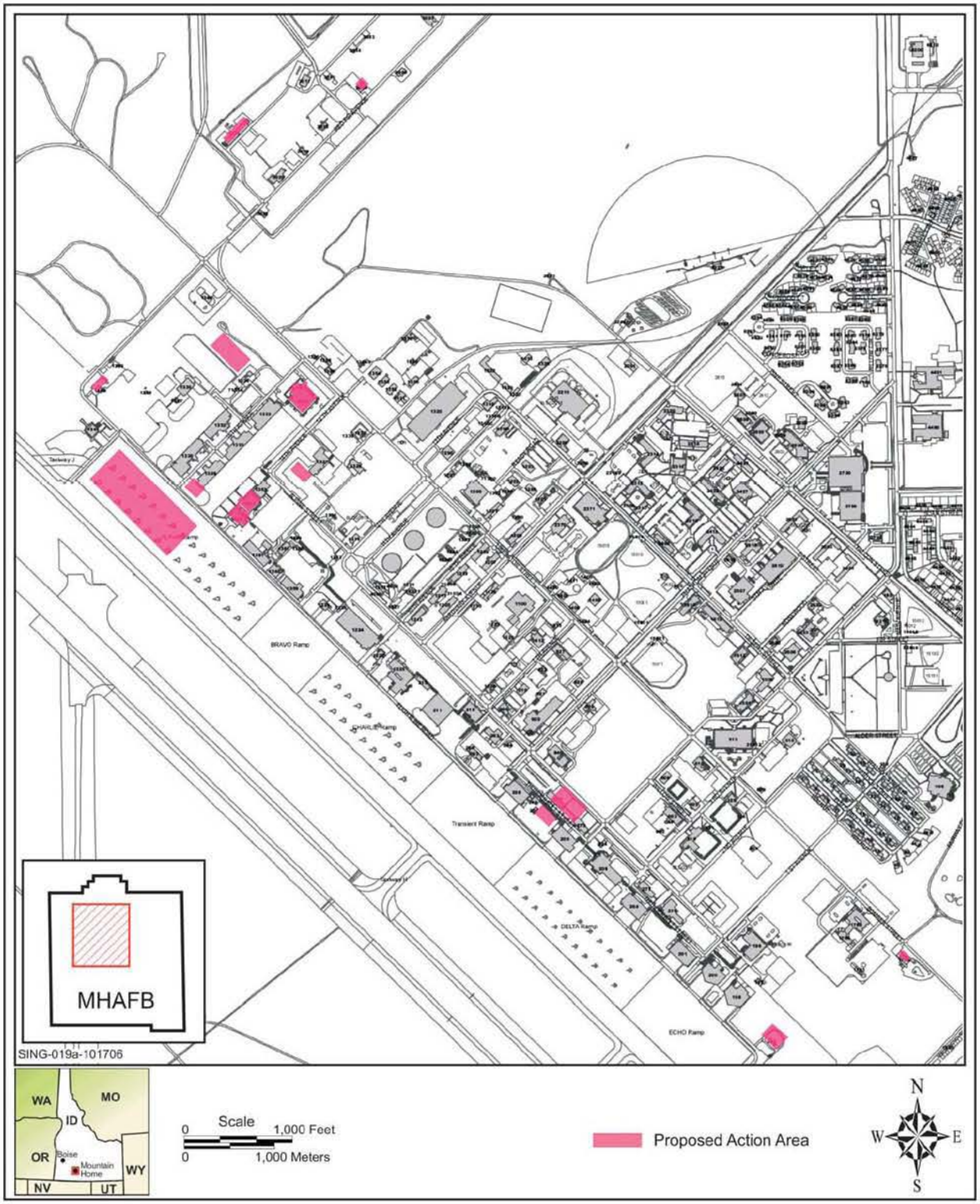


Figure 2.2-3a. Proposed Action: Construction and Renovation

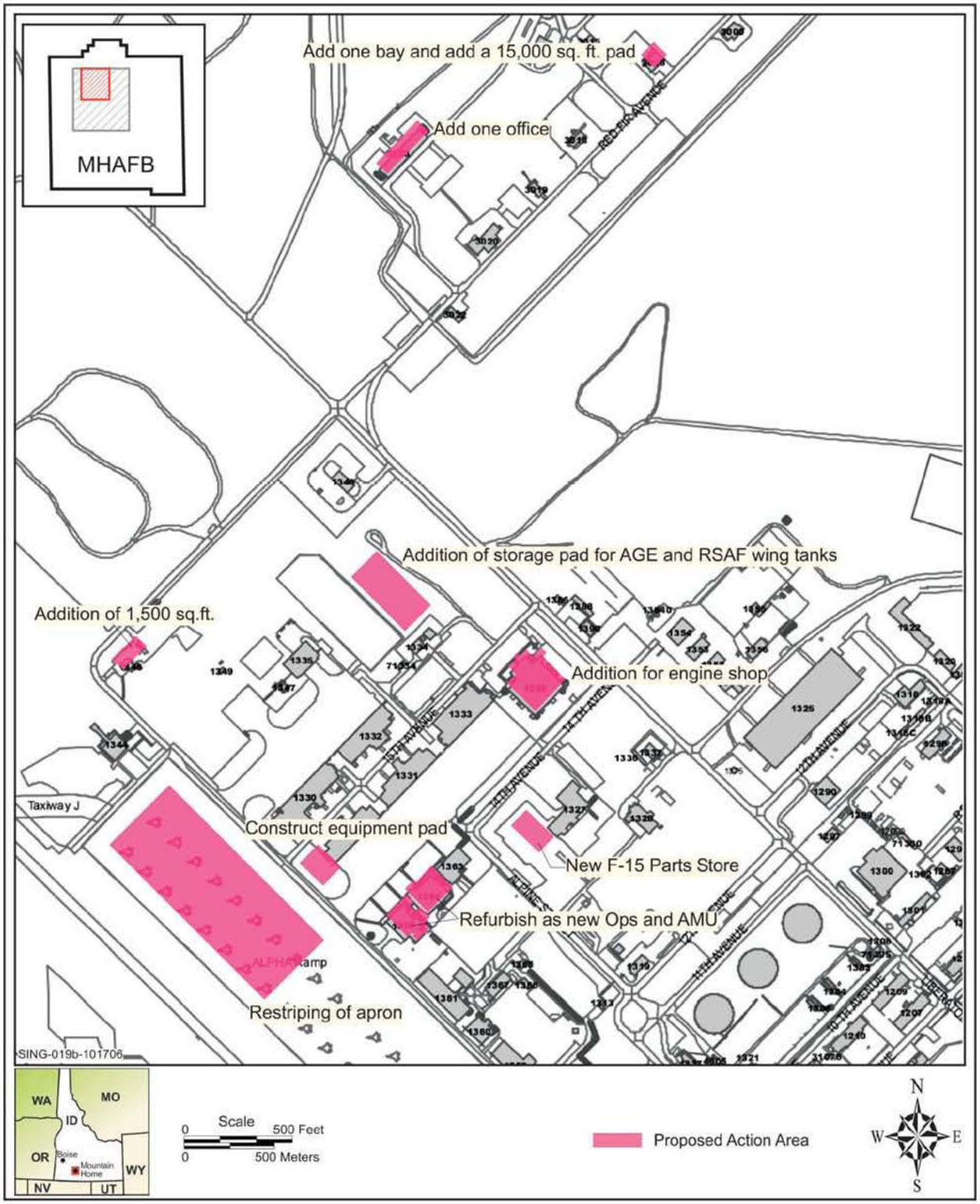


Figure 2.2-3b. Proposed Action: Construction and Renovation North

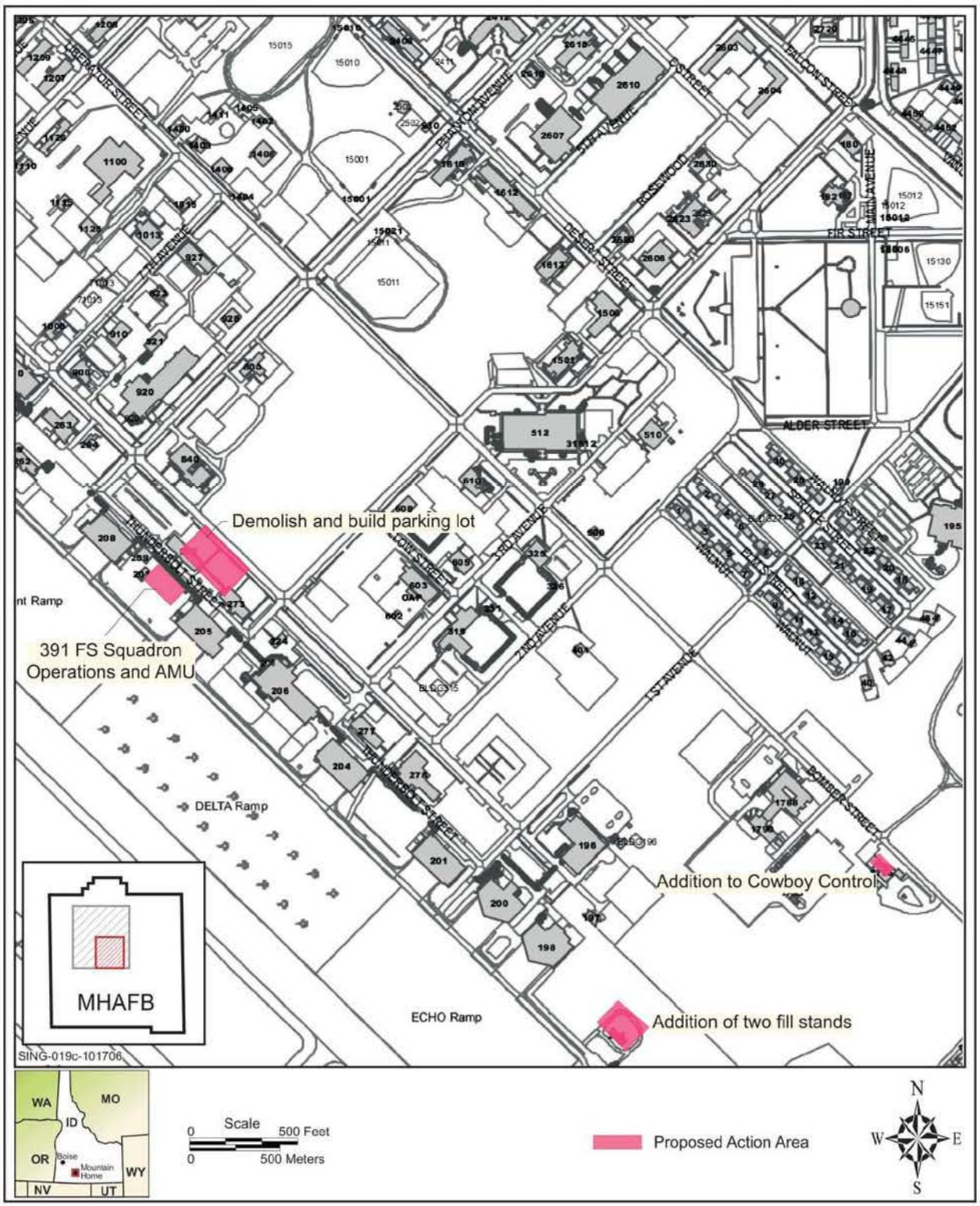


Figure 2.2-3c. Proposed Action: Construction and Renovation South

2.3 ALTERNATIVE A: MODIFIED RSAF BEDDOWN

Under Alternative A, the number and type of aircraft, the airfield use and airspace training, and the personnel changes would be the same as under the Proposed Action. The sole differences in Alternative A consist of the number and locations of construction, modification, or infrastructure improvement projects (Figure 2.3-1a, b, c).

These differences include:

- Construction of a new three-bay conventional munitions hangar**.**
- An additional bay would not be added to Building 3016, the conventional munitions shop.
- No additional munitions storage pads would be constructed in front of Bldg 3016.
- As an option, the RSAF would construct a new Squadron Operations, AMU, and ramp at the location of Building 1327.

A total of 15 construction, modification, or infrastructure improvement projects directly related to the beddown would be implemented from 2007 to 2009 under Alternative A. As with the Proposed Action, most construction would occur in 2007 and 2008. In total, the construction, modifications, and infrastructure improvements would affect about 153,567 square feet of building space. Affected areas represent the area covered by the construction footprints. The surrounding lands where construction-related clearing and grading would occur, plus infrastructure upgrades, such as connecting new facilities to water and power systems would also add to the affected areas on base.

2.4 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, there would be no change to the mix or number of aircraft at Mountain Home AFB after the BRAC actions occurring from 2007 through 2011. No beddown of the RSAF F-15SG squadron would occur. All airfield, airspace, and range use as well as munitions training would be the same as baseline conditions. No changes in personnel would occur and no building renovations would be necessary. However, the Secretary of the Air Force has stated the U.S. would offer the RSAF a suitable beddown location co-located with Air Force F-15E aircraft for the F-15SG squadron. Denying the RSAF the opportunity to stand up a FMS squadron in CONUS could lessen abilities of allied forces to perform effectively in a multinational force structure in the future.

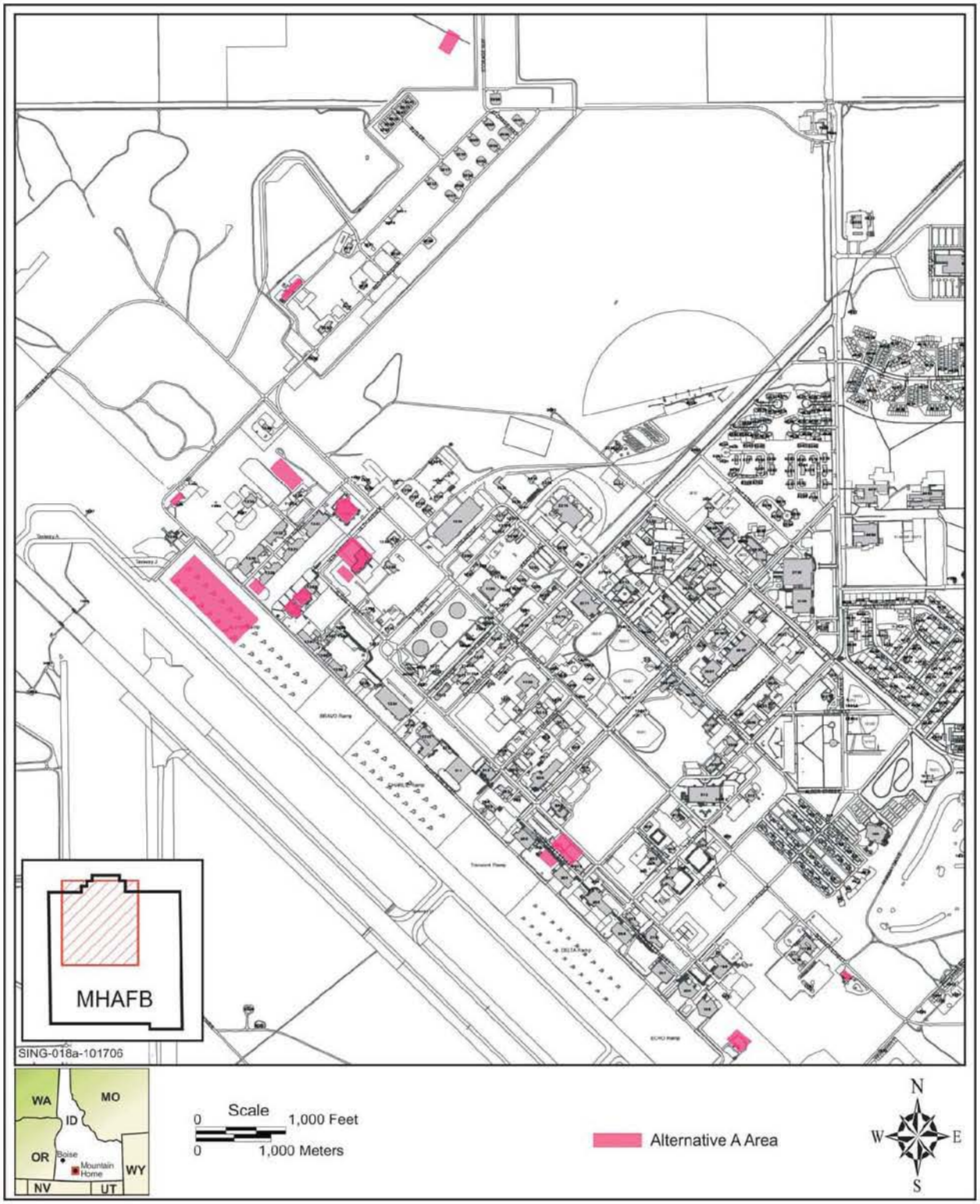


Figure 2.3-1a. Alternative A: Construction and Renovation

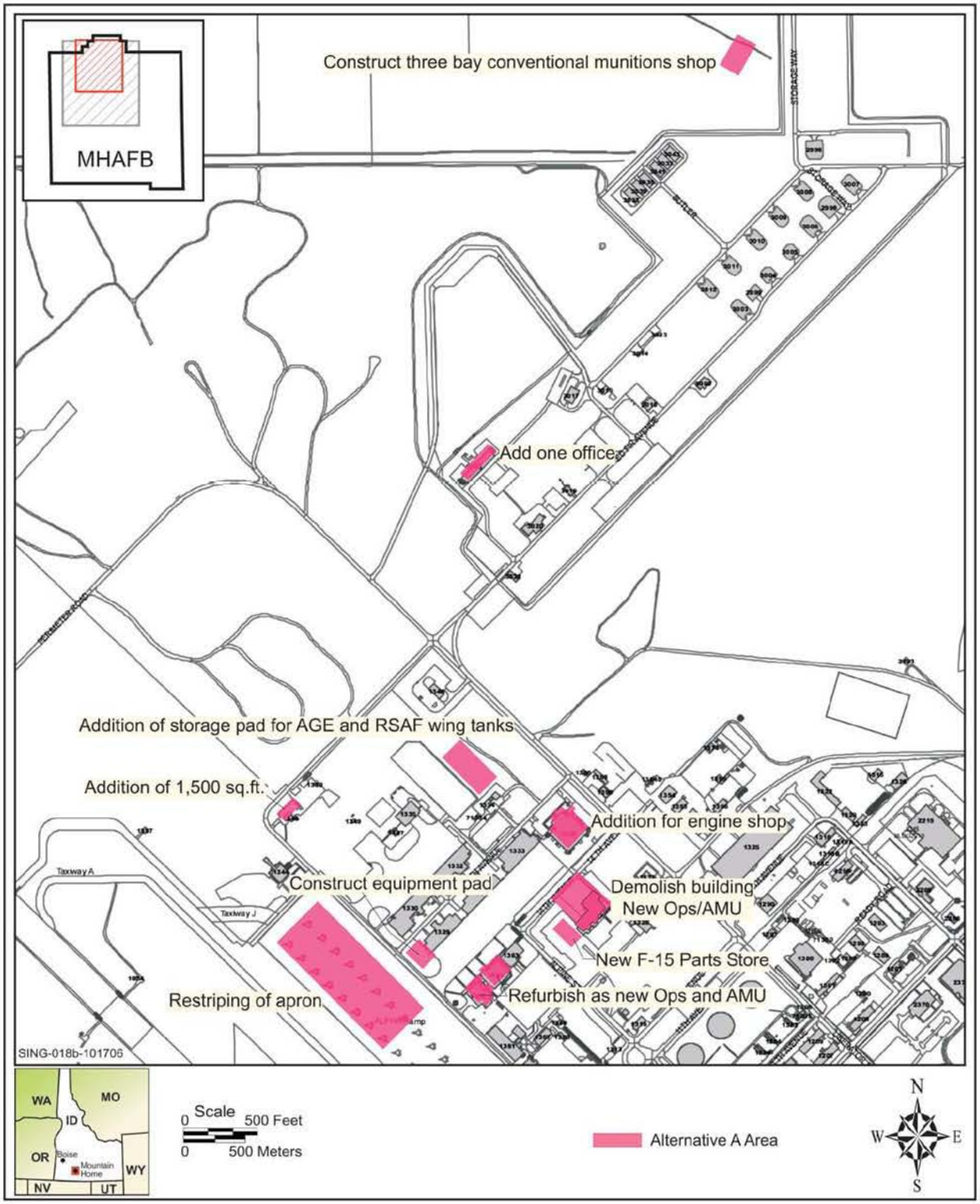


Figure 2.3-1b. Alternative A: Construction and Renovation North

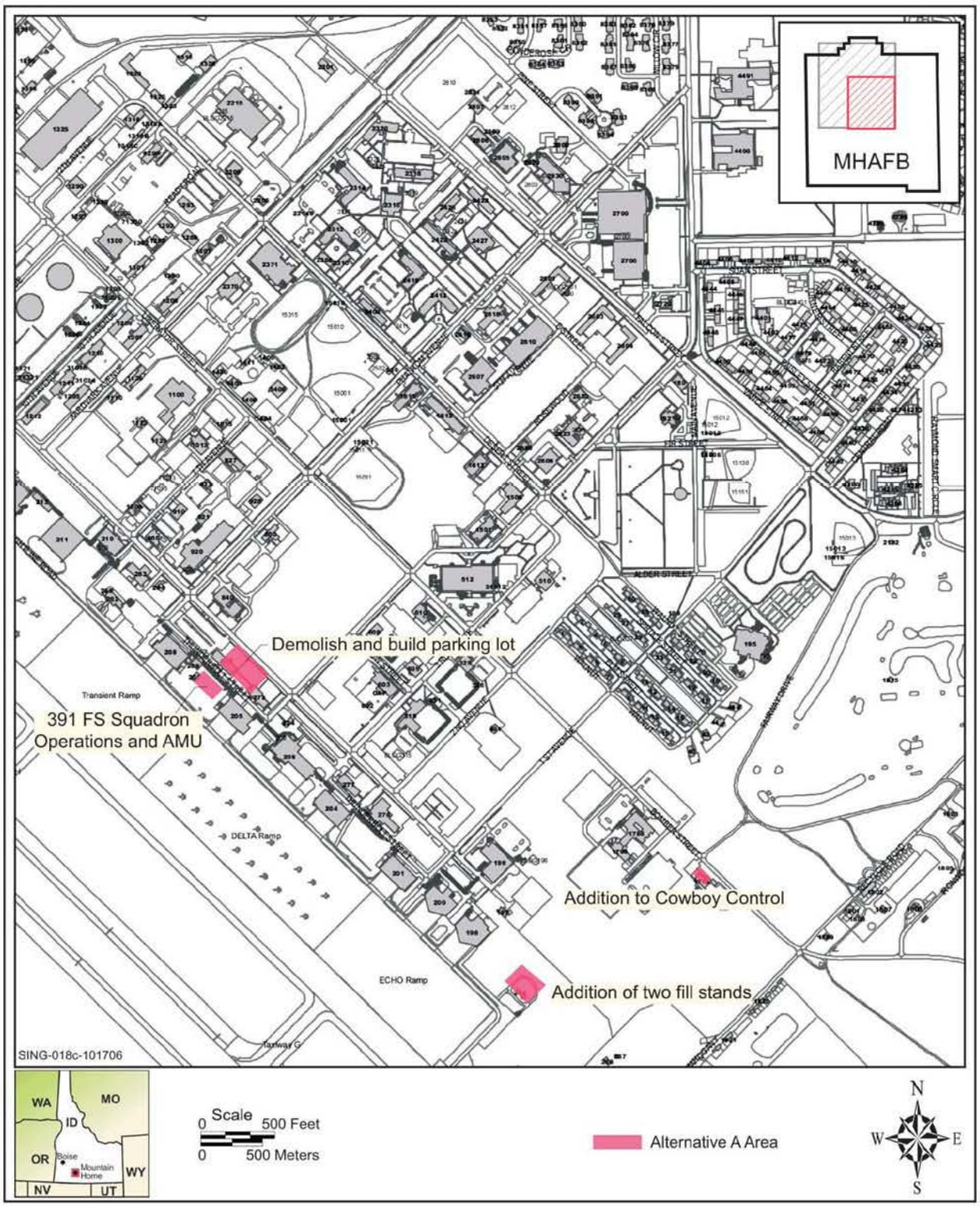


Figure 2.3-1c. Alternative A: Construction and Renovation South

2.5 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

This EA examines the specific affected environment for each alternative, considers the current conditions of the affected environment, and compares those to conditions that might occur under other alternatives, including no action. It also examines the cumulative impacts within the affected environment of these alternatives as well as past, present, and reasonably foreseeable actions of the Air Force and other federal, state, and local agencies. The following steps were involved in the preparation of this EA.

1. ***Conduct Agency Coordination and Scoping.*** On October 13, 2006, the Air Force sent Intergovernmental and Interagency Coordination of Environmental Planning (IICEP) letters to announce the Air Force's proposal and to request input from government agencies. Comments were also solicited from local governments, American Indian Tribes, and interest groups. Four responses were received (see Appendix E).

2. ***Notice of Intent.*** An advertisement was published October 17 and 18, 2006 in local newspapers notifying the public of the intent to prepare an EA (see Appendix E) and asking for comments.

3. ***Prepare a draft EA.*** The first comprehensive document for public and agency review was the draft EA. This document examined the environmental impacts of the Proposed Action and Alternative A as well as the No-Action Alternative. Results were described in the draft EA available on the World Wide Web at http://www.accplanning.org and at local libraries.

4. ***Announce that the draft EA has been prepared.*** An advertisement, in the papers local to the Proposed Action, was posted notifying the public as to the draft EA's availability for review. The Air Force placed advertisements in the *Idaho Statesman* and *Twin Falls Times News* on December 11, 2006, and in the *Mountain Home News* on December 13, 2006. After the draft EA was distributed, a 30-day public comment period began.

5. ***Provide a public comment period.*** Our goal during this process was to solicit comments concerning the analysis presented in the draft EA. The document was sent to local, state, and federal agencies, American Indian Tribes, and interest groups. The document was also made available at local libraries in Boise, Mountain Home, and Twin Falls, Idaho. The comment period closed on January 3, 2007. Twelve comments were received from seven respondents. The comment letters are provided in Appendix E of this document. Attachments to the letters have been made a part of the project record and will be available to the decisionmaker.

   The public comments addressed concerns with munitions and fire, with impacts from use of the airspace on people and wildlife, with potential impacts to slickspot peppergrass and sage grouse, with impacts from contrails, and with the need to prepare an EIS. The Mountain Home City Council and

the Mountain Home Military Affairs Committee support the RSAF beddown. The Mountain Home School District was concerned with the potential loss of federal impact aid. The Idaho State Historic Preservation Office (SHPO) responded that they are in the process of reviewing the historic significance of properties described in the draft EA and could not comment of project effects. The Nevada State Department of Lands referred to concerns by counties in southern Nevada of impacts due to increased aircraft sorties. These comments received consideration in the preparation of the final EA.

6. ***Prepare a final EA.*** Following the public comment period, this final EA was prepared. This document is a revision of the draft EA, includes consideration of public comments, and provides the decisionmaker with a comprehensive review of the Proposed Action and the potential environmental impacts. No substantive changes were made between the draft and final document.

7. ***Issue a Finding of No Significant Impact (FONSI).*** The final step in the NEPA process is signature of a FONSI if the analysis supports this conclusion or a determination that an Environmental Impact Statement would be required for the proposal.

2.6 OTHER REGULATORY AND PERMIT REQUIREMENTS

This EA has been prepared in compliance with the National Environmental Policy Act, other federal statues, such as the Clean Air Act, the Clean Water Act, Endangered Species Act, and the National Historic Preservation Act, Executive Orders, and other applicable statutes and regulations. The Air Force has conducted informal consultation with the United States Fish and Wildlife Service and the Idaho SHPO as part of the IICEP process.

2.7 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 or any alternative selected as the preferred alternative under this EA. No mitigation measures are proposed to arrive at a FONSI if the Proposed Action or Alternative A were implemented at Mountain Home AFB.

2.8 SUMMARY OF IMPACTS

This EA provides an analysis of the potential environmental consequences resulting from implementing the Proposed Action, Alternative A, and No-Action Alternative, and the cumulative environmental consequences of the Proposed Action and alternatives relative to pertinent past, current, and foreseeable future actions. Nine resource categories and cumulative effects received a thorough interdisciplinary analysis to identify potential impacts. According to the analysis in this EA, implementing the Proposed

Action or any of the alternatives would have a negligible to minimal affect on existing conditions at Mountain Home AFB or in its associated training airspace and ranges. The following summarizes and highlights the results of the analysis by resource category.

Table 2.8-1 Comparison of Alternatives by Resource

Resource Category	***Proposed Action***	***Alternative A***	***No–Action Alternative***
Airspace Management and Safety	• 25 percent increase in annual sorties; 23 percent increase in airfield operations • Sortie-operations on IR-302 and IR-304 would increase by 33 percent; 23 to 30 percent in the MOAs • No impacts to airspace management • Chance of mishaps would remain negligible	• 25 percent increase in annual sorties; 23 percent increase in airfield operations • Sortie-operations on IR-302 and IR-304 would increase by 33 percent; 23 to 30 percent in the MOAs • No impacts to airspace management • Chance of mishaps would remain negligible	• No increase in sorties and airfield operations • No increase in sortie-operations on IR-302 and IR-304 and in the MOAs • No impacts to airspace management • No change to existing conditions, with risks remaining minimal
Noise	• 15 percent increase in area affected by noise levels greater than 65 DNL over baseline • Proposed Action represents a 20 percent drop from 2002 noise levels	• 15 percent increase in area affected by noise levels greater than 65 DNL over baseline • Proposed Action represents a 20 percent drop from 2002 noise levels	• Current noise levels and noise environment would continue
Land Use, Recreation, and Visual	• No adverse impacts to land use, status, or management • No anticipated changes in recreation activities and access available • Negligible and unnoticeable physical impacts to special designation areas	• No adverse impacts to land use, status, or management • No anticipated changes in recreation activities and access available • Negligible and unnoticeable physical impacts to special designation areas	• No change from current land uses • No change in activity opportunities or access to public lands • No change in eligibility status in special designation areas

Table 2.8-1. Comparison of Alternatives by Resource (con't)			
Resource Category	***Proposed Action***	***Alternative A***	***No-Action Alternative***
Air Quality	• Construction emissions are less than 1 ton per year, per criteria pollutant, except for PM_{10} which peaks at 1.61 tons in 2007 • Airspace emissions for Jarbidge and Owyhee MOAs increase an average of 22 percent for CO, 27 percent for NO_x, and 26 percent for SO_2	• Construction emissions are generally less than 1 ton per year, per criteria pollutant, except for CO and PM_{10} which peak at 1.23 and 2.62 tons respectively, in 2008 • Airspace emissions for Jarbidge and Owyhee MOAs increase an average of 22 percent for CO, 27 percent for NO_x, and 26 percent for SO_2	• No changes to existing air quality conditions
Biological Resources	• No adverse impacts to wildlife, wetlands, or special-status species	• No adverse impacts to wildlife, wetlands, or special-status species	• No changes to current wildlife resources • Conditions for sensitive species would remain the same
Cultural Resources	• No impacts to National Register-eligible archaeological or architectural resources	• No impacts to National Register-eligible archaeological or architectural resources	• No changes to any National Register-eligible archaeological or architectural resources
Soils and Water Resources	• 2.6 acres of previously disturbed land would be used for construction • Adherence to BMPs would minimize impacts to construction disturbance	• 3.5 acres of previously disturbed land would be used for construction • Adherence to BMPs would minimize impacts to construction disturbance	• No land would be disturbed land for construction

Table 2.8-1. Comparison of Alternatives by Resource (con't)			
Resource Category	***Proposed Action***	***Alternative A***	***No-Action Alternative***
Hazardous Materials and Waste	• No change to large generator status • No new waste streams anticipated • One project would be located within 200 feet of an inactive ERP site	• No change to large generator status • No new waste streams anticipated • One project would be located within 200 feet of an inactive ERP site	• No changes to existing hazardous materials and waste or ERP sites
Socioeconomics	• Addition of RSAF associated personnel would increase payroll at Mountain Home AFB by approximately 6 percent over baseline • On-base and off-base housing sufficient to accommodate personnel changes	• Addition of RSAF associated personnel would increase payroll at Mountain Home AFB by approximately 6 percent over baseline • On-base and off-base housing sufficient to accommodate personnel changes	• No change to regional economy

According to the analysis in this EA, the potential for environmental consequences in any resource category from implementation of the Proposed Action would be minimal to neglible. Implementing the Proposed Action or Alternative A would not adversely affect existing conditions at Mountain Home AFB, or within the general area of flight activity. Minimal to negligible effects would occur to noise levels, airspace use, and soils and water resources. The Proposed Action or Alternative A would increase employment and earnings at Mountain Home AFB.

CHAPTER 3

DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 ANALYSIS APPROACH

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, an EA should not be encyclopedic; rather, it should be succinct and to the point. Both description and analysis in an EA should provide sufficient detail and depth to ensure that the agency (i.e., Air Force) took a hard look. NEPA also requires a comparative analysis that allows decisionmakers and the public to differentiate among the alternatives. This EA focuses on those resources that would be affected by the proposed beddown of RSAF F-15SG aircraft at Mountain Home AFB, Idaho.

CEQ regulations (40 CFR Parts 1500-1508) for NEPA also require an EA to discuss impacts in proportion to their significance and present only enough discussion of other than significant issues to show why more study is not warranted. The analysis in this EA considers the current conditions of the affected environment and compares those to conditions that might occur should the Air Force implement the Proposed Action, Alternative A, or No-Action Alternative.

Affected Areas

The Proposed Action includes components affecting Mountain Home AFB, the Mountain Home Range Complex (MHRC) and associated airspace, or both. Some components, such as proposed construction projects, only affect the base due to their limited geographic scope. Similarly, the minimal proposed changes in personnel would not only affect the base, but its economic and social effects would extend out into the general Mountain Home community. Noise generated by airfield operations would both cover much of the base and also require analysis of lands adjacent to the base.

The MHRC and its associated airspace form another affected area with a similar, but distinct set of components. For example, increases in aircraft operations generate more noise in the airspace (and potentially impact resources under the airspace), just like at Mountain Home AFB. Similarly, the effects of ordnance delivery are exclusive to the Saylor Creek and Juniper Butte Ranges. Resources such as airspace, noise, land use, air quality, biological resources, and cultural resources are discussed for the areas below the airspace since aircraft operations and resulting changes in noise could impact these resources. Table 3.1-1 highlights the affected areas analyzed for each resource.

Table 3.1-1. Resources Analyzed in the Environmental Impact Analysis Process		
Resource Category	***Mountain Home AFB***	***MHRC and Airspace***
Airspace Management and Safety	Yes	Yes
Noise	Yes	Yes
Land Use, Recreation, and Visual	Yes	Yes
Air Quality	Yes	Yes
Biological Resources	Yes	Yes
Cultural Resources	Yes	Yes
Soils and Water Resources	Yes	No
Hazardous Materials and Waste	Yes	No
Socioeconomics	Yes	No

Affected Environment and Resources Analyzed

Based on the components of the Proposed Action and IICEP comments, the Air Force defined the environment potentially affected by the RSAF F-15SG beddown. This definition focused on specific resource categories. As a result, this EA evaluated nine resource categories: airspace management and safety; noise; land use, recreation, and visual; air quality; biological resources; cultural resources; soils and water resources; hazardous materials and waste; and socioeconomics (see Table 3.1-1). Since no construction would occur at the ranges, no personnel would be added to the ranges or other facilities in the MHRC, and no lands would be altered, several resources do not warrant analysis for the MHRC and areas under the airspace. These include soils and water resources; hazardous materials and waste; and socioeconomics. These resources were analyzed only for Mountain Home AFB. No changes to any of these resources from baseline conditions would occur in the MHRC or areas under the airspace if the Proposed Action or Alternative A were implemented, thus supporting the justification of only analyzing these resources at the base.

The Defense Base Closure and Realignment Commission recommendations signed into law September 8, 2005, included force structure changes for Mountain Home AFB. The force structure changes will coincide and overlap with the proposed RSAF beddown action in FY09 and FY10. However, the period of overlap would be short in duration resulting in no adverse affect on any resource. In recent years, the trend at Mountain Home AFB has been a decline in personnel and aircraft. While the brief period when these actions overlap would create a short-term increase, the overall trend would continue. For this EA, all mandated personnel and aircraft inventory changes under BRAC have been considered complete. Therefore, baseline conditions for this EA reflect post-BRAC conditions at Mountain Home AFB.

As noted in Chapter 2, the overlap would occur for a portion of a year while the final F-15Cs left the base and the F-15SGs began to arrive.

Resources Not Carried Forward for Further Analysis

Environmental Justice. Environmental justice addresses the disproportionate effect a federal action may have on low-income or minority populations. Executive Order (EO)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. Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires the identification and assessment of environmental health risks and safety risks that may affect children, and ensures that federal agency policy, programs, activities, and standards address environmental risks and safety risks to children. For the Proposed Action and Alternative A, changes in noise levels represent the only possible factor relevant to potential environmental justice impacts. As the analysis demonstrates (Section 3.3), noise levels of 65 DNL or greater would not affect any populations around the base or under the training airspace. Since no adverse effects occur because of the Proposed Action or alternatives, including changes to the level of noise, neither minority nor low-income groups would be adversely affected disproportionately. Therefore, environmental justice was eliminated from further analysis.

Transportation. Implementation of the Proposed Action or alternatives is not expected to affect transportation resources. The threshold of significance for transportation resources is the potential for the Proposed Action or Alternative A to adversely impact traffic patterns within and access to Mountain Home AFB. No roads would be constructed or modified due to the Proposed Action or alternatives. There would be a peak in personnel on base during years FY09 to FY10 when both BRAC and RSAF beddown actions overlap; however, the period of overlap would be short-term in duration. Therefore, no adverse effects to transportation networks on base or within the community would be expected.

3.2 AIRSPACE MANAGEMENT AND SAFETY

As part of an active, combat-ready fighter wing, aircrews at Mountain Home AFB conduct operational training at the base's airfield and in associated training airspace. Airspace in the U.S. is controlled and administered by the FAA, with training activities managed with regard for the safety and benefit of all users. Not only must Mountain Home AFB conduct air operations safely, it must ensure safe operations on the flightline and the remainder of the base. For these reasons, this section addresses ground, flight, and ordnance safety associated with activities conducted by units stationed at and operating from Mountain Home AFB. These operations include activities at the base itself, as well as training conducted in the local military airspace consisting of MOAs, Restricted Areas, and MTRs. Ground safety considers issues associated with operations and maintenance activities that support base and range operations, including fire and crash response. For the lands under the local airspace, particularly Saylor Creek Range

and Juniper Butte Range, safety also examines fire risk and management most commonly related to use of defensive countermeasures and ordnance. Flight safety evaluates aircraft flight risks such as aircraft mishaps and bird/wildlife aircraft strikes. Ordnance safety assesses the use of ordnance associated with airfield training activities conducted at the ranges.

3.2.1 Affected Environment

Airspace Management

Mountain Home AFB and Vicinity

The airspace encompassing Mountain Home AFB's airfield differs in structure and function from the training airspace in the region. Airspace currently supporting aircraft operations at Mountain Home AFB includes the airspace directly overlying and surrounding the airfield. This airspace extends from the airfield surface up to and including 3,000 feet AGL within a 5.9 statute mile radius of the airfield. Under the control of the Mountain Home AFB control tower for arriving/departing aircraft operations at the airfield, this airspace supports roughly 8,200 annual baseline sorties. Within the past 5 years, based and transient aircrews flew 11,000 to 14,000 sorties from the base (Air Force 2002). Operations in this airspace include takeoffs, landings, and closed patterns.

Mountain Home Approach Control controls airspace around the base's airfield. The nearest other airfield, Mountain Home Municipal Airport (about 10 statute miles from Mountain Home AFB), supports civil aviation and commercial activities such as crop dusting. Within the Mountain Home AFB region, other airfields include the Glenns Ferry Municipal Airport (almost 30 statute miles from Mountain Home AFB) and two private-use airports at Owen and Grasmere (approximately 20 and 45 statute miles from the base, respectively).

Aircraft at Mountain Home AFB have flown in this airspace environment since the 1940s without substantive conflict with civil and commercial aviation. In addition, due to the rural location and low density of aircraft operations at these airfields, as well as in the overlying airspace, few, if any, concerns exist over conflicts between military and civilian aircraft operations in the Mountain Home AFB approach control area. The base and all aircrews adhere to all FAA regulations applicable to the controlled and uncontrolled airspace.

Mountain Home Range Complex

As described in Chapter 2, the MHRC training airspace used by F-15E aircrews from Mountain Home AFB includes restricted areas over Saylor Creek Range (R-3202) and Juniper Butte Range (R-3204

A/B/C), five MOAs and overlying ATCAA, and two MTRs. Figure 3.2-1 depicts this training airspace and provides details on its horizontal and vertical boundaries.

FAA rules, airspace management, and procedures provide for safe operations within these airspace units. Two types of flight rules (visual flight rules [VFR] and instrument flight rules [IFR]) apply to airspace, providing a general means of managing its use. Both military and civil aviation abide by these rules to ensure safe operations. VFR pilots fly using visual cues along the desired route of flight, as long as appropriate visibility conditions exist, day or night. IFR pilots undergo much more training and operate under greater restrictions, but they may fly during periods of reduced visibility. FAA rules and regulations serve to separate VFR and IFR flights from each other and from other aircraft using the same rules.

Aircraft use different kinds of airspace according to the specific rules and procedures defined by the FAA for each type of airspace. The restricted areas in which Mountain Home AFB aircraft operate (R-3202 and R-3204 A/B/C) consist of airspace that limits use because it supports air-to-ground training and other activities considered hazardous to nonparticipating air traffic (civil and military). Regulations prohibit nonparticipating civil and military aircraft from entering restricted airspace unless authorized by air traffic control. Aeronautical charts available from the FAA provide civil and commercial pilots clear information on the restricted locations and scheduling of this airspace.

MOAs comprise special use airspace designated by the FAA to identify those areas where nonhazardous military operations are being conducted and to separate certain military flight activities from nonparticipating aircraft. When a MOA is active, the FAA generally routes other air traffic around it. However, nonparticipating military and civil aircraft flying VFR may transit an active MOA by employing see-and-avoid procedures. When flying IFR, nonparticipating aircraft must obtain air traffic control clearance to enter a MOA. The five MOAs used by Mountain Home AFB aircraft extend up to 18,000 feet above MSL, providing substantial vertical and horizontal maneuvering room for training. The floors (base altitude) of these MOAs differ, with the Jarbidge MOA and the Owyhee MOA starting at 100 feet AGL. The Jarbidge MOA contains three areas where environmental or social factors require a floor altitude above 100 feet AGL (refer to Figure 3.2-1). In the southeast corner, a floor altitude of 2,000 feet AGL applies, whereas the western edge contains a small area with a floor of 1,500 feet AGL. A large area spanning the northwestern part of the Jarbidge MOA and the northern Owyhee MOA has a floor of 500 feet AGL. The Paradise East and West MOAs, and the Saddle MOA start at much higher altitudes (refer to Figure 3.2-1). Aircraft using Saylor Creek Range or Juniper Butte Range also schedule and use the surrounding Jarbidge MOA, and often, Mountain Home AFB schedules the northern and southern halves of the Jarbidge MOA separately. In addition, during air-to-air training and large force exercises, the Jarbidge and Owyhee MOAs as well as the Paradise East and West MOAs may be scheduled as one unit.

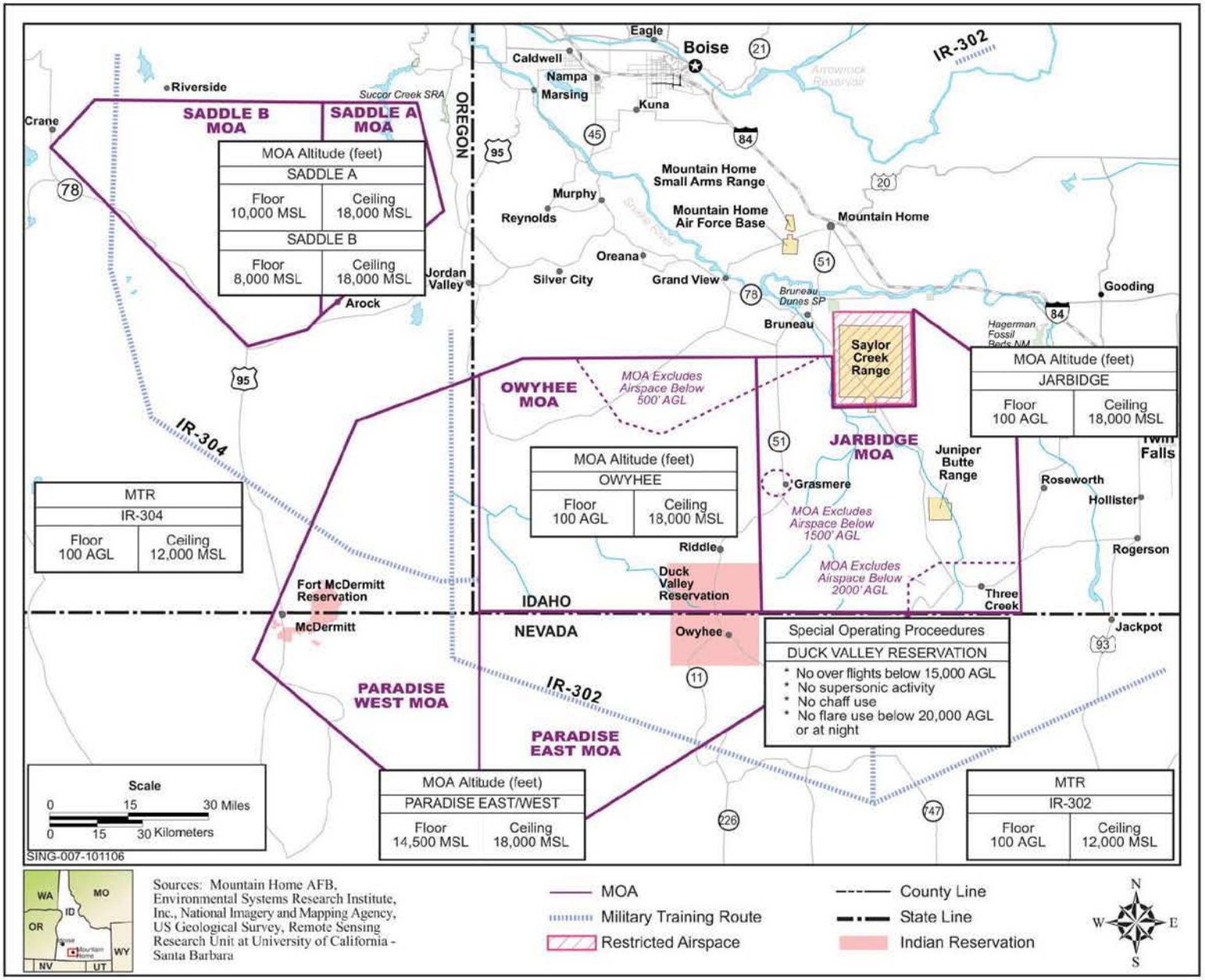


Figure 3.2-1. Mountain Home Range Complex Affected Airspace Environment

While the Jarbidge and Owyhee MOAs permit flight down to 100 feet AGL, F-15E aircrews currently do not fly below 500 feet AGL in these areas. The Air Force also employs seasonal, altitude, and locational restrictions for flight activity below 2,000 feet AGL for this airspace (Air Force 1998a, 1998b). Most of these restrictions are implemented to reduce overflight noise over recreationists and certain wildlife species during specific times of the year. Other restrictions apply to avoidance of the Duck Valley Reservation as agreed to in a Memorandum of Agreement between the Air Force and the Shoshone-Paiute Tribes. "The Air Force agreed, absent compelling national security circumstances, military contingencies, or hostilities to not fly below 10,000 feet AGL and the Air Force will voluntarily not fly below 15,000 feet AGL for training operations over the present boundaries of Duck Valley Reservation except during emergencies, such as aircraft mechanical problems or avoidance of weather" (Air Force 1998a:1-55).

ATCAA overlies each of the five MOAs. An ATCAA extends from 18,000 feet MSL to an altitude assigned by the FAA. Assigned on an as-needed basis and established by a letter of agreement between a military unit and the local FAA Air Route Traffic Control Center, each ATCAA provides additional airspace for training. The FAA releases ATCAAs to military users only for the time they are to be used, thereby allowing maximum access to the airspace for civil aviation.

Two MTRs (IR-302 and IR-304) also form part of the affected environment. MTRs are essentially aerial "highways" that vary in length, width, and altitude. Aircrews use MTRs for many different types of training, including terrain following and low-altitude navigation. Both of the MTRs affected by the Proposed Action consist of "IRs," or instrument routes. Both IR-302 and IR-304 have lower altitude limits down to 100 feet AGL; however, no Mountain Home AFB aircraft fly below 500 feet AGL on these routes. Other aircraft may operate at lower altitudes where permissible.

Civil aviation traffic within the affected airspace is minimal. The Bureau of Land Management (BLM) and Idaho Department of Fish and Game use the MOA airspace on occasion for management flights. In addition, emergency services such as air ambulance/life flight and fire fighting aircraft receive precedence. Mountain Home AFB airspace management assists in coordinating these flights when contacted by the agencies.

Safety

Mountain Home AFB and Vicinity

Operations and Maintenance. Day-to-day operations and maintenance activities conducted on Mountain Home AFB, the ranges, and other facilities 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 requirements. Adherence to industrial-type safety procedures and

directives (e.g., Air Force Policy Directive 90-8) ensures safe working conditions. The handling, processing, storage, and disposal of potentially hazardous materials associated with these activities are accomplished in accordance with all applicable federal and state requirements applicable to the substance generated.

Fire and Crash Response. The Mountain Home AFB military fire department provides both fire and crash response. Under current operations, and with the baseline inventory of aircraft and personnel, the unit fully meets its requirements. No identified equipment shortfalls or limiting factors exist. To respond to a wide range of potential incidents, the base maintains detailed mishap response procedures as captured in the *366th Fighter Wing Mishap Response Plan 9101-05* (Mountain Home AFB 2005b). This plan fulfills the requirements of AFI 91-202 and AFI 91-204, providing responsibilities and procedures for "preparing for, responding to and conducting" investigation of major aircraft, ground, or weapons mishaps. It also assigns agency responsibilities and prescribes functional activities necessary to react to major mishaps, whether on or off base. Initial response to a mishap considers such factors as rescue, evacuation, fire suppression, safety, and elimination of explosive devices, ensuring security of the area, and other actions immediately necessary to prevent loss of life or further property damage. Subsequently, the investigation phase is accomplished. After all required actions on the site are complete, the base civil engineer ensures cleanup of the site. Fire management and suppression for the ranges is discussed below.

Aircraft Mishaps. Aircraft mishaps and their prevention represent a paramount concern of the Air Force. The Air Force defines four categories of aircraft mishaps: Classes A, B, C, and E/High Accident Potential[1]. Class A mishaps result in a loss of life, permanent total disability, a total cost in excess of $1 million, destruction of an aircraft, or damage to an aircraft beyond economical repair. Class B mishaps result in total costs of more than $200,000, but less than $1 million, or result in permanent partial disability. Class C mishaps involve costs of more than $20,000, but less than $200,000, or a loss of worker productivity of more than eight hours. Class E/High Accident Potential represents minor incidents not meeting any of the criteria for Class A, B, or C. Class C mishaps and Class E/High Accident Potential form the most common occurrences, primarily involving minor damage and injuries, but rarely affecting property or the public. For example, in FY06, Mountain Home aircraft experienced 10 non-bird strike mishaps; all consisted of Class C mishaps (Mountain Home AFB 2006e).

Class A mishaps, the most severe, provide an indicator of aircraft safety. Class A mishaps are calculated by aircraft type per 100,000 flying hours. Under both the baseline conditions, F-15 aircraft fly the vast majority (85 percent) of sorties at Mountain Home AFB. The lifetime Class A mishap rate for F-15 aircraft, as derived from records collected since 1972 and based on almost 5 million hours flown, is 2.46 per 100,000 flying hours. Assuming each aircraft spends 10 minutes in the airfield environment during each sortie, the F-15Es account for about 1,300 hours of operation in the area annually. Based on these

[1] Class D mishaps do not apply to aircraft.

data, a Class A mishap involving an F-15E in the vicinity of Mountain Home AFB would be statistically projected to occur once every 31.3 years. This projection translates to a less than 0.00002 percent probability of a Class A mishap occurring on any given F-15E sortie at the base.

However, despite logging tens of thousands of flying hours, no based aircraft, including F-15Es, have been involved in a Class A mishap at Mountain Home AFB in a decade. A crash did occur during an airshow in 2003, but it involved an F-16 from the Thunderbirds performing aerobatics rather than normal flying. Data on mishaps within 10 nautical miles of an airfield reveal that 75 percent of aircraft accidents occur on or adjacent to the runway or in a corridor extending out from the end of the runway for 15,000 feet. The Air Force establishes three zones within this corridor based on aircraft mishap patterns: the Clear Zone (CZ), Accident Potential Zone (APZ) I, and APZ II. Within the CZ, which covers a 3,000 by 3,000 foot area at the end of each runway, the overall accident risk is highest. APZ I, which extends for 5,000 feet (by 3,000 feet wide) beyond the CZ, comprises an area of reduced accident potential. In APZ II, measuring 7,000 feet long by 3,000 feet wide, data define accident potential as the lowest among the three zones. Based on more than 30 years of study, the Air Force designs these zones to prevent encroachment of incompatible land uses in areas with demonstrated potential for aircraft mishaps. At Mountain Home AFB, neither the CZ nor the APZs include housing or other incompatible land uses. Rather, the land is primarily open and used for grazing or agricultural purposes.

Nevertheless, no methods exist to predict the precise location of an aircraft accident, and the probability of an aircraft crashing into a populated area is extremely low for several reasons. First, FAA regulations require pilots to avoid direct overflight of population centers at low altitudes. Second, the limited amount of time the aircraft flies over any specific geographic area limits the probability that a mishap in a populated area would occur. Lastly, design and location of safety zones and land use restrictions exclude population centers from areas subject to higher risk from a crash.

Secondary effects of an aircraft crash include the potential for fire and environmental contamination. Again, because the extent of these secondary effects depends on the situation, they are difficult to quantify. When an aircraft crashes, it may release petroleum, oil, and lubricants not totally consumed in a fire. While these materials could enter the soil and water, the potential for contamination depends on numerous factors such as the extent of the mishap, contents of the aircraft, terrain, soils, and weather.

Bird/Wildlife Aircraft Strike Hazards (BASH). BASH constitutes a safety concern because of the potential for damage to aircraft or injury to aircrews or local populations if an aircraft crash should occur in a populated area. Aircraft may encounter birds at altitudes of 30,000 feet MSL or higher. Over 95 percent of reported bird strikes occur below 3,000 feet AGL. Approximately 50 percent of bird strikes happen in the airport or airfield environment, and 25 percent occur during low-altitude flight training (Worldwide BASH Conference 1990).

In general, migratory waterfowl (e.g., ducks, geese, and swans) are the most hazardous birds to low-flying aircraft because of their size and their propensity for migrating in large flocks at a variety of elevations and times of day. The potential for bird-aircraft strikes is greatest during spring and fall migratory seasons in areas used as migration corridors (flyways) or where birds congregate for foraging or resting (e.g., open water bodies, rivers, and wetlands). For Mountain Home AFB, the Snake River, which lies three miles to the south, offers an area where waterfowl congregate, although not in great numbers. These birds typically migrate at night and generally fly between 1,500 to 3,000 feet AGL during the fall migration and from 1,000 to 3,000 feet AGL during the spring migration.

Although waterfowl are the greatest threat, small songbirds are involved in bird airstrikes most often at Mountain Home AFB. Songbirds are small birds, usually less than one pound. During nocturnal migration periods, they navigate along major rivers, typically between 500 to 3,000 feet AGL.

The Air Force BASH Reduction Program focuses on reducing BASH through awareness, bird control, bird avoidance, and aircraft design. Mountain Home AFB maintains an aggressive program to minimize BASH potential. In the airfield environment, this BASH program uses pyrotechnic and noise-making devices to dissuade birds and wildlife from congregating especially at the sewage lagoon. For the training airspace, aircrews use a Bird Avoidance Model to define altitudes and locations to avoid when planning a mission. Each base, such as Mountain Home AFB, develops and maintains a bird/wildlife aircraft strike avoidance plan that dictates the location and timing of avoidance measures within the training airspace.

Based on the use of the BASH program and avoidance measures, Mountain Home AFB aircraft historically have experienced minimal bird strikes in the airfield environs. Over the past 20 years, aircraft based at Mountain Home AFB have experienced an average of less than 10 bird strikes per year. Most of these incidents resulted in little or no damage to the aircraft, and none resulted in a Class A mishap. The FY06 mishap log notes 14 bird strikes, none of which damaged an aircraft.

Munitions Handling. Personnel at Mountain Home AFB control, maintain, and store all ordnance and munitions required for mission performance. This includes training and inert bombs and rockets, live bombs and rockets, chaff, flares, gun ammunition, small arms ammunition, and other explosive and pyrotechnic devices. Munitions are handled and stored in accordance with Air Force explosive safety directives (Air Force Manual 91-201), and all munitions maintenance is carried out by trained, qualified personnel using Air Force-approved technical data. The airfield area also has specific areas designated for the loading of live ordnance, parking of aircraft loaded with live ordnance, and arming and dearming of ordnance and guns. The live ordnance loading areas (LOLA) lie at the southeast end of the runway (Figure 3.2-2). Hot brake and hung ordnance pads lie on either end of the runway, adjacent to the arm/dearm pads. The weapons storage area, located in the north-central portion of the base, provides sufficient storage capacity for current types and amounts of ordnance.

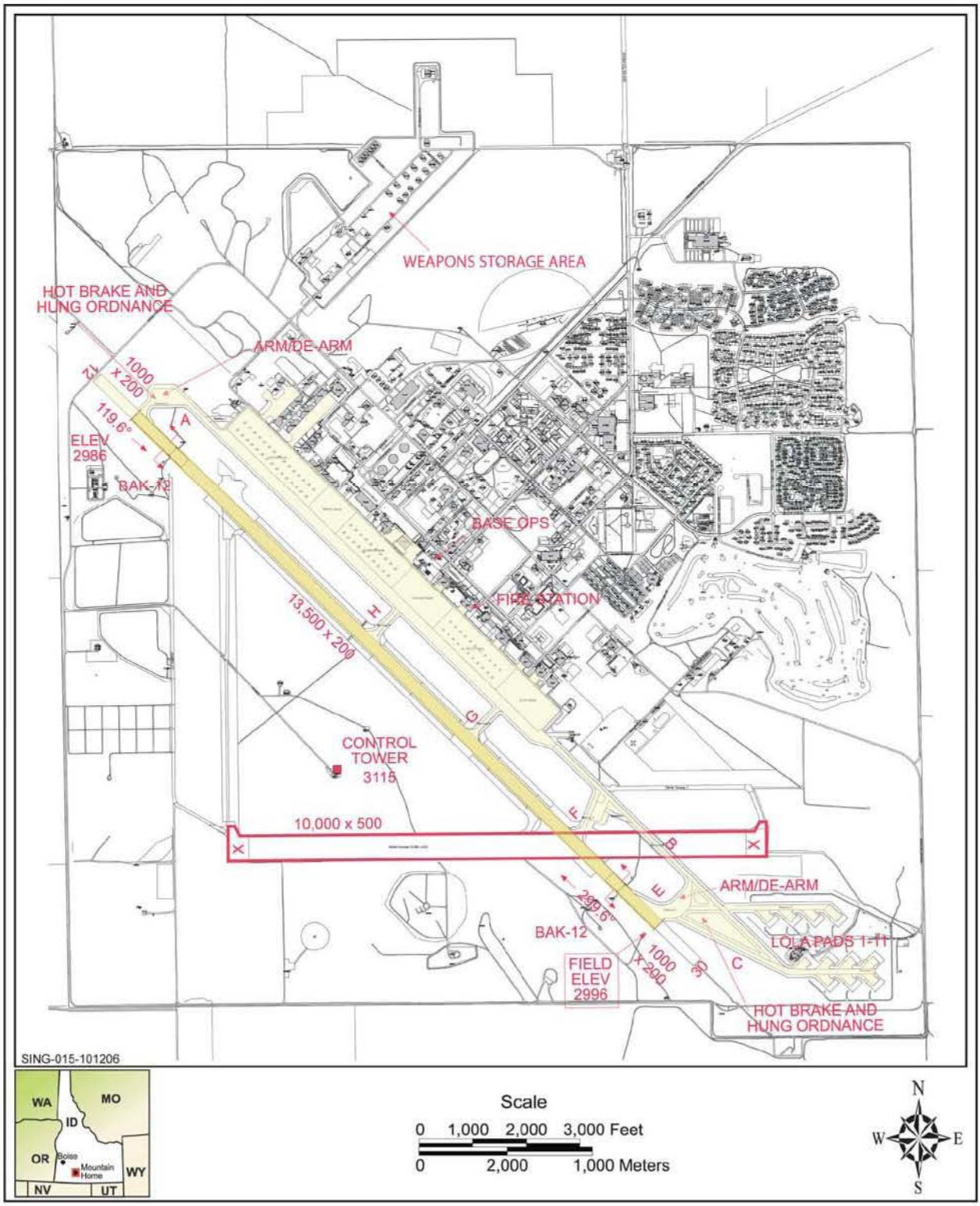


Figure 3.2-2. Airfield Diagram at Mountain Home AFB

Quantity Distance (Q-D) arcs surround each area of the base supporting munitions handling. Designed to ensure protection to facilities, equipment, and personnel, the Q-D standards consider the type, size, and quantity of munitions at a location, as well as the type and function of buildings and facilities. All Q-D areas at Mountain Home comply with Air Force Manual 91-201.

Mountain Home Range Complex

BASH. The BASH program also applies to the MHRC. As noted previously, adherence to this program has minimized bird/wildlife air strikes. For this reason, and because, on average, aircraft fly at higher altitudes (i.e., above zone most associated with bird-airstrikes), actual strikes remain low throughout the MHRC.

Aircraft Mishaps. Mishaps occur much less frequently in the training airspace due to flying at higher altitudes. Previous analysis of safety in the MOAs and restricted areas indicate low potential mishap rates (Air Force 1998a). At the rate for F-15s, baseline potential for Class A mishaps would be minimal.

Fire Management. Contractors operating Juniper Butte Range and Saylor Creek Range provide fire management and response for the ranges and associated facilities. The fire management and response staff and equipment meet the requirements of the Air Force Fire Protection Operation and Fire Prevention Program (AFI 32-2001). However, under the Support Agreement Between 366th Fighter Wing, Mountain Home AFB, and the Department of Interior Bureau of Land Management Lower Snake River District (2003), the BLM provides firefighting support for all lands outside the Exclusive Use Area on Saylor Creek Range, Juniper Butte Range, emitted sites, and no-drop targets. For lands with the Exclusive Use Area and Juniper Butte Range, the BLM only supplies help when requested.

Prevention of fires includes reduction of ignition sources, management of vegetation and fuels, and maintenance of firebreaks. Fire risk is higher on the ranges and associated facilities, primarily due to increased ignition sources. The Air Force employs a program of annually reducing fine fuels on the ranges. Ordnance use, as well as maintenance activities can produce ignition sources. Therefore, Mountain Home AFB commonly implements aggressive fire suppression in June and it extends through August. During dry years, the fire season can extend from May to November (Air Force 2004). Both Saylor Creek Range and Juniper Butte Range support fire suppression equipment and personnel, ensuring rapid response to any fires that may start. Mountain Home AFB also precludes the use of flares, “hot-spot” training ordnance, and pyrotechnic devices used for training during high, very high, and extreme fire risk conditions. Implementation of these fire management and suppression programs has substantially reduced both the number and extent of fires occurring on the ranges (Air Force 2004).

Training Ordnance Use. Use of ordnance during training is limited to Saylor Creek and Juniper Butte Ranges. Air Force safety standards require safeguards on weapons systems and ordnance to ensure

against inadvertent releases. All munitions mounted on an aircraft (as well as the guns carried in the aircraft) are equipped with mechanisms that preclude release or firing without activation of an electronic arming circuit. System malfunctions or materiel failures, possibly resulting in either an accidental release of ordnance or the release of a dud component that fails to operate properly, cannot be totally discounted. However, studies have shown that the probability of such an accidental release occurring and resulting in injury to a person or damage to property is so small that the risk associated with the occurrence can be essentially discounted (Air Force 1995).

The ranges support delivery of a range of ordnance, all inert.[2] No live ordnance is permitted. As described previously, most ordnance consists of bomb dummy unit (BDU)-33, 25 pound training bombs. These BDU-33s account for roughly 97 percent of ordnance used under baseline conditions. While the proportion has remained the same, total quantities of ordnance expended have been almost three times as great (Air Force 1998a). Aircraft also use 20 mm training rounds for strafing at Saylor Creek Range. As noted above, Mountain Home AFB precludes use of "hot-spot" BDU-33 ordnance during high, very high, and extreme fire conditions.

Based on past ordnance use data, "footprints" have been developed that describe a geographic area within which a training munition may ultimately be expected to come to rest on the ground. These zones have a long (i.e., beyond the target), short (i.e., in front of the target), and cross-range dimension. Based on data developed from varied attack profiles, flown by varied aircraft, and the type of ordnance delivered, frequency distributions for the dispersion of these munitions have been developed and, with a 95 percent confidence level, a geographic area within which 99.99 percent of the delivered munitions will be contained has been defined. This geographic area is then considered the weapon footprint, and is unique for each weapon system, aircraft, ordnance type, and delivery profile. The weapon footprints are then used to define the area where people are prohibited from entry when the range and/or targets are in use.

At Saylor Creek and Juniper Butte Ranges, trained personnel conduct explosive ordnance disposal every year performed in accordance with Air Force Manual 91-201. Each year, the Air Force clears the Exclusive Use Area at Saylor Creek Range of spent ordnance. Further, clearance of ordnance residue within 100 meters of each target occurs every 75 days. In addition to a complete annual clearance of the Juniper Butte Range target areas, one of three grazing pastures is also cleared annually. This program ensures full range clearance of ordnance every 5 years.

Chaff and Flares. Chaff consists of very small fibers of aluminum-coated mica that reflect radar signals and, when dispensed from an aircraft, form a cloud that temporarily hides the aircraft from radar detection. Although the chaff may be ejected from an aircraft using a pyrotechnic charge, the chaff itself

[2] A proposal exists to support use of 2.75 inch rockets and white phosphorus rockets on Saylor Creek Range (Mountain Home AFB 2006d).

is not explosive. Chaff is composed of silicon dioxide fibers ranging in diameter from 0.7 to 1 mil (thousandth of an inch), coated with an aluminum alloy and a slip coating of stearic acid (fat). Analyses of the materials comprising chaff indicate that they are non-toxic in the quantities used (Air Force 1997). About 500,000 to 3,000,000 fibers are contained in each chaff bundle.

Chaff is made to specifically counter radio frequencies on which the radar is operating. This type of chaff provides false targets on the radar. Training chaff, which is the predominant type of chaff used in this airspace, is specifically developed so that it does not interfere with radars used by the FAA for air traffic control. If non-training chaff is used, then altitude and locational restrictions coordinated with the FAA apply. Current authorizations allow the use of chaff and flares in the Owyhee and Paradise MOAs, as well as on the ranges and their surrounding airspace. Chaff is currently not authorized in the Saddle MOA or over the Duck Valley Reservation.

Baseline levels of use account for the annual release of approximately 55,000 bundles of chaff within the airspace used by Mountain Home AFB. In the past, as many as 78,000 bundles of chaff were dispensed annually (Air Force 2006d). The public has raised concerns regarding human health risks associated with the use of chaff. In response, the General Accounting Office (now the Government Accountability Office) reviewed the available information on chaff and asked the Department of Defense (DoD) to evaluate the need to conduct further studies on potential health risk. Available information, as summarized below, indicates that chaff does not pose a significant health risk (Air Force 1997).

Silicon dioxide is an abundant compound in nature that is prevalent in soils, rocks, and sands. The trace quantities of metals included in the mica fibers are not present in sufficient quantities to pose a health risk. Aluminum is non-toxic and is one of the most abundant metals in the earth's crust, water, and air. Trace quantities of silicon, iron, copper, manganese, magnesium, zinc, vanadium, or titanium may be found in the alloy, but the quantities involved are a minuscule percentage of levels that might cause concern. Stearic acid is found naturally as a glyceride in animal fat and some vegetable oils.

Air quality concerns regarding chaff use address the potential for chaff to break down into respirable particles and the possibility that hazardous air pollutants may be generated from the cartridges used with some chaff types. Chaff has been test-fired in a controlled environment to determine its potential to break down into respirable particulates. The finding of this test and a screening health risk assessment (Air Force 1997) concluded that chaff posed no significant air quality or respiration concerns.

The potential for chaff to affect soil and water is remote. Laboratory tests of chaff indicated little or no potential for adverse effects on soil (Air Force 1997). No adverse impacts on biological resources have been identified with regard to ingestion or inhalation of chaff. The extensive dispersal and decomposition of chaff fibers on lands under the MHRC would limit the exposure of grazing and foraging animals to chaff. Studies on grazing and foraging livestock (Air Force 1997) provide an indicator of the lack of

effects of chaff on animals. Livestock apparently avoided eating clumps of chaff when mixed with feed. Only when the mixture of chaff and feed were coated in molasses would the animals eat it. None of the subject livestock exhibited any observable health effects.

Inhalation of chaff fibers does not cause adverse effects on wildlife. Data from livestock has shown that the chaff fibers tend to be too large to penetrate the larynx (Air Force 1997). Such fibers would be expelled through the nose or swallowed. Furthermore, chaff particles would represent a small percentage of the particulates (e.g., dust, vegetal material) regularly inhaled by animals (Air Force 1997).

Impacts on land use and visual resources are directly related to the visibility and accumulation of chaff debris. Chaff does not constitute litter under the USEPA definition, nor is it readily visible on the ground. Field studies of the visibility of chaff and incidental debris in different environmental contexts concluded that noticeably adverse aesthetic effects are unlikely (Air Force 1997).

Approximately 60,000 flares are released annually within the Owyhee and Paradise MOAs. Although flares are authorized for use, they may not be released lower than 2,000 feet AGL. However, over the Duck Valley Reservation, flares are not released below 20,000 feet AGL during the day, and never at night. Over the impact area of Saylor Creek Range, depending on aircraft type, they may be released as low as 700 feet AGL when fire risks are not high to extreme. For Juniper Butte Range, the Air Force established a minimum release altitude of 2,000 feet AGL. Flares are not used in the Saddle MOA. Flares consist of magnesium and teflon pellets that burn rapidly and completely after being dispensed. A flare begins burning immediately after it is expelled, reaching its highest temperature (1,000° Fahrenheit) by the time it passes the tail of the aircraft. The actual amount of time it takes for a flare to burn out completely is classified, but minimum release altitudes for different flare types provide sufficient time for a flare to burn completely at least 100 feet AGL. Stricter release altitude standards imposed for the ranges and MOAs provide an additional margin of safety to prevent burning flare material from contacting the ground.

Toxicity of flare materials is not a concern because magnesium, the primary material found in flares, is considered not likely to be ingested by humans or animals. Impulse cartridges and initiators used with some flares contain chromium and, in some cases, lead—hazardous air pollutants under the Clean Air Act. However, a screening health risk assessment concluded that they do not present a health risk in the quantities involved. Laboratory analyses of flare pellets and flare ash indicate that these materials have little potential for affecting soil or water resources (Air Force 1997). Field studies similar to those conducted for chaff indicate that flare debris does not accumulate in noticeable quantities; therefore, there is little potential to impact aesthetic resources (Air Force 1997).

3.2.2 Environmental Consequences

This section evaluates the Proposed Action and Alternative A to determine its potential to affect airspace management and safety. Changes in the aircraft inventory under the Proposed Action and the action alternative would alter the number of sorties in Mountain Home AFB's airfield environment and sortie-operations in the associated training airspace. As such, the potential to affect airspace management and structure warrants evaluation. Similarly, the potential effects on risks to military personnel, the public, and property are examined. Fire and ground safety are assessed for the potential to increase risk, as well as the Air Force's capability to manage that risk by limiting exposure, responding to emergencies, and fire management and suppression both at the base and at the ranges. Analysis of aircraft flight risks correlates projected Class A mishaps and BASH with current use of the airspace to consider the magnitude of the change in risk associated with the proposal. The analysis also compares projected changes to uses and handling requirements of munitions are compared to current conditions.

Airspace Management

Proposed Action and Alternative A

Mountain Home AFB and Vicinity

Implementation of the Proposed Action or Alternative A would not measurably affect airspace management at Mountain Home AFB or in the associated training airspace. Changes in the aircraft inventory under the Proposed Action and Alternative A would result in a 25 percent increase relative to baseline sorties at the airfield. Such an increase would not be adverse and would not cause any shifts in the management or structure of the local airspace. Total sorties at the base would fall well below (11 to 31 percent reduction) those generated in the last decade (Air Force 1998a and 2002). Furthermore, the types of aircraft using the airfield environment would remain consistent with those flying there for 10 years. Although the F-15SG includes improvements in avionics and other systems, it essentially remains an F-15E. No changes in approach or departure routes would be required to accommodate the changed aircraft inventory under the action alternative.

Mountain Home Range Complex and Associated Airspace

Changes in sortie-operations and the addition of F-15SG aircraft resulting from the Proposed Action or Alternative A would not require changes to the management or structure of the affected training airspace. The F-15SGs would conduct operations in a fashion identical to the Air Force F-15E squadrons at Mountain Home AFB. No different maneuvers, change in the use of airspace, or other actions would occur. Under the Proposed Action and Alternative A, sortie-operations in the five MOAs would increase between 23 and 30 percent over baseline conditions. Such increases would not affect the capabilities of

these MOAs to accommodate all training needs and would not cause a need for structural changes to the airspace. Total sortie-operations within each MOA would remain below historic levels within the last decade (Air Force 1998a).

Sortie-operations on IR-302 and IR-304 would increase by 33 percent under the Proposed Action and Alternative A. Increases in sortie-operations on the two affected MTRs would not affect the management of these airspace units. Accommodating the changes in use would be accomplished through standard scheduling procedures. Since the type of aircraft using the MTRs would not differ from baseline conditions, procedures for training operations would not require modification or enhancement under the Proposed Action or Alternative A.

No-Action Alternative

Airspace use and management conditions would not change under the No-Action Alternative. All existing procedures and structures would remain as under baseline conditions. Sorties under the No-Action Alternative also fall well below recent (-27 percent) and historical levels (-42 percent). The airspace structure and management procedures would accommodate that level of activity without issue.

Safety

Proposed Action and Alternative A

Mountain Home AFB and Vicinity

Operations and Maintenance. Although the Proposed Action and Alternative A would add 10 operational aircraft to the base, the change would not alter safety for operations and maintenance. First, the base has supported, without safety issues, more and a greater diversity of aircraft in the recent past. Prior to completion of the BRAC-directed drawdown of 36 aircraft in 2009, a total of 60 aircraft were based at Mountain Home AFB. Addition of the RSAF squadron would bring that total to 52 aircraft. As recently as the late 1990's, Mountain Home AFB supported 72 aircraft (Air Force 1998a). Second, the F-15SG aircraft and the existing F-15E aircraft would not require any different safety procedures. Lastly, all maintenance and operations would be under Air Force control, ensuring adherence to requirements and standards.

Fire and Crash Response. For the reasons cited above, addition of RSAF aircraft and personnel to the base would not adversely affect fire and crash response. Given that the Mountain Home AFB Fire Department met all requirements under pre-BRAC conditions, the changes resulting from the Proposed Action or action alternative would not place any greater demand on equipment, personnel, or procedures.

Aircraft Mishaps. Aircraft safety conditions would not change measurably as a result of implementing the Proposed Action or the action alternative. In the Mountain Home AFB airfield environment, an increase in total airfield sorties associated with the Proposed Action and the action alternative would increase overall flying hours and the predicted potential for Class A mishaps. Addition of the 10 F-15SGs would increase flying hours in the airfield environment by 340 to about 1,640 annually. This increase would drop the statistically projected rate of a Class A mishap from once every 31.3 years to once every 25.4 years. With this minor change, the probability of the mishap would not measurably increase, not would any actual increase in mishaps be expected. No changes to the CZs or APZs would be necessary since the existing zones already account for the aircraft types proposed for the base.

BASH. No discernable increase in bird/wildlife aircraft strikes would be expected under the Proposed Action or action alternative. Several factors support this conclusion. First, the BASH program would remain in force for the base. Second, the increases in airfield operations and sortie-operations would not substantively change the opportunities for bird/wildlife aircraft strikes, particularly with respect to the recent past. Third, the F-15SG would operate like all other fighters that have used Mountain Home AFB and rarely encounter bird/wildlife aircraft strikes. Lastly, no aspect of the Proposed Action or Alternative A would increase concentrations of birds on or near the base, or in the training airspace.

Additional sortie-operations on the MTRs would minimally increase the potential for bird/wildlife aircraft strikes since these routes involve low altitude flight. Nevertheless, continued application of the BASH program avoidance procedures should limit the potential for bird/wildlife aircraft strikes.

Munitions Handling. On Mountain Home AFB, a new munitions handling facility would be constructed to support the RSAF beddown. This facility would be designed and approved for storage of the munitions proposed for use by the RSAF. Its location would lie adjacent to the existing Munitions Storage Area. No requirements for safety waivers associated with this facility would be required, and changes to the Q-D arcs would not affect land use. The Proposed Action and action alternative also involve establishment of arm/de-arm pads and hung ordnance areas. However, these would fall within existing areas designated for these purposes. No adverse impacts would result.

Mountain Home Range Complex and Associated Airspace

BASH. For the same reasons as described for the base, bird/wildlife aircraft strikes in the MHRC airspace would not likely increase. Moreover, the additional F-15SG sortie-operations projected for the Proposed Action and action alternative in the training airspace would fly 65 percent of the time above altitudes (i.e., 3,000 feet AGL) where almost all bird strikes occur.

Aircraft Mishaps. Within the MHRC, the increases in total sortie-operations associated with the Proposed Action and action alternative would negligibly affect the potential for Class A mishaps. The

amount of change would be no more than the yearly variations resulting from deployments and exercises at other bases (e.g., Red Flag at Nellis AFB). No changes in flight altitudes or maneuvers would occur, thereby maintaining the current low level of risk.

Fire Risk and Management. Within the ranges and under the MOAs, current procedures to minimize fire risks associated with training would continue. Operations and maintenance activities on ranges and associated facilities would continue to be conducted using current processes and procedures. All actions would be accomplished by technically qualified personnel and would be conducted in accordance with applicable Air Force requirements and fire management plans. The additional sortie-operations, ordnance use, and flare deployment by the F-15SGs would not raise total activity above recent or historical levels (Air Force 1998a). Indeed, the RSAF would employ only 10,000 additional flares in the airspace and about 5,500 BDU-33s. All restrictions guiding the use of these munitions would continue to be strictly enforced; fire response and suppression capabilities would continue to meet all requirements.

Training Ordnance Use. Use of training ordnance would continue on the ranges. Although use of BDU-33s would increase substantially over baseline, the increase would not fall outside levels of recent use. Furthermore, all safety and fire restrictions would apply and no new ordnance would be employed. Only trained and qualified personnel would handle ordnance in accordance with all explosive safety standards and detailed published technical data.

Weapons employment procedures are detailed in AFI 13-212. Operational constraints pertaining to use of specific delivery tactics, ordnance type, or aircraft headings are developed to mitigate any potentially unsafe condition and ensure that ordnance remains within the applicable safety footprint. These procedures would continue to be employed. No degradation of public safety is expected from release of ordnance by F-15SGs. Weapons safety footprints for ordnance delivery by F-15Es are well established and proven.

Chaff and Flares. Under the Proposed Action and action alternative, 20,000 bundles of chaff and 10,000 flares would be released annually by F-15SGs, contributing about 37 percent of the total chaff and about 19 percent of the total flare use for the MHRC and associated airspace area. While these percentage changes relative to baseline appear large, the total use would be roughly equal to that used under pre-BRAC drawdown conditions. For example, prior to the BRAC drawdown, total chaff use exceeded 77,000 bundles annually, or about 3,000 bundles more that under the Proposed Action and action alternative. All safety measures and restriction on chaff and flares use would continue to apply, ensuring protection of the environment and human safety.

No-Action Alternative

Sorties and sortie-operations under the No-Action Alternative would remain within historical averages. As such, no impacts to airspace management would be anticipated. No changes to the potential for bird/wildlife aircraft strikes would occur under the No-Action Alternative. Under the No-Action Alternative, munitions handling would not change and no increase in stored munitions would occur. The No-Action Alternative would not increase fire risk or management requirements over current conditions. Safety risks associated with chaff and flare use would remain minimal.

3.3 NOISE

3.3.1 Affected Environment

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. Although aircraft are not the only source of noise in any area, they are readily identifiable to those affected by their noise emissions and are routinely singled out for special attention and criticism.

There are two general kinds of noise discussed in this EA. The first is conventional subsonic noise, as generated by an aircraft's engines and airframe. The second type of noise is supersonic. Sonic booms are brief impulsive sounds, which are generated by the aircraft when it flies faster than sound. Assessment of subsonic and supersonic aircraft noise requires a general understanding of the measurement and effects of these two kinds of noise. Appendix A contains additional discussion of noise, the quantities used to describe it, and its effects. Appendix A should be referred for explanations of concepts that are briefly defined in this section.

Noise represents the most identifiable concern associated with aircraft operations. Although communities and even isolated areas receive more consistent noise from other sources (e.g., cars, trains, construction equipment, stereos, wind), the noise generated by aircraft overflights often receives the greatest attention. General patterns concerning the perception and effect of aircraft noise have been identified, but attitudes of individual people toward noise are subjective and depend on their situation when exposed to noise. Annoyance is the primary consequence of aircraft noise on people. The subjective impression of noise and the disturbance of activities are believed to contribute significantly to the general annoyance response. A number of non-noise related factors have been identified that may influence the annoyance response of an individual. These factors include both physical and emotional variables.

Noise also has the potential to affect wildlife, recreation use, land use, and the setting of cultural resources. The effects of noise on these resources are discussed in the specific resource section.

Aircraft Noise Assessment Methods

An assessment of subsonic and supersonic aircraft noise requires a general understanding of how sound is measured and how it affects people and the natural environment. Appendix A provides a detailed discussion of noise and its effects on people and the environment. The primary information needed to understand the noise analysis is summarized below.

Noise is represented by a variety of quantities, or "metrics." Each noise metric was developed to account for the type of noise and the nature of what (i.e., receptor) may be exposed to the noise. Human hearing is more sensitive to medium and high frequencies than to low and very high frequencies, so it is common to use "A-weighted" metrics, which account for this sensitivity. Impact of impulsive supersonic noise depends on factors other than human hearing, so that is often quantified by "C-weighted" metrics.

Different time periods also play a role with regard to noise. People hear the sound that occurs at a given time, so it is intuitive to think of the instantaneous noise level, or perhaps the maximum level that occurs during an aircraft flyover. However, the effects of noise over a period of time depends on the total noise exposure over extended periods, so "cumulative" noise metrics are used to assess the impact of ongoing activities such as those that occur at Mountain Home AFB and within the MHRC.

Within this EA, noise is described by the Sound Level (L), the Sound Exposure Level (SEL), Day-Night Average Sound Level (DNL), and Onset Rate-Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}). A-weighted levels are used for subsonic aircraft noise, and C-weighted levels are used for sonic booms and other impulsive noises. A "C" is included in the symbol to denote when C-weighting is used. Each of these metrics is summarized below and discussed in more detail in Appendix A.

- Sound Level is the amplitude (level) of the sound that occurs at any given time. When an aircraft flies by, the level changes continuously, starting at the ambient (background) level, increasing to a maximum as the aircraft passes closest to the receiver, then decreases to ambient as the aircraft flies into the distance. Sound levels occur on a logarithmic decibel scale; a sound level that is 10 decibels (dB) louder than another will be perceived as twice as loud.
- Sound Exposure Level accounts for both the maximum sound level and the length of time a sound lasts. SEL does not directly represent the sound level heard at any given time, but rather provides a measure of the total sound exposure for an entire event.
- Day-Night Sound Average Level is a noise metric combining the levels and durations of noise events, and the number of events over an extended time period. It is a cumulative average, computed over a given time period like a year, to represent total noise exposure. DNL also accounts for more intrusive nighttime noise, adding a 10-dB penalty for sounds after 10:00 p.m.

and before 7:00 a.m. DNL is the measure used to appropriately account for total noise exposure around airfields such as Mountain Home AFB.

- Onset Rate Adjusted Monthly Day-Night Sound Average Level is the measure used for subsonic aircraft noise in military airspace like NTTR. L_{dnmr} accounts for the fact that when military aircraft fly low and fast, the sound can rise from ambient to its maximum very quickly. Known as an onset-rate, this effect can make noise seem louder than its actual level. Penalties of up to 11 dB are added to account for this onset rate.
- C-Weighted Day-Night Average Sound Level is the day-night sound level computed for areas subject to sonic booms, such as portions of Paradise MOA. These areas are also subjected to subsonic noise assessed according to L_{dnmr}.

The affected environment for noise extends to the area outside Mountain Home AFB to areas subject to 65 DNL or higher and includes noise from aircraft operations under the MOAs, Restricted Areas, and MTRs.

Mountain Home AFB and Vicinity

Noise studies, including those completed under the Air Installation Compatible Use Zone (AICUZ) program, express noise levels (in DNL) as contours developed from the following data: aircraft types, runway-use patterns, engine power settings, altitude profiles, flight-track locations, airspeed, number of operations per flight track, engine maintenance, and time of day (see Appendix A). These studies were based on an average busy day, which represents airfield activity during a 24-hour period when the airfield is in full operation. The advantage of the "average busy day" approach is that it is unaffected by daily, monthly, and yearly fluctuations in the rate of use by individual aircraft at the base. Aircraft data used in the noise analysis for Mountain Home AFB were acquired through studies preliminary to the AICUZ process in 2006 and reflect conditions subsequent to completion of BRAC actions.

Sound levels from flight operations at Mountain Home AFB exceeding ambient background noise typically occur only beneath main approach and departure corridors and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft take off and gain altitude, their contribution to the noise environment drops to levels indistinguishable from the ambient background. The noise analysis identified baseline noise levels ranging from 65 DNL to greater than 85 DNL for the lands near Mountain Home AFB's runways and off-base vicinity. Table 3.3-1 presents the on-base and off-base acres affected by noise levels of 65 DNL and greater. Current noise levels of greater than 65 DNL affect approximately 11,687 acres at Mountain Home AFB, with the highest noise levels on and around the runway and flightline (Figure 3.3-1). Since 1996, noise conditions have been consistent with this baseline noise environment.

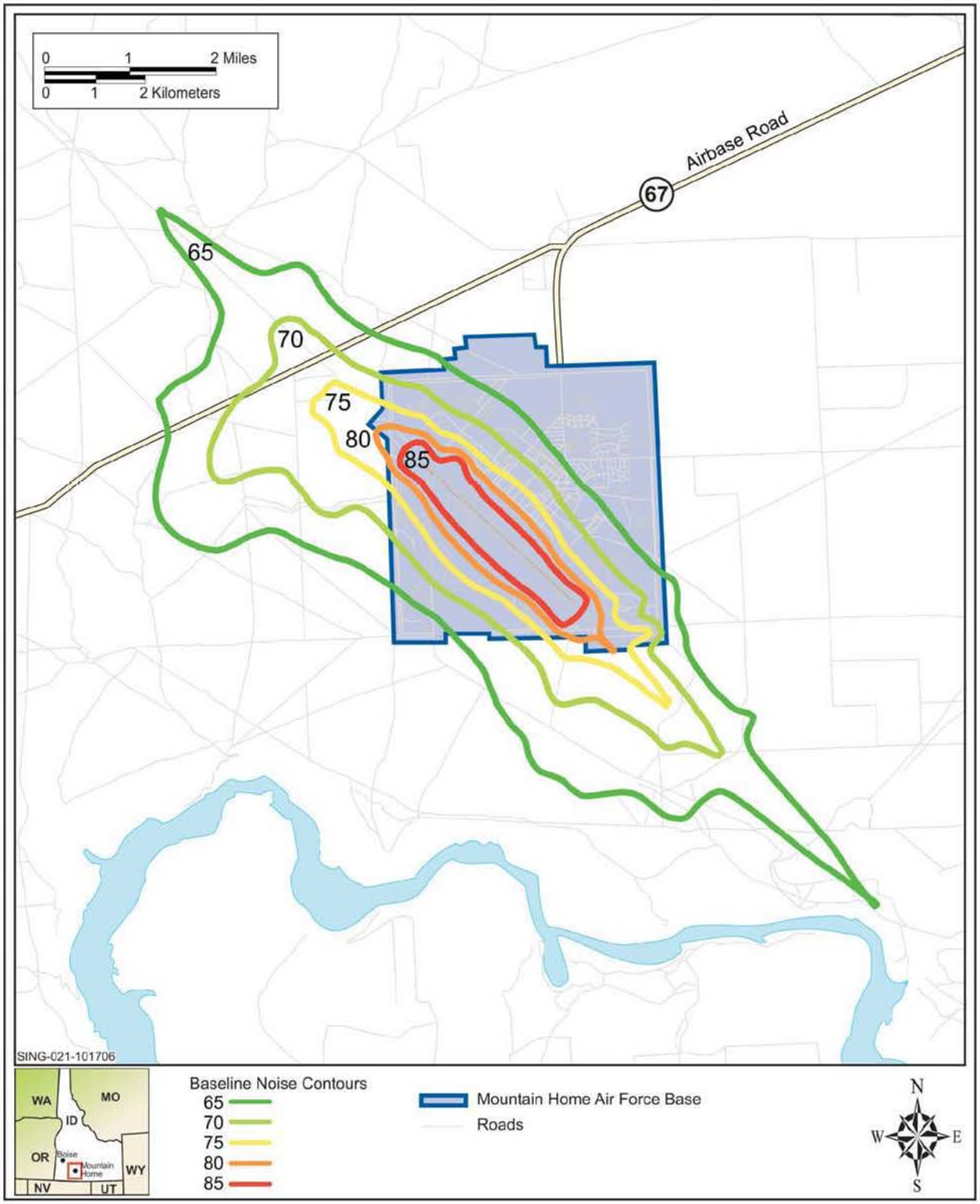


Figure 3.3-1. Baseline Noise Contours at Mountain Home AFB

Table 3.3-1. Area Affected by Baseline Noise Contours in the Vicinity of Mountain Home AFB			
Noise Contour (DNL)	***Acres Affected: On Base***	***Acres Affected: Off Base***	***Acres Affected: Total***
65-70	1,192	4,867	6,058
70-75	1,078	2,060	3,138
75-80	784	460	1,244
80-85	528	9	538
85+	709	0	709
Total	**4,291**	**7,396**	**11,687**

Mountain Home Range Complex and Associated Airspace

Prediction of aircraft noise in an airspace environment requires two sets of data. The first is a quantitative understanding of aircraft operations: numbers of aircraft, their speeds, altitudes, and locations. The second set of data derives from the physical modeling of the noise itself, which is then accumulated for all aircraft operations. These sortie-operations in the MHRC have been described in Chapter 2. These numbers were derived from the Mountain Home Airspace Manager and from previous environmental documents.

Within the MOAs and overlying ATCAAs used by Mountain Home AFB aircraft, subsonic flight is dispersed and often occurs randomly or, due to either airspace configuration or training scenarios, it may be concentrated or channeled into specific areas or corridors. The Air Force has developed the MR_NMAP (MOA-Range NOISEMAP) computer program (Lucas and Calamia 1996) to calculate subsonic aircraft noise in these areas. MR_NMAP can calculate noise for both random operations and operations channeled into corridors. It is supported by measurements in several military airspaces (Lucas *et al.* 1995). The affected airspace for the MHRC includes MOAs where random aircraft operation is the norm and MTRs where operations occur in corridors.

The primary noise metric calculated by MR_NMAP for this assessment is DNL (also known as L_{dn} or, by extension, L_{dnmr}). This quantity has been computed for each of the five MOAs (Jarbidge, Owyhee, Paradise East and West, and Saddle) potentially affected by the Proposed Action and Alternative A and compared to the baseline or No-Action Alternative. As discussed in Appendix A, this cumulative metric represents the most widely accepted method of quantifying noise impact.

Although DNL provides the most widely accepted cumulative metric, it does not offer an intuitive description of noise conditions. People often desire to know the loudness of individual aircraft during a flyover (refer to Figure A-1, Appendix A). The SEL metric, as a single-number representation of a noise energy dose, meets this need. This measure accounts for the effect of both the duration and intensity of a noise event. During an aircraft flyover, SEL would include both the maximum noise level and the 10 dB lower levels produced during the onset and recess periods of the flyover (which is also known as 10 dB

down). Because an individual overflight takes seconds and the maximum sound level occurs instantaneously, SEL is the best metric for comparing noise levels from overflights. SEL values decrease as altitude increases and vary according to the type of aircraft, its altitude or distance from the receptor, it power setting, and its speed.

Table 3.3-2 presents SEL values at representative altitudes (feet AGL) for various aircraft types currently using the MHRC. Typically, the noise environment is dominated by the aircraft performing the majority of operations, although it could be dominated by few operations of louder aircraft.

Table 3.3-2 Sound Exposure Level (SEL) in dB under the Flight Track for Aircraft at Various Altitudes[1]

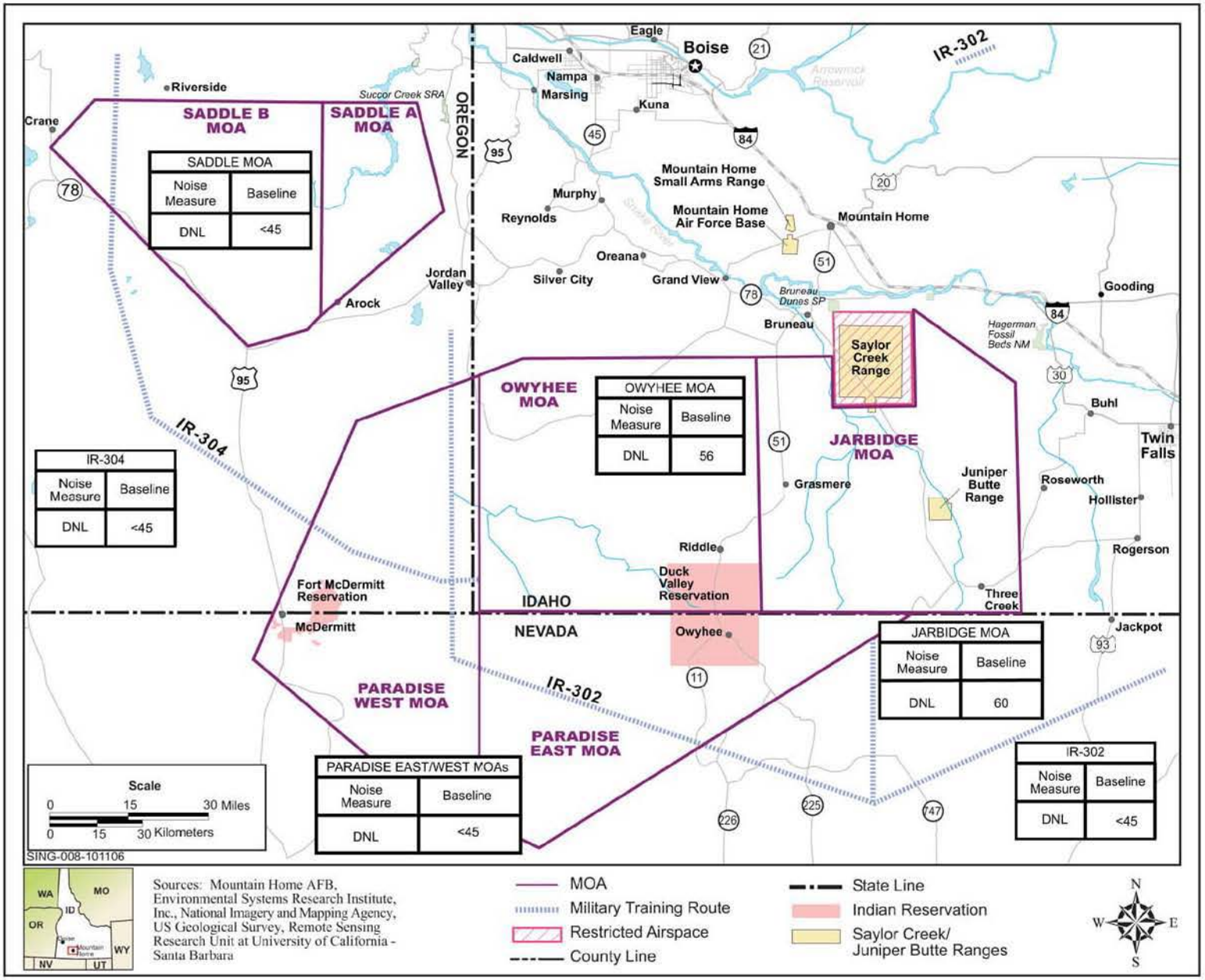
Aircraft Type	***Airspeed***	***Altitude in Feet Above Ground Level***					
		500	*1,000*	*2,000*	*5,000*	*10,000*	*20,000*
F-15C	520	112	107	101	91	80	65
F-15E	550	115	110	104	95	85	71
F-16	500	102	97	90	80	69	56

[1] Level flight, steady high-speed conditions

Figure 3.3-2 provides the baseline noise levels for the MOAs and MTRs. As these data show, noise levels in the Paradise East and West, Saddle MOAs, IR-302, and IR-304 under baseline conditions are below 45 DNL. In the Jarbidge MOA, cumulative noise levels are 60 DNL and in the Owyhee MOA, they are 56 DNL. Noise levels for the Jarbidge MOA include operations over the two ranges.

The Air Force conducted a monitoring study for noise conducted in the Owyhee and Jarbidge MOAs and on the range in 2003 (Fidel Associates, Inc. 2003). It concluded: 1) indigenous sources (e.g., wind) comprised the noise sources audible for the great majority of time; 2) noise from military aircraft were occasionally audible as rumbling noises at all eight monitoring sites, but higher level noise intrusion occurred rarely; and 3) monitoring revealed hourly equivalent sound level commonly less than 40 dB, even when aircraft operations dominated the noise environment.

Supersonic flight for fighter aircraft, including the F-15E, is primarily associated with air combat training. This occurs in the MOAs, generally above 10,000 feet MSL. Aircraft exceeding Mach 1 always create a sonic boom; however, not all supersonic flight activities will cause a boom at the ground. As altitude increases, air temperature decreases, and the resulting layers of temperature change cause booms to be turned upward as they travel toward the ground. Depending on the altitude of the aircraft and the Mach number, many sonic booms are bent upward sufficiently that they never reach the ground. This same phenomenon, referred to as "cutoff," also acts to limit the width (area covered) of the sonic booms that reach the ground (Plotkin *et al.* 1989).



SADDLE MOA	
Noise Measure	Baseline
DNL	<45

OWYHEE MOA	
Noise Measure	Baseline
DNL	56

IR-304	
Noise Measure	Baseline
DNL	<45

JARBIDGE MOA	
Noise Measure	Baseline
DNL	60

PARADISE EAST/WEST MOAs	
Noise Measure	Baseline
DNL	<45

IR-302	
Noise Measure	Baseline
DNL	<45

Figure 3.3-2. Mountain Home Range Complex Baseline Noise Environment

When a sonic boom reaches the ground, it impacts an area that is referred to as a "footprint" or (for sustained supersonic flight) a "carpet." The size of the footprint depends on the supersonic flight path and on atmospheric conditions. Sonic booms are loudest near the center of the footprint, with a sharp "bang-bang" sound. Near the edges, they are weak and have a rumbling sound like distant thunder.
Sonic booms from air combat training activity have an elliptical pattern. Aircraft will set up at positions up to 100 nautical miles apart, before proceeding toward each other for an engagement. The airspace used tends to be aligned, connecting the setup points in an elliptical shape. Aircraft will fly supersonic at various times during an engagement exercise. Supersonic events can occur as aircraft accelerate toward each other, during dives in the engagement itself, and during disengagement.

A variety of aircraft conducting training perform flight activities that include supersonic events. Predominantly, these events occur during air-to-air combat, often at high altitudes. Roughly 3 to 10 percent of air combat maneuvering flight activities, depending upon aircraft type, results in supersonic events within the supersonic region of the Jarbidge and Owyhee MOAs, where supersonic activity is authorized above 10,000 feet AGL. Supersonic flight is not authorized in the other MOAs. On average, F-15Es fly supersonic 4 percent of the time spent in air combat training with Mach numbers usually 1.1 or less, but occasionally up to about 1.3. This is typical of all the current-generation supersonic aircraft studied in the development of the Air Force's BOOMAP model. The BOOMAP model (Frampton *et al.* 1993) provides cumulative sonic boom impacts based on measurements of sonic booms and analysis of tracking data.

Baseline supersonic noise levels and average numbers of sonic booms per month have been fairly consistent in the MHRC affected airspace over the last 6 years. In 2001 and 2002, the Owyhee and Jarbidge MOAs had CDNL estimates of 52 with an average of 17 booms per month (Air Force 2001b, 2002). These baseline numbers derive from a time when more air-to-air combat aircraft used the MHRC, thus making supersonic events more frequent than under baseline conditions. The 2003 study (Fidel Associates, Inc. 2003) employed one site for monitoring sonic booms. At this single station, only 27 booms were detected over roughly 9 months). However, this study does not provide comparable data from other locations and time periods.

3.3.2 Environmental Consequences

Proposed Action and Alternative A

Implementation of the Proposed Action or Alternative A would not substantially change the noise conditions at the base or in the MHRC. Slight increases in noise levels would occur; however, most changes would not be perceptible to human hearing.

Mountain Home AFB and Vicinity

There would be a 15 percent increase (1,787 acres) in the total area affected by noise greater than 65 DNL under the Proposed Action and Alternative A when compared to baseline levels (Table 3.3-3). However, the total number of acres affected by 65 DNL or greater in 2002 was 16,224 acres or 20 percent above the increase with the Proposed Action and Alternative A. Therefore, the noise levels estimated with the RSAF squadron are within recent historical levels. Overall, the effects to the areas adjacent to Mountain Home AFB would be minimal. Figure 3.3-3 depicts the baseline and projected NOISEMAP contours should the Proposed Action or Alternative A be implemented.

Table 3.3-3 Total Acreage under Noise Contours for each Alternative

Noise Contour (DNL)	***Proposed Action or Alternative A***	***No Action***
65-70	6,876	6,058
70-75	3,666	3,138
75-80	1,515	1,244
80-85	629	538
>85	788	709
Total	**13,474**	**11,687**

Mountain Home Range Complex and Associated Airspace

Despite modifications in the number of sortie-operations by aircraft, subsonic (DNL) noise levels arising from the implementation of the Proposed Action or Alternative A would remain low and not increase or decrease perceptibly in the airspace used for training (the smallest change in average noise level which can be detected by the human ear is about 3 dB). In the Owyhee MOA, the subsonic noise level would be increased by 1 dB under the Proposed Action and Alternative A. In the Saddle MOA and Paradise East and West MOAs, noise levels would remain below 45 DNL. In the Jarbidge MOA, the noise level would increase by about 1 dB under the Proposed Action and Alternative A (Figure 3.3-4). F-15Es would fly, on average, 65 percent of the time above 5,000 feet AGL. Since the same aircraft have used the MHRC in the past, SELs would not change. Despite slight increases, the overall noise levels would remain low; therefore, the noise environment would not perceptibly change.

Due to the minimal increase in use (less than 1 per flying day), noise on IR-302 and IR-304 would remain either at or below 45 DNL. No perceptible change to noise levels would occur along these routes.

No-Action Alternative

If the No-Action Alternative were selected, the proposed beddown of the RSAF F-15SG aircraft at Mountain Home AFB would not occur. Existing conditions, as described in section 3.3.1, would remain unchanged. Consequently, implementation of the No-Action Alternative would have no impacts on noise.

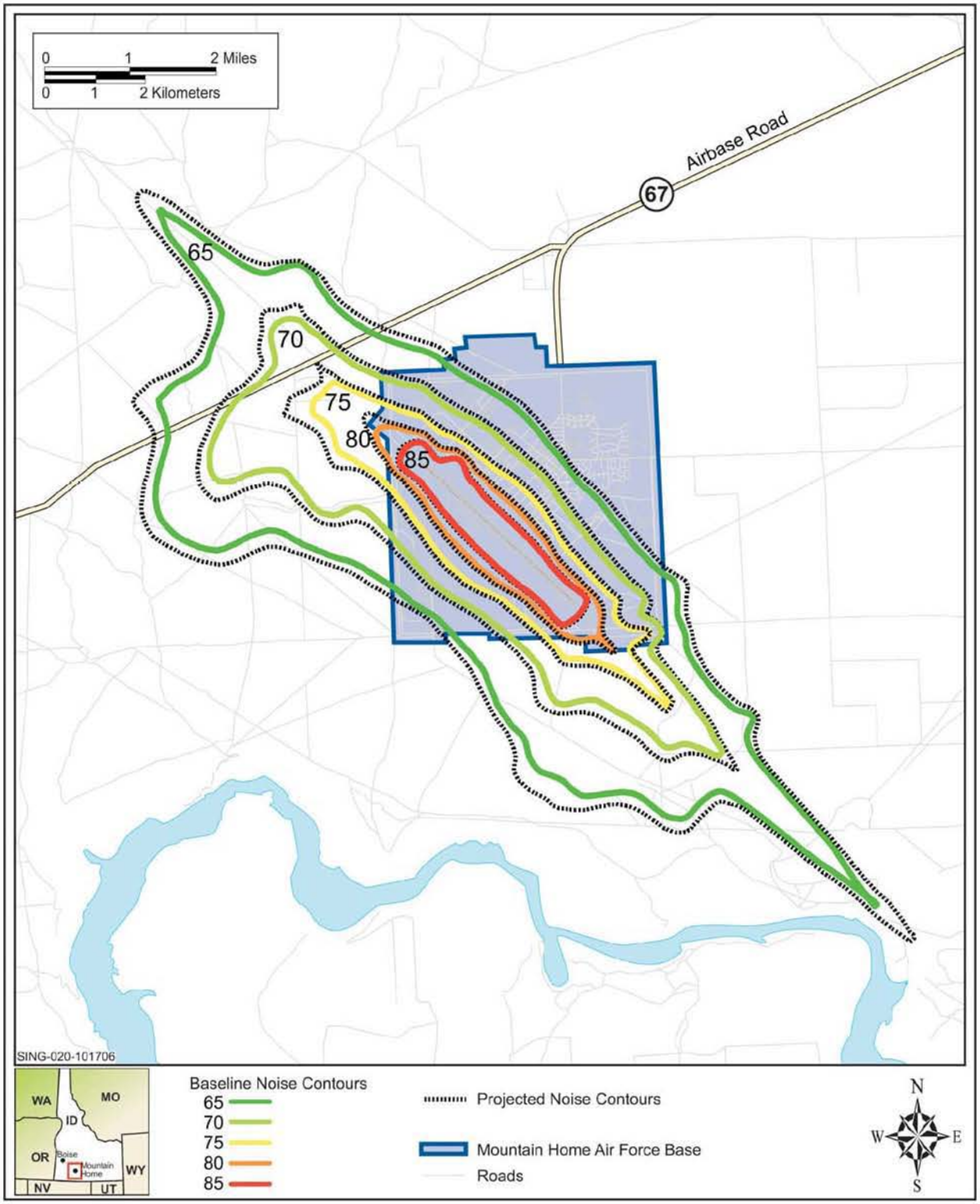
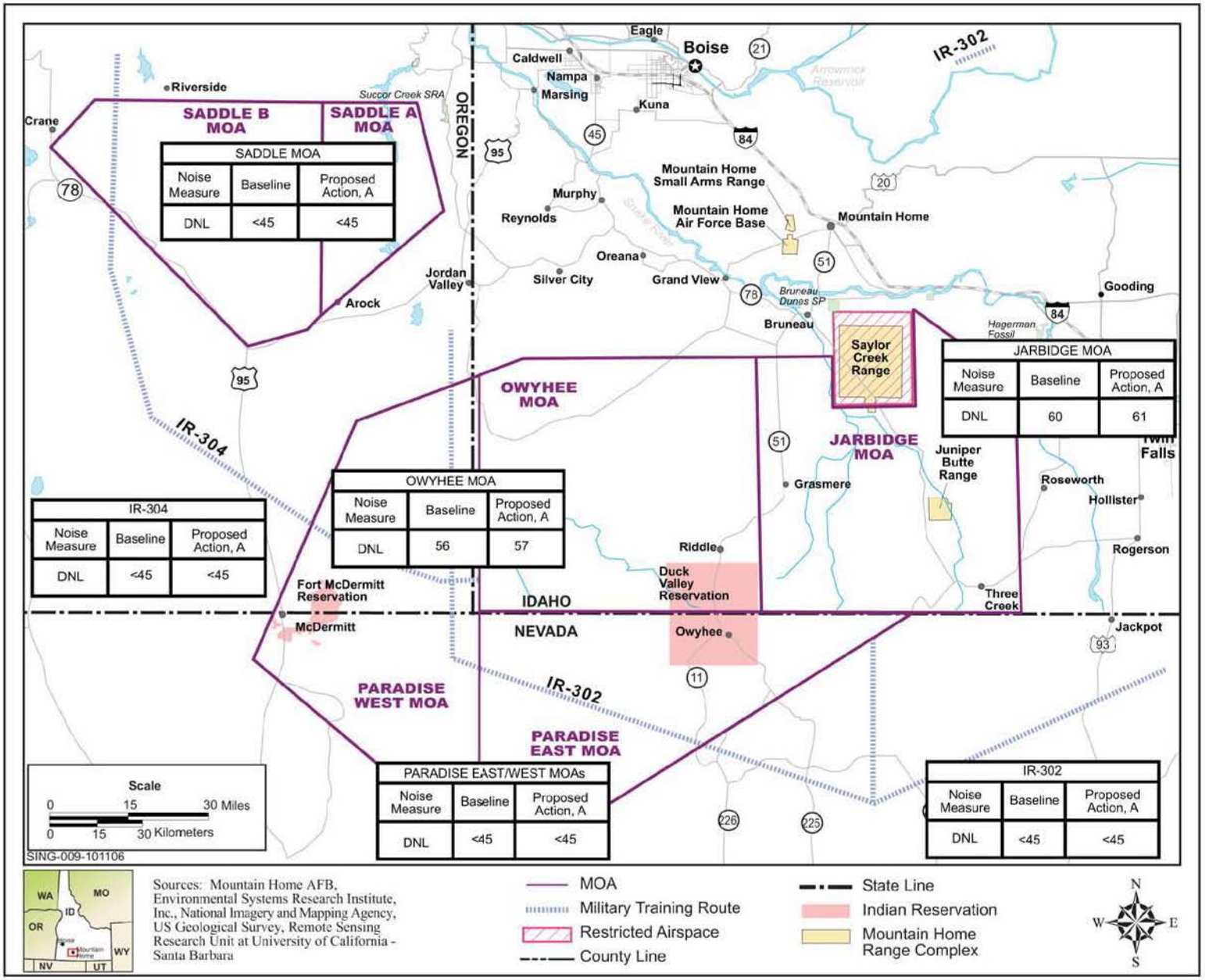


Figure 3.3-3. Baseline and Projected Noise Contours at Mountain Home AFB



SADDLE MOA		
Noise Measure	Baseline	Proposed Action, A
DNL	<45	<45

JARBIDGE MOA		
Noise Measure	Baseline	Proposed Action, A
DNL	60	61

OWYHEE MOA		
Noise Measure	Baseline	Proposed Action, A
DNL	56	57

IR-304		
Noise Measure	Baseline	Proposed Action, A
DNL	<45	<45

PARADISE EAST/WEST MOAs		
Noise Measure	Baseline	Proposed Action, A
DNL	<45	<45

IR-302		
Noise Measure	Baseline	Proposed Action, A
DNL	<45	<45

Figure 3.3-4. Mountain Home Range Complex Baseline and Projected Noise Environment

3.4 LAND USE, RECREATION, AND VISUAL RESOURCES

Land use, as addressed in this chapter, includes land ownership, base planning, local government planning and zoning, and management of state and federal public lands. Aircraft-related noise is discussed as it pertains to land use compatibility on base and in the surrounding community. For Mountain Home AFB, the City of Mountain Home, and their vicinity, the chapter focuses on land ownership and human-modified land use such as residential, commercial, industrial, institutional, recreational, and military. For the airspace and range areas in which RSAF F-15SG aircraft use would remain approximately at current levels, the primary land status category examined is federal public lands, although small portions of the lands are state or privately owned. Federal land in the affected area consists predominantly of that managed and administered by the BLM, DoD, U.S. Forest Service (USFS), and Bureau of Indian Affairs. Special Land Use Management Areas administered by federal agencies, such as Wilderness Areas, Wilderness Study Areas (WSA), Wild and Scenic Rivers, and Areas of Critical Environmental Concern, also receive attention in this chapter. Discussion of lands under the airspace centers on these and other management categories, as well as the primary land uses: grazing and outdoor recreation.

3.4.1 Affected Environment

Mountain Home AFB and Vicinity

Mountain Home AFB is located in southwestern Idaho in Elmore County, approximately 50 miles southeast of Boise. Owyhee County lies about 4 miles south of the base with Ada County about 7 miles to the northwest. The cities of Mountain Home, situated about 10 miles northeast of the base, and Glenns Ferry, located 30 miles southeast of the base, are the only two incorporated communities in Elmore County. Land ownership in Elmore County is dominated by the federal government: USFS, BLM, and DoD own more than 70 percent of Elmore County lands.

Mountain Home AFB was originally built in 1942 and 1943 and since then its presence has influenced land use patterns and development in its vicinity. The base currently comprises approximately 6,844 acres (Mountain Home AFB 2006a), which is managed by the 366 FW under ACC.

Within the base, nearly 5 million square feet of facilities associated with military operations cover about 30 percent of the land area (Mountain Home AFB 2006b). The most intensively developed portions of the base are the south-central and northeastern areas, where the runway complex, maintenance, and administration facilities are located (refer to Figure 1.2-1). Another 25 percent of the base's land area has been landscaped or otherwise altered (e.g., development of the base golf course); the remaining land is currently undeveloped, characterized by open fields and areas previously but not routinely used.

On-base development occurs under planning guidelines designed to ensure compatibility of land uses with safety and operational requirements. The primary planning document for Mountain Home AFB is the *General Plan* (Mountain Home AFB 2006b). Height restrictions apply to structures and other objects (e.g., trees) in the vicinity of the airfield. Similarly, housing occurs away from the industrial and operational sections of the base.

Two major factors, safety and noise, influence land use planning and patterning on base and in its vicinity. Air Force Manual 91-201, *Explosives Safety Standards* (Air Force 2001), requires "Quantity-Distance" (Q-D) standards, or explosive safety clearance zones, to protect operational capability, personnel, and facilities from potential explosive sites. The Q-D standards were developed over many years and are based on explosive mishaps and tests. Potential explosive sites at Mountain Home AFB that require Q-D safety arcs include the LOLA areas at the end of the runway (refer to Figure 3.2-2), aircraft parking ramps, and other munitions storage areas. These areas and their Q-D arcs restrict land use in and around the base, and development within these arcs is limited. No conflicts with these areas currently exist at the base.

Aircraft at Mountain Home AFB generally operate according to established flight paths and overfly the same areas surrounding the base. There is a quiet-hours program at Mountain Home AFB, where takeoffs, landings, and engine run-ups are limited between 10:30 p.m. and 6:30 a.m. At Mountain Home AFB, noise exposure from airfield operations typically occurs beneath main approach and departure corridors and in areas immediately adjacent to parking ramps and aircraft staging areas.

The AICUZ program, as described in Chapter 3.3 and Appendix A, is designed to provide Air Force bases and surrounding communities with guidelines to address safety and noise issues in land planning. As part of its AICUZ program, Mountain Home AFB has established a CZ and two APZs at the end of each runway (Figure 3.4-1). The CZs, both of which extend off base, include neither housing nor other incompatible land uses. The Air Force also holds real property rights to off-base portions of CZs to prevent incompatible land uses. Within APZs, dense residential development or other land uses that promote public assembly are discouraged. Land uses allowed within APZ I include a variety of industrial, open space, and agricultural uses whereas APZ II land uses include all of those listed for APZ I, as well as some additional commercial uses and services.

Within APZs, as well as the portions of CZs that lie outside the base, agriculture (i.e., cultivation and grazing) forms the predominant land use. For APZs extending from the northwest end of the runway, the area consists of private lands (about 5 percent) and lands administered by the BLM (about 35 percent). To the southeast end of the runway, the area within the APZs is solely comprised of BLM lands.

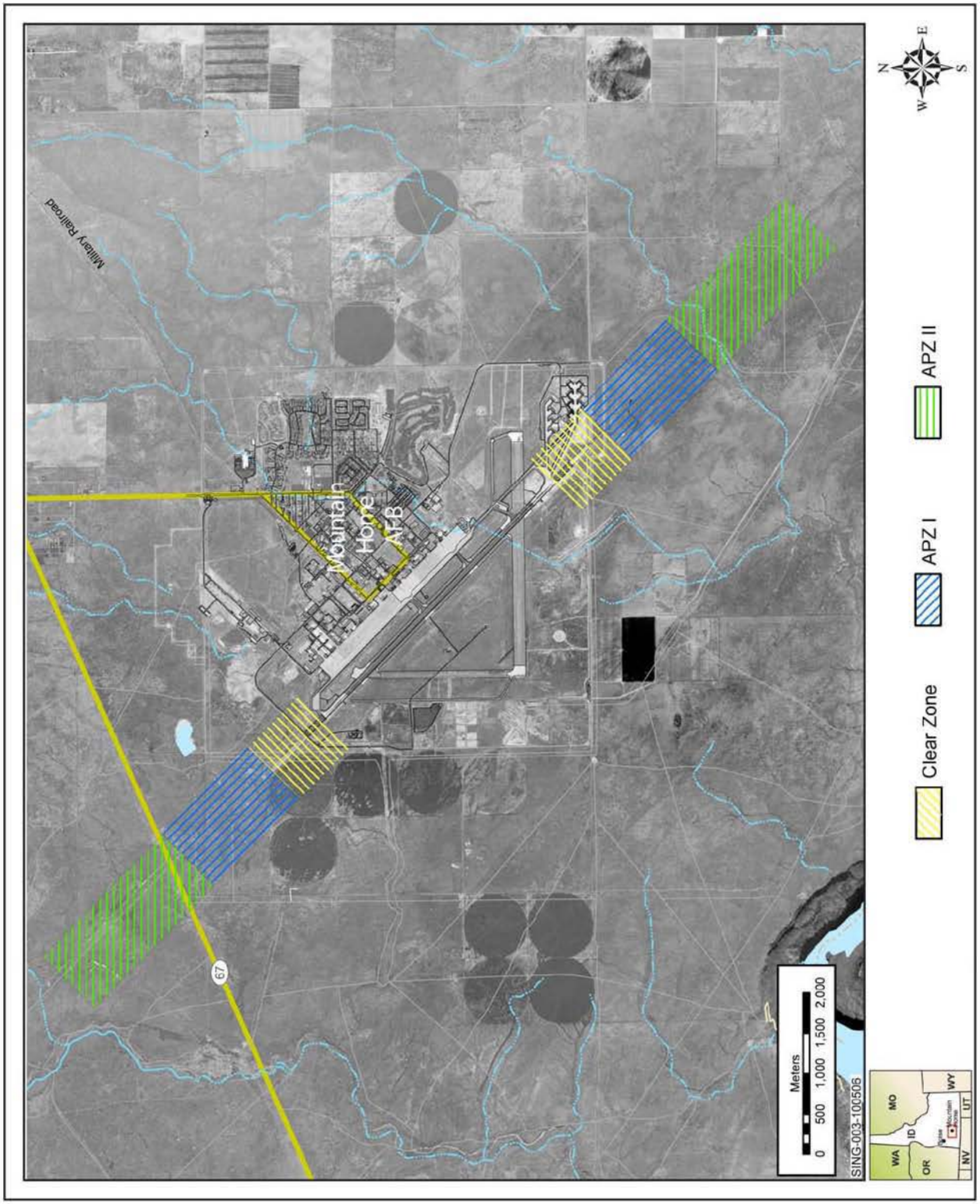


Figure 3.4-1. Accident Potential Zones and Clear Zones, Mountain Home AFB

Noise levels of 65 DNL or greater affect both on-base and off-base lands (refer to Figure 3.3-1). Approximately 37 percent of the affected area lies within the base, with the remaining 63 percent of lands exposed to noise greater than 65 DNL either vacant or used for agricultural purposes.

In the area immediately surrounding the base, land ownership reflects a roughly equal mixture of private and BLM lands (Figure 3.4-2) in unincorporated areas of Elmore County. Land use consists primarily of agriculture and grazing, although scattered residences occur on private lands (Figure 3.4-3). Table 3.4-1 presents a list of land uses within the vicinity of the base affected by existing noise contour levels of 65 DNL or greater. None of the affected areas contain land uses incompatible with the noise levels.

Table 3.4-1. Land Uses within the Mountain Home AFB Baseline 65 DNL Noise Contour

Land Use	*Acres*	*Percentage*
Agricultural Lands	827	7.1%
Commercial	6	0.1%
Mountain Home AFB	4,291	36.7%
Open Space	6,563	56.2%
Total	**11,687**	**100.0%**

Elmore County's Zoning and Development Ordinance addresses zoning for all airports within Elmore County, including Mountain Home AFB. The Zoning and Development Ordinance is consistent with the recommendations contained in the Mountain Home AFB AICUZ report. The Ordinance established an Airport Hazard Zone (AHZ) for Mountain Home AFB which protects the base from incompatible land use encroachment (Elmore County 1995). Sub zones were also created within the AHZ which limit and regulate structure heights and objects of natural growth. Commercial development along Airbase Road is within the Ordinance-designated Airport Commercial Zone.

Mountain Home Range Complex and Associated Airspace

Juniper Butte Range and its associated airspace (R-3204) are approximately 45 miles southeast of Mountain Home AFB. The range is comprised of 11,152 acres of withdrawn land, 700 acres of public domain permit, and 960 acres leased from the State of Idaho. Saylor Creek Range and its associated airspace (R-3202) are located about 16 miles southeast of Mountain Home AFB. The range itself comprises approximately 102,746 withdrawn acres, 6,080 acres leased from the state, and 640 Air Force owned acres in northeastern Owyhee County (Mountain Home AFB 2006a). Within Saylor Creek Range's 12,200-acre exclusive use area, land use consists solely of target areas and support facilities, although more than half of the acreage is undeveloped open space. A barbed-wire fence surrounds the exclusive use area and restricts access to all but authorized personnel. Outside the exclusive use area, the remaining acres are designated for multiple use where the BLM provides permits for sheep and cattle grazing. Six grazing allotments occur on Saylor Creek Range.

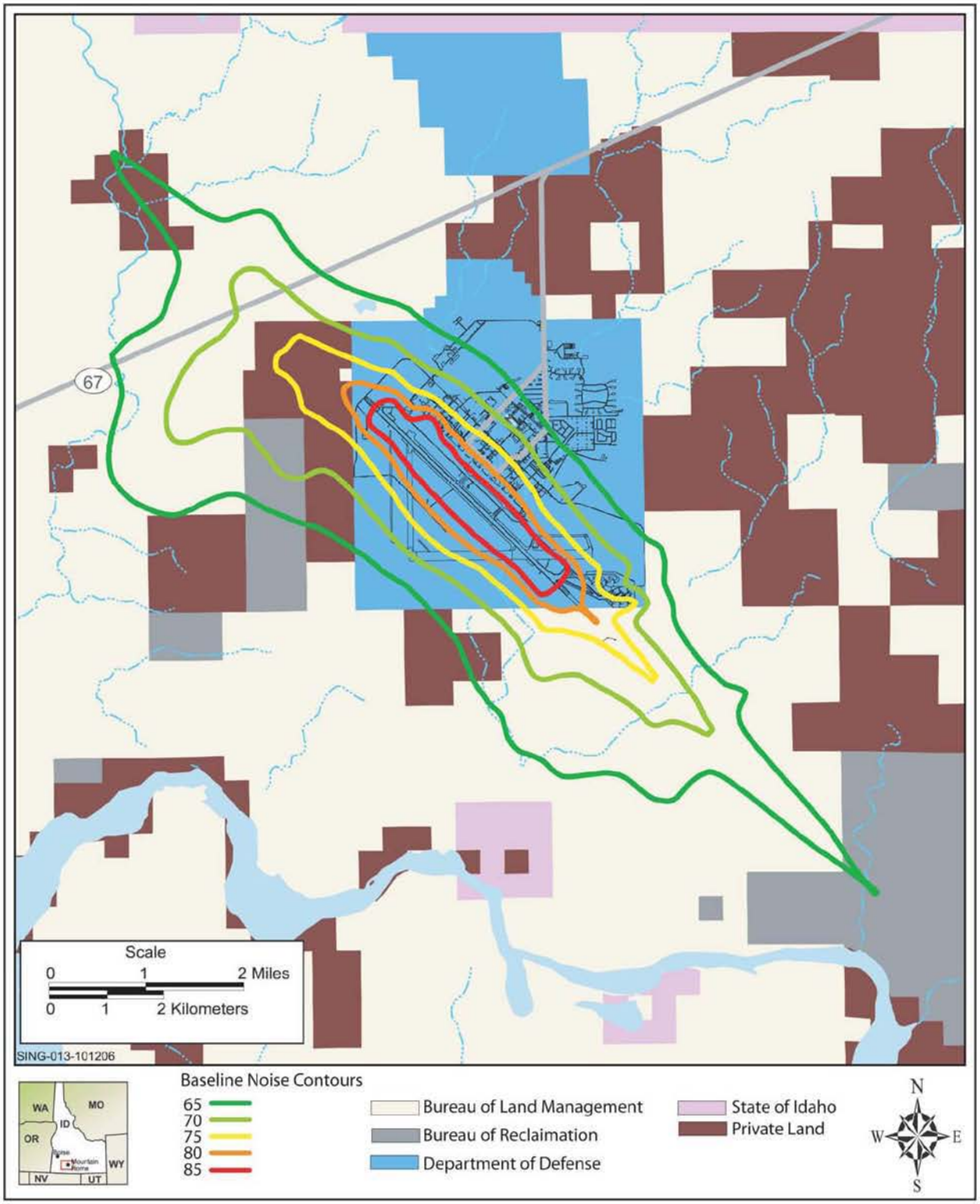


Figure 3.4-2. Land Ownership and Baseline Noise Contours, Mountain Home AFB

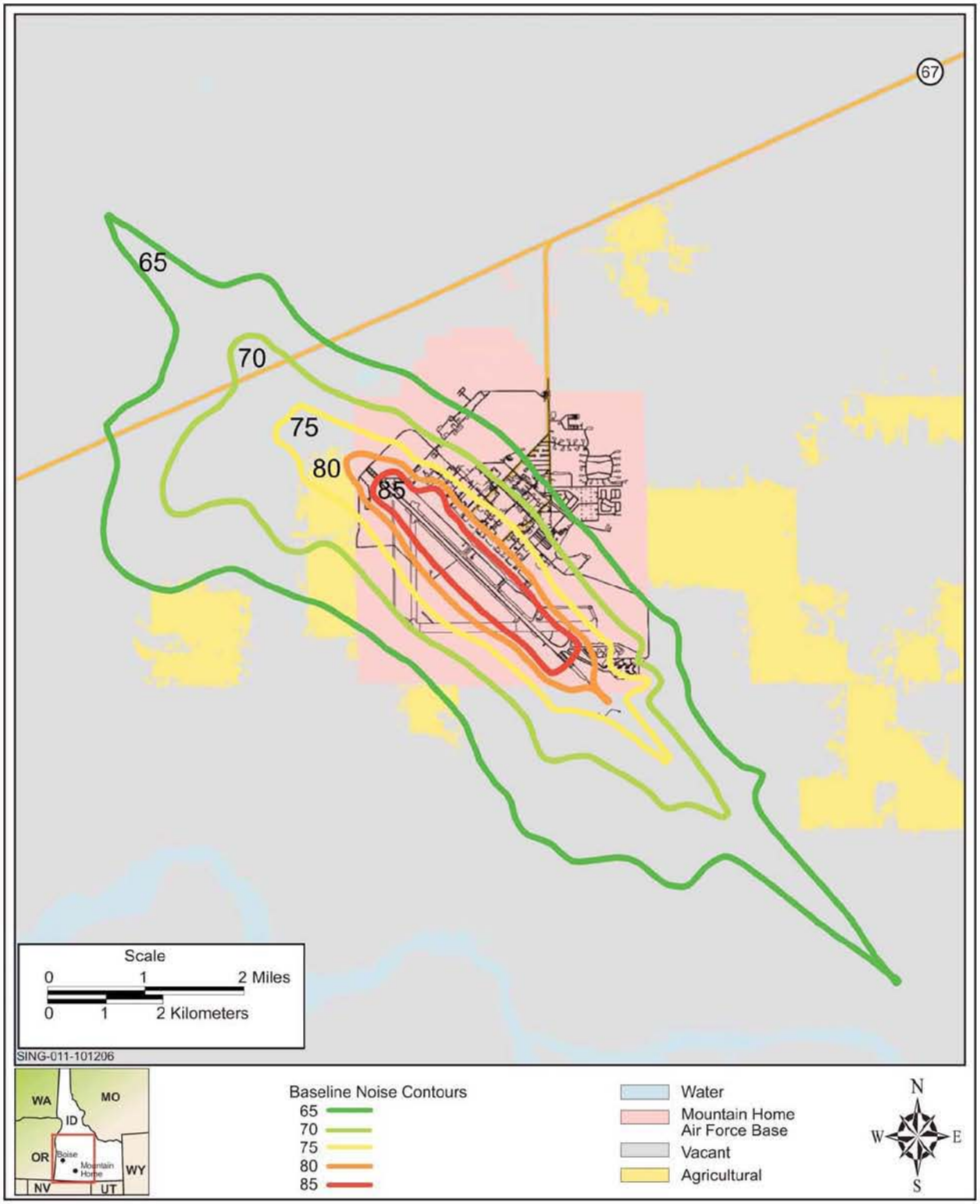


Figure 3.4-3. Mountain Home AFB Land Use and Baseline Noise Contours

Due to its withdrawn status, no special land use management areas have been established within Saylor Creek Range. However, the southeastern limits of the Snake River Birds of Prey National Conservation Area and a portion of the Bruneau-Sheep Creek WSA extend under restricted airspace (R-3202A). Based on the BLM's evaluation, the President recommended this WSA to Congress as suitable for Wilderness Area designation. Congress has yet to act on that recommendation. The existence and use of the range and restricted airspace preceded definition and establishment of these special land use management areas. Evaluation of these areas prior to their designation recognized that frequent low-altitude military overflights formed a part of existing conditions. However, BLM determined that such overflights did not diminish qualities (e.g., solitude) of the areas sufficiently to preclude recommending them for special status (BLM 1987). During the period of the evaluation process by the BLM, the airspace over these lands supported several thousand sorties conducted by aircraft operating for longer duration at lower altitudes.

The MHRC also includes electronic emitter sites and no-drop (ND) target areas. There are 30 emitter sites which are used to simulate enemy threats. Twenty sites are ¼-acre each, consisting of a gravel, unfenced parking area designed to support temporary use. The other 10 sites are 1-acre in size and contain buildings and infrastructure to support more than temporary use. The 1-acre emitter sites are fenced and graveled. No-drop targets are used for simulated ordnance delivery. Four of the ND targets total 5 acres each, and consist of simulated surface-to-air missiles, simulated early-warning radar, and two small simulated industrial complexes. One ND target is a 640-acre fenced area containing life-size, simulated battle tanks and other vehicles. The land use on and near these sites varies, but has included grazing, hunting, recreational use, and gravel pit development. The one 640-acre ND target, four 5-acre ND targets, ten 1-acre emitter sites, and 18 of the 20 ¼-acre emitter sites are wholly surrounded by BLM or state lands. One ND target site, ND-9, is located on private land surrounded by BLM land. The ND targets, except ND-9, and 1-acre emitter sites are withdrawn for Air Force use. The ¼-acre sites are used by the Air Force through a BLM rights-of-way agreement.

Lands and land use under airspace currently used have been subject to military jet overflights for more than 40 years. During this period, policies and procedures guiding land use management, particularly on federal lands, have expanded due to increasing recreational use of these areas by the public. Traditional land uses, such as grazing and mining, however, continue to represent the most consistent economic type of use on lands underneath the airspace.

Land ownership under the MOA airspace is predominately federal, with BLM as the primary land manager. Two Native American reservations are situated under the airspace. The northern half of the Duck Valley Reservation occurs under the Owyhee MOA; the southern half lies under the Paradise East MOA. Most of the reservation's 1,200 inhabitants live in the southern half (Nevada) with only a few dispersed homes and ranches located in the northern (Idaho) half. As noted previously in Section 3.2, numerous restrictions apply to overflights of this reservation, including no flights below 15,000 feet AGL.

The Fort McDermitt Reservation occurs under the extreme southwest corner of the Paradise MOA. The floor of this MOA is 14,500. Areas of cultural significance also occur under the airspace. An analysis of these cultural resources is provided in Section 3.7.

Special use areas have been identified under the airspace (Table 3.4-2 and Figure 3.4-4). They are considered special use areas because they provide recreational opportunities (trails and parks) and/or provide solitude or wilderness experiences (parks, forests and wilderness areas).

Table 3.4-2. Special Use Areas under the Airspace

Airspace	*Special Use Areas*
Jarbidge MOA	Big Jacks Creek WSA, Bruneau River WSA, Duck Valley Reservation, Jarbidge River WSA, Sheep Creek East WSA, Sheep Creek West WSA
Owyhee MOA	Battle Creek WSA, Big Jacks Creek WSA, Duck Valley Reservation, Duncan Creek WSA, Horsehead Spring WSA, Juniper Creek WSA, Little Jacks Creek WSA, Little Owyhee River WSA Lookout Butte WSA Middle Fork Owyhee River WSA, North Fork Owyhee River WSA, Owyhee River Canyon WSA, Owyhee River-Deep Creek WSA, Pole Creek WSA, South Fork Owyhee River WSA, Squaw Creek Canyon WSA, Upper Deep Creek WSA, West Fork Red Canyon WSA, Yatahoney Creek WSA
Paradise East MOA	Duck Valley Reservation, Humbolt National Forest, Little Humbolt River WSA, North Fork of the Little Humbolt River WSA, Owyhee Canyon WSA, South Fork Owyhee River WSA
Paradise West MOA	Fort McDermitt Reservation, Horsehead Spring WSA, Humbolt National Forest, Lookout Butte WSA, Middle Fork Owyhee River WSA, North Fork of the Little Humbolt River WSA, Owyhee River Canyon WSA, Owyhee River WSA, Owyhee Wild and Scenic River, Upper West Little Owyhee WSA
Saddle B MOA	Saddle Butte WSA, Lower Owyhee Canyon WSA, Cedar Mountain WSA, Owyhee Wild and Scenic River
Saddle A MOA	Honeycombs WSA Dry Creek Buttes WSA, Upper Leslie Gulch WSA, Jordan Craters WSA, Clarks Butte WSA, Slocum Creek WSA
IR-304	Stone House WSA, Table Mountain WSA, Upper West Little Owyhee WSA, Lookout Butte WSA
IR-302	Owyhee Wild and Scenic River, Owyhee Canyon WSA, Lookout Butte WSA, Humboldt National Forest, Sawtooth National Forest, Challis National Forest, Sawtooth National Recreation Area, Sawtooth Wilderness Area, Challis National Forest, Boise National Forest, Craters of the Moon National Monument, Minidoka National Wildlife Refuge, Massacre Rocks State Park.

Wilderness and WSA are areas which are protected to preserve their undisturbed, primitive nature. The Wilderness Act of 1964 instructed the USFS, the National Park Service and the USFWS to evaluate their lands, with specific criteria, for potential wilderness areas. Criteria include naturalness, opportunities for solitude, primitive and unconfined recreation, special features, and size. It also gave direction on how these lands should be managed, with specific exemptions such as the prohibition of motorized equipment and the construction of structures or roads.

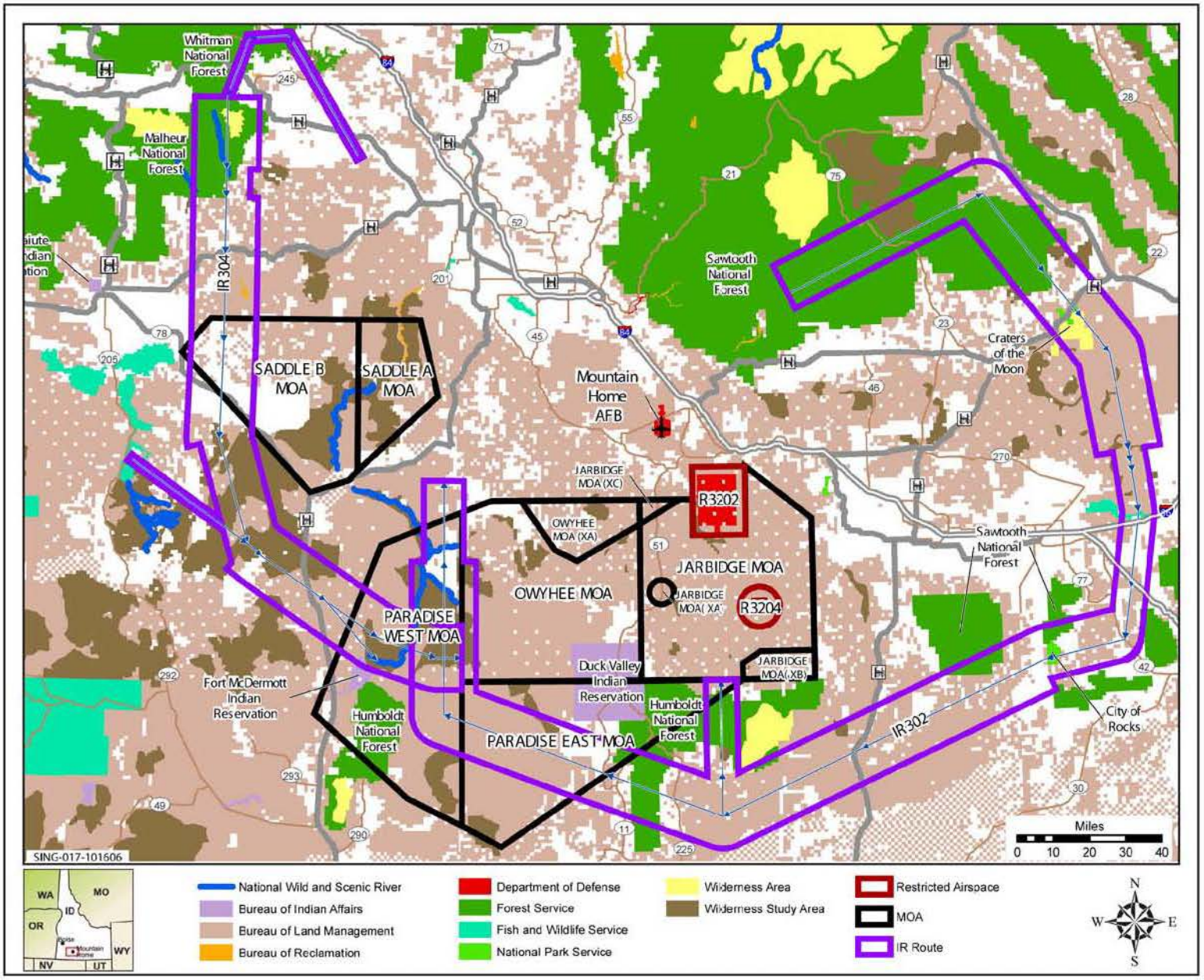


Figure 3.4-4. Special Use Land Management Areas under the Airspace at Mountain Home AFB

The BLM was included under this program in Section 603(c) of the Federal Land Policy and Management Act. The BLM performed the wilderness reviews and identified suitable areas as WSA. These areas have been submitted for Congressional review; however, it has not been completed. These areas are managed as *de facto* wilderness so as not to impair potential suitability for wilderness designation. Table 3.4-4 lists WSAs under each MOA and MTR potentially affected by the Proposed Action. There are over 30 designated WSAs under the airspace. The Sawtooth Wilderness Area, located under a small section of IR-302, is designated USFS wilderness.

The Wild and Scenic River Act outlines criteria for wild and scenic river designations. These include free-flowing rivers with natural, cultural, or recreation features. Remarkable values defined by the Act include scenic, recreation, geology, fish and wildlife, historic, cultural, or similar value. Wild rivers are inaccessible to the general public except by water, foot or horse trail. No man-made developments, with the exception of footbridges, are allowed. These areas are generally managed in accordance with wilderness area guidelines. Within the affected airspace, two sections of the Owyhee River in Oregon have been designated as Wild and Scenic. These sections fall under the Paradise West MOA, Saddle A and B MOAs and IR-302. A number of rivers under the Idaho airspace are considered potentially eligible by the BLM for this designation.

Other recreational areas within the airspace include the Humboldt, Sawtooth, Boise and Challis National Forests, Craters of the Moon National Monument and the Minidoka National Wildlife Refuge.
General land use under the MTRs can be classified as rural, with farming and ranching as the predominate land uses. In addition, the MTRs overlay several special use areas (see Table 3.4-4). IR-304 overlies portions of five WSAs including Lookout Butte, Owyhee Canyon, Alvord Desert Table Mountain, and Stonehouse WSAs. IR-302 overlies portions of the Owyhee Canyon and Lookout Butte WSAs the Sawtooth wilderness area, Craters of the Moon National Monument, and the Humboldt, Boise, Sawtooth, and Challis National Forests.

3.4.2 Environmental Consequences

Proposed Action and Alternative A

Mountain Home AFB and Vicinity

Beddown of the RSAF F-15SG squadron would require construction and modification of facilities on base, an increase in personnel, and a slight increase in flight operations (over the baseline operations). However, none of these factors would adversely affect on-base land use. Construction and modification, as proposed, would be consistent with existing base land use plans, with the new facilities located among existing facilities having similar or related functions. For example, the proposed squadron operations building and aircraft maintenance facilities would occupy locations along the flight line.

The small increase in personnel at Mountain Home AFB would be accommodated in on-base housing and no additional construction of dormitories or houses on base is proposed.

The 23 percent increase in airfield operations associated with the F-15SG beddown would result in a change in on-base areas exposed to noise levels of 65 DNL or higher (Figure 3.4-5). Under the Proposed Action and Alternative A, the area subject to noise levels of 65 DNL or higher would increase a total of 15 percent. However, this expansion on base would not result in exposure of potentially sensitive land use to incompatible noise levels. Both the hospital and schools would remain outside the area exposed to 65 DNL or higher. Similarly, most of the housing units would continue to lie outside areas with noise levels of 65 DNL or greater. Some housing, including the dormitories, would be exposed to noise levels between 65 and 70 DNL. Although these noise levels exceed HUD guidelines for land use compatibility, existing noise attenuation features (e.g., insulation) in these structures reduce noise to acceptable levels.

The current Mountain Home AICUZ (Air Force 2006e) would accommodate the RSAF F-15SG aircraft since the existing zones were defined for a broad array of aircraft within the Air Force inventory, including the F-15E, which is very similar in performance. It is unlikely that the CZs or APZs at the runway ends would need to be modified or enlarged. As such, accommodation of safety requirements for the RSAF F-15SG would not result in changes to on-base land use.

Changes to noise levels generated by aircraft operations under the Proposed Action and Alternative A have the potential to affect land use outside the boundaries of Mountain Home AFB. The overall 23 percent increase in airfield operations at the base associated with the proposed beddown would result in a greater increase of land exposed to noise levels of 65 DNL or higher in the vicinity of the base over baseline levels.

Although additional public (i.e., BLM) and private land would be exposed to increased noise levels, the types of land use (i.e., grazing and agriculture) are not sensitive to noise and would remain unaffected. Table 3.4-3 depicts the off-base acres affected by the noise contours under the Proposed Action and Alternative A.

Table 3.4-3. Off-Base Land Acreage under Noise Contours for the Proposed Action, Alternative A, and the No-Action Alternative (acres)

Noise Contour (DNL)	*Proposed Action or Alternative A*	*No-Action Alternative*
65-70	5,683	4,867
70-75	2,526	2,060
75-80	674	460
80-85	41	9
>85	0	0
Total	**8,924**	**7,396**

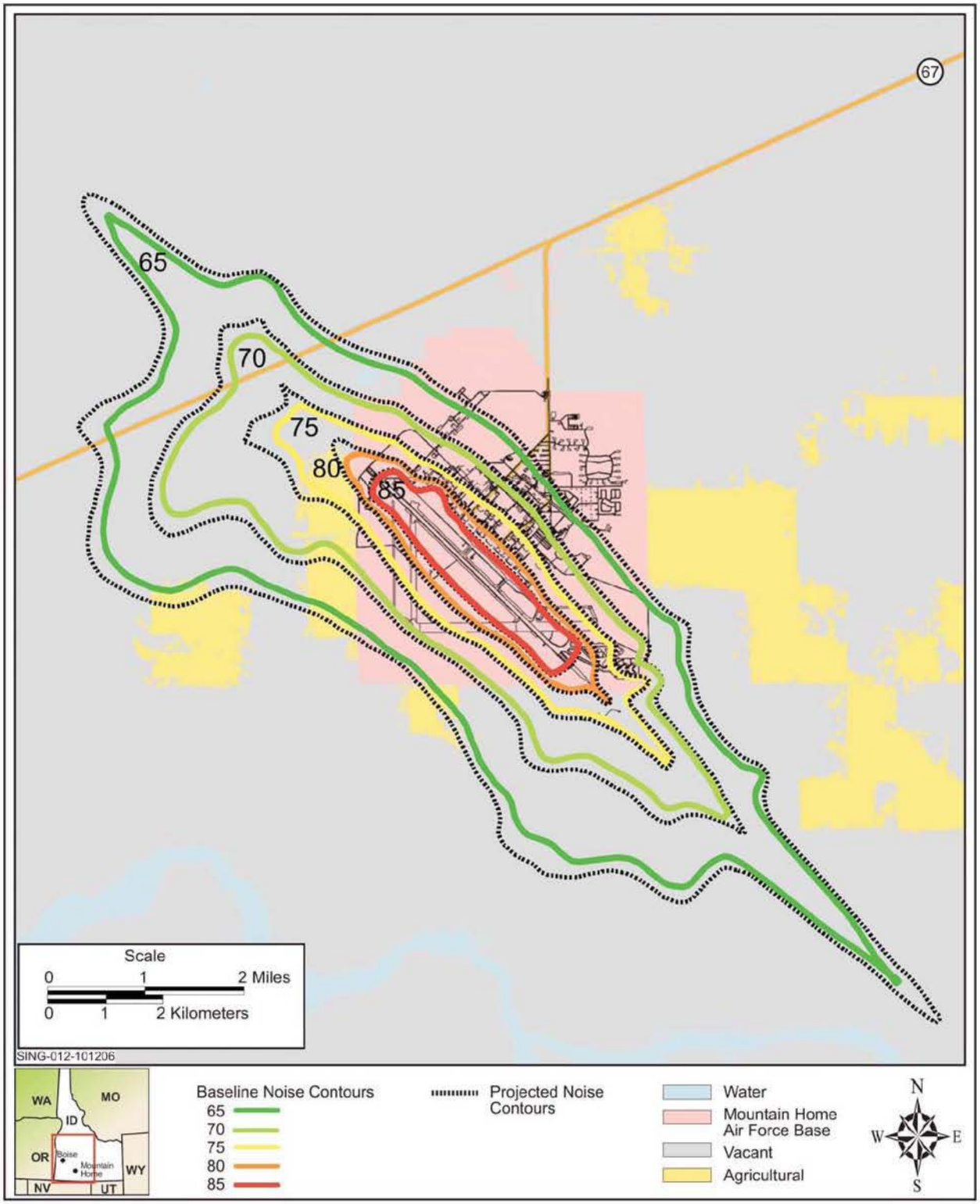


Figure 3.4-5. Mountain Home AFB Land Use and Baseline and Projected Noise Contours

There would an increase of nearly 8 acres in the off-base lands that are used for commercial purposes (Table 3.4-4).

Table 3.4-4. Amount of Commercial Land Area under Noise Contours for each Alternative (acres)

Noise Contour (DNL)	*Proposed Action or Alternative A*	*No-Action Alternative*
65-70	13.8	6
70-75	0	0
75-80	0	0
80-85	0	0
>85	0	0
Total	**13.8**	**6**

Personnel additions associated with the beddown would likely increase use of outdoor recreation resources within the region encompassing the base. Areas likely to receive increased use would include Anderson Ranch, C.J. Strike Reservoir, and the Owyhee Front. An increase in hunting and fishing activity may also occur. It is unlikely, however, that there would be an adverse impact on recreation resources from implementation of the Proposed Action or Alternative A.

The Proposed Action and Alternative A would involve the construction and alteration of several buildings on base to accommodate the RSAF beddown (refer to Figures 2.2-3 and 2.3-1). The majority of these projects are located along the flightline which contains numerous aircraft support facilities and is visually consistent with existing facilities. In addition, construction activities would not be noticeable from State Highways 51 and 67 or from the Snake River due to the topography of the area and the remote location of the base. Therefore, construction associated with the Proposed Action or Alternative A would not have a significant impact on visual resources at Mountain Home AFB or from public view points (e.g., roads) in its vicinity.

Mountain Home Range Complex and Associated Airspace

This analysis focuses on those aspects of the Proposed Action and Alternative A that may have the potential to affect land use under the airspace. These aspects include the potential effects of the changes in the number of overflights and the degree of change in the noise generated by these overflights. Such changes are evaluated relative to baseline conditions and provided in the context of past conditions. As noted under baseline conditions for land use, military aircraft overflights and their noise have comprised part of the characteristics of the areas underlying the affected airspace for more than 40 years. In terms of both, total activity (i.e., sorties) and the nature of the activity (i.e., greater emphasis on longer, low-altitude [300-500 feet AGL] flights), past use of the airspace often exceeded current and proposed use.

Under the Proposed Action and Alternative A, utilization of MHRC by the RSAF would total 31,799 sortie-operations annually. This increase represents only a 25 percent increase in total aircraft activity at the range and in adjacent MOAs relative to baseline conditions, and less activity than previous to the BRAC actions. Such a minor change in the total amount of activity would not result in perceptible impacts to the land uses in the areas underlying the airspace or on the ranges. Total sorties at the base would fall well below (11 to 31 percent reduction) those generated in the last decade (Air Force 1998a and 2002). Three factors support this assessment.

First, the increased amount of training activity due to the addition of the RSAF F-15SG aircraft would not involve any change in the nature of the activity. At the ranges, the RSAF F-15SG would deliver the same type of ordnance onto the same sets of existing targets as are used currently. This action would not require any changes to land use or management within or surrounding the exclusive use area. Second, the minor increase in sorties would not result in a perceptible change in noise conditions for the MHRC and adjacent areas. As detailed in Section 3.3, noise levels for the range itself and the associated MOAs would increase imperceptively, from 60 DNL to 61 DNL. No change in the type of operations, the duration of individual sorties, or the amount of night sorties would change the overall noise environment. Third, the potential for people working or recreating on the lands to be subject to a RSAF F-15SG overflight would increase slightly, yet still remain less than per 1 per day, on average. As noted previously, the actual number of overflights noticeable on the ground would be even less, since the RSAF F-15SG operates at altitudes of 10,000 feet AGL or higher for at least 44 percent of their sortie duration.

Given the lack of perceptible change in noise and overflight conditions, the Proposed Action and Alternative A would not alter the characteristics of land use under the airspace. BLM land use planning and management would not be altered, since no aspect of the Proposed Action or Alternative A would cause a need for such a change. Neither grazing allotments nor grazing intensity would be affected. Similarly, since aircraft-generated noise levels would not change, the Proposed Action or Alternative A would not change any of the current characteristics that define special management areas that underlie the airspace such as WSA or Areas of Critical Environmental Concern. Although the BLM has expressed concern in the past that overflights and their associated noise may diminish certain qualities (e.g., opportunities for solitude and primitive recreation) of lands such as WSAs, this Proposed Action or Alternative A would not change the current conditions that apply to these areas. Therefore, the applicable qualities would not be diminished or enhanced.

Similarly, the Duck Valley Reservation would not be subject to a perceptible change in aircraft noise and overflights. Existing FAA requirements (Part 91.119) to avoid direct overflights of structures, vehicles, and people would still apply to operations in the MOAs, further reducing potential for impact to these lands.

Access for recreational use on lands under the MHRC associated airspace would remain the same as under current conditions. There would be no limitations or restrictions to recreation sites or their use, except by the governing land management agency.

Visual impacts associated with aircraft overflights are due primarily to the accompanying aircraft noise. Since aircraft travel at high speeds, overflights have a transitory affect on the visual environment. In canyons, where steep walls offer only limited views, aircraft are rarely seen because, by the time a person on the ground has heard the noise, the aircraft has already passed overhead. In open plains, aircraft would be more visible, although for very brief periods.

In addition, Mountain Home AFB aircraft currently conduct training operations in all the airspace proposed for use by the RSAF F-15SGs. The increase in number of annual sorties in the airspace from the incoming aircraft would be slightly higher than operations experienced at the base after the departure of the F-16 aircraft due to the 2005 BRAC actions. However, the increase would be less than the amount of flight operations that occurred prior to the BRAC actions. The potential for visual intrusion from the F-15SG aircraft would be minimal since none of the areas under the airspace would be subject to an average of more than one F-15SG overflight per day. Additionally, the F-15SG would spend a minimum of 44 percent of their sortie durations above 10,000 feet AGL in the Jarbidge and Owyhee MOAs, and 100 percent above 10,000 feet AGL in the Paradise MOAs, where the effect would be far less noticeable. Therefore, the Proposed Action and Alternative A would not adversely impact visual resources within the MOAs, restricted areas, or MTRs used by the RSAF F-15SG.

No-Action Alternative

Under the No-Action Alternative, the proposed beddown of the RSAF F-15SG aircraft at Mountain Home AFB would not occur. There would be no change to the number of acres affected by noise greater than 65 DNL. Existing conditions, as described in section 3.4.1, would remain unchanged. Consequently, implementation of the No-Action Alternative would have no adverse impacts on land use.

3.5 AIR QUALITY

Understanding air quality for the affected area requires knowledge of: 1) applicable regulatory requirements; 2) types and sources of air quality pollutants; 3) location and context of the affected area; and 4) existing setting.

Regulatory Requirements

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. The 1970 Clean Air Act (CAA) and the 1990 Clean Air Act Amendments regulate air pollution emissions

from stationary (such as generators) and mobile sources (such as motor vehicles and aircraft) to protect public health and welfare.

The significance of the pollutant concentration is determined by comparing it to the federal (national) and state air quality standards. National Ambient Air Quality Standards (NAAQS) are established by the USEPA for six criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter equal to or less than 10 microns (PM_{10}), and lead (Pb). NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety to protect public health and welfare (Table B-1, Appendix B). Short-term standards (1-, 8- and 24-hour periods) are established for pollutants contributing to acute health effects, while long-term standards (annual averages) are established for pollutants contributing to chronic health effects.

Based on measured ambient criteria pollutant data, the USEPA designates areas of the U.S. as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. States are required to develop a state implementation plan (SIP) that sets forth how the CAA provisions will be implemented within the state. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain the NAAQS in each state. According to plans outlined in the SIP, designated state and local agencies implement regulations to control sources of criteria pollutants.

The CAA prohibits federal agencies from supporting any activities that do not conform to an EPA-approved SIP. In 1993, the EPA developed the final rules for determining air quality conformity. Under these rules, certain actions are exempted from conformity determinations, while others are assumed to be in conformity if total project emissions are below *de minimis* levels established under 40 CFR Section 93-153. Total project emissions include both direct and indirect emissions that can be controlled by a federal agency.

In addition to NAAQS, the CAA establishes a national goal of preventing any further degradation or impairment of visibility within federally designated attainment areas. Attainment areas are classified as Class I, II, or III and are subject to the Prevention of Significant Deterioration (PSD) program. Mandatory Class I status was assigned by Congress to all international parks, national wilderness areas, and memorial parks larger than 5,000 acres and national parks larger than 6,000 acres in existence on August 7, 1977. Class III status is assigned to attainment areas to allow maximum industrial growth while maintaining compliance with NAAQS. All other attainment areas are designated Class II. In Class I areas, visibility impairment is defined as a reduction in regional visual range and atmospheric discoloration or plume blight (such as emissions from a smokestack). Determination of the significance of an impact on visibility with a PSD Class I area is typically associated with stationary emission sources.

Mobile sources, including aircraft and their operations at Mountain Home AFB, are generally exempt from permit review under this regulation but are evaluated in this EA.

Types and Sources of Air Quality Pollutants

Pollutants considered in this EA include the criteria pollutants measured by state and federal standards. These include volatile organic compounds (VOCs), which are precursors to (indicators of) O_3, nitrogen oxides (NO_x), which are also precursors to O_3, as well as CO, SO_2, and PM_{10}. Airborne emissions of lead (Pb) are not addressed because the affected areas contain no significant sources of these criteria pollutants nor is it associated with the Proposed Action and Alternative A.

3.5.1 Affected Environment

The affected environment varies according to pollutant, the source of emissions, and meteorological and topographical considerations. Emissions released at high altitudes (such as aircraft emissions) or buoyant emissions (such as from a powerplant smokestack) generally have larger areas of influence than non-buoyant ground-based emission sources. For pollutants that do not undergo a chemical reaction (PM_{10} and SO_2), the affected area is generally restricted to a region in the immediate vicinity of the base. However, the region of concern for ozone and its precursors (NO_x and VOCs) is a larger regional area, because they undergo a chemical reaction and change as they disperse from the source. Therefore, the affected environment includes Mountain Home AFB, the City of Mountain Home, and Elmore County, representing the more restricted area near the base and the more general area in the airspace where aircraft operations would occur below mixing height.

Mountain Home AFB and Vicinity

The USEPA assigns classifications to areas throughout the United States with respect to air quality conditions. When an area is considered for classification, there are three possible outcomes of the designation process for each of the criteria pollutants: (i) *nonattainment*, any area that does not meet (or that contributes to ambient air quality in an area that does not meet) the national primary or secondary standard for the pollutant, (ii) *attainment*, any area (other than an area identified in clause [i]) that meets the national primary or secondary ambient air quality standard for the pollutant, or (iii) *unclassifiable*, any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Air quality in the vicinity of Mountain Home AFB, the City of Mountain Home, and Elmore County is generally considered very good. The Idaho Division of Environmental Quality (IDEQ) has designated the area unclassifiable since ambient pollutant concentrations have rarely been monitored within Elmore County. The nearest monitoring is located in Boise, approximately 50 miles northwest of Mountain

Home AFB and in a highly urbanized area. Particulate monitoring in the city of Kimberly, the next-nearest monitoring station (about 90 miles east of Mountain Home), was discontinued in 1992.

All major facilities as defined in the *Rules for the Control of Air Pollution in Idaho* are subject to the State of Idaho's permitting program. In Idaho, a facility in an area meeting the NAAQS is considered a major source if it directly emits or has the potential to emit 10 tons per year of any hazardous air pollutant, 25 tons or more per year of any combination of hazardous air pollutants, or 100 tons per year of any criteria pollutant.

The 2005 air emissions inventory for Mountain Home AFB shows that on-base stationary source emissions of criteria pollutants were all below 100 tons per year (Mountain Home AFB 2005a). However, Mountain Home AFB does have the *potential* to emit greater than 100 tons per year of NO_x and CO. Consequently, Mountain Home AFB is required to obtain a major source operating permit. Baseline emissions for the base are presented in Table 3.5-1.

Table 3.5-1. Baseline Emissions for Mountain Home AFB Affected Environment

	Pollutants (Tons/Year)				
	CO	**VOCs**	**NO_X**	**SO_2**	**PM_{10}**
Total Emissions	24.49	14.05	36.31	1.31	5.93

Source: Mountain Home AFB 2005a

Mountain Home AFB lies within the Idaho Intrastate Air Quality Control Region (AQCR) #63. This AQCR, which was developed for planning purposes, consists of 22 counties in central Idaho, including Elmore County. Air quality in this AQCR has been designated as either in "attainment" or "unclassifiable/attainment" for NAAQS. Due to the extremely large extent of the AQCR, base emissions from Mountain Home are compared to Elmore County. Table 3.5-2 summarizes the regional emissions of criteria pollutant and precursor emissions for Elmore County. In 2005, Mountain Home AFB contributed less than 1 percent of Elmore County emissions for all criteria pollutants with the exception of NO_x which represented 1.05 percent of total emissions within Elmore County.

Table 3.5-2. 2001 Emissions Inventory for Elmore County, Idaho (tons/year)

	CO	**VOCs**	**NO_X**	**SO_2**	**PM_{10}**
Area Sources	31,282	5,498	3,125	202	10,054
Point Sources	57	4	318	1	817
Total	**31,339**	**5,502**	**3,443**	**203**	**10,872**

Source: USEPA 2006

Mountain Home Range Complex and Associated Airspace

The affected airspace for Mountain Home AFB under this proposal includes the Owyhee and Jarbidge MOAs. Air quality in the training airspace was evaluated based on the floor of the airspace relative to the

mixing height for pollutants (5,000 feet AGL). Sortie-operations in the other MOAs would not occur below the mixing height. Table 3.5-3 presents aircraft contribution of emissions for operations below 5,000 feet AGL, Appendix B provides the specific calculation parameters.

Table 3.5-3. Baseline Aircraft Emission in Owyhee and Jarbidge MOAs (tons/year)

MOA	CO	VOCs	NO_X	SO_2	PM_{10}
Owyhee	30.09	28.55	222.75	6.69	19.49
Jarbidge	11.21	8.44	66.85	2.15	14.59

Neither of the affected MOAs occurs within AQCRs with designated nonattainment areas. The rural nature of this region and the lack of substantial population centers or industrial facilities to serve as significant sources of air pollution contribute to relatively good air quality in the region. One Class I PSD area (a portion of the Jarbidge Wilderness Area) is located beneath the southern edge of Jarbidge MOA. Existing aircraft emissions in this training airspace are only a very small portion of total emissions for this attainment area.

3.5.2 Environmental Consequences

Criteria used to determine the significance of increases in air emissions are based on federal, state, and local air pollutant standards and regulations. The emissions would be considered significant if they: 1) increase ambient pollutant concentrations above the applicable NAAQS, 2) contribute to an existing violation of the NAAQS, 3) impair visibility within federally-mandated PSD Class 1 Areas, or 4) result in nonconformance with the CAA or SIP.

Proposed Action and Alternative A

The Proposed Action and Alternative A would produce air emissions from short-term construction activities and long-term operational emissions associated with the airfield and airspace operations.

Mountain Home AFB and Vicinity

Determining the effects of the Proposed Action and Alternative A on local air quality and visibility involved two steps. First, construction, aircraft, and ground support equipment (GSE) emissions were calculated for the Proposed Action and Alternative A (in tons per year) to determine air emissions increases or decreases relative to baseline conditions and to qualitatively assess the potential for air quality effects. Second, total emissions from the Proposed Action and Alternative A were compared to regional emissions for the surrounding area. Air quality analysis data are contained in Appendix B. A federal conformity determination was not performed because the region in which Mountain Home AFB

and its associated training airspace are in attainment for criteria pollutants. Under CAA, conformity determinations are not required for actions in attainment areas.

Construction Activities. Construction emissions associated with the Proposed Action and Alternative A include fugitive dust (PM_{10}) from grading and combustion (primarily CO and NO_x, and smaller amounts of VOCs, Sulfur Oxide, and PM_{10}) from heavy-duty diesel construction equipment exhaust. Construction emissions estimates were evaluated for the Proposed Action and Alternative A. Site controls would include soil stocking and watering to reduce fugitive dust; exhaust emissions from heavy-duty diesel construction equipment were based on a mix of typical construction equipment for the project. Table 3.5-4 summarizes emissions during the construction and operation phases. Emissions estimates are somewhat higher for Alternative A due to the addition of a 3-bay hangar and a 30,000 square foot aircraft ramp. However, they comprise a minor increase over baseline conditions. Emissions from construction activities associated with the Proposed Action would temporarily produce minor quantities of pollutant emissions during the construction period 2007 to 2009. PM_{10} is the criteria pollutant generated in the highest quantity, but those emissions are expected to be extremely low, particularly when applying the use of controls (such as watering) to ensure a 75 percent reduction in emissions generated.

Table 3.5-4. Construction Emissions (2007-2009) (tons/year)

	CO	***VOC***	***NO_x***	***SO_2***	***PM_{10}***
2007					
Proposed Action	0.46	0.08	0.45	0.05	1.61
Alternative A	0.7	0.12	0.63	0.07	0.71
2008					
Proposed Action	0.77	0.15	0.84	0.09	1.38
Alternative A	1.23	0.18	0.97	0.10	2.62
2009					
Proposed Action	0.07	0.46	0.31	0.03	0.34
Alternative A	0.08	0.59	0.38	0.04	0.97

Airfield Operations. Table 3.5-5 summarizes the change in total direct emissions projected for Mountain Home AFB airfield operations emissions once the RSAF beddown is fully implemented.

Table 3.5-5. Direct and Indirect Emissions Associated with the Proposed Action (Full Year Implementation, tons/year)

	Aircraft Operation Emissions				
	CO	*VOCs*	*NO_x*	*SO_2*	*PM_{10}*
Proposed Action	29.62	2.36	21.5	1.08	1.44
	GSE Emissions				
	CO	*VOCs*	*NO_x*	*SO_2*	*PM_{10}*
Proposed Action	23.72	1.71	10.95	1.93	0.86
Total	**53.34**	**4.07**	**32.10**	**3.01**	**2.30**

Direct emissions would primarily be generated by aircraft operations (takeoffs and landings) and associated aircraft GSE; indirect emissions, which would typically capture vehicular emissions generated by commuting personnel, were not included in the analysis because the RSAF personnel are projected to reside onsite at Mountain Home AFB, thereby eliminating commute emissions. With implementation of the Proposed Action or Alternative A, direct emissions at Mountain Home AFB would result in increased operational emissions, with the increase beginning in 2009, when the first F-15SG aircraft are scheduled to arrive. By 2010, the entire fleet of 20 aircraft would have arrived at Mountain Home AFB, though only 10 aircraft would be flown at any given time and additional aircraft would depart within 3 months.

The addition of GSE equipment to support the F-15SG will require documentation by Mountain Home AFB as part of its annual inventory reporting efforts. Since Mountain Home AFB has a Title V permit, a permit for new equipment must be obtained before the equipment is installed. The emissions associated with the F-15SG aircraft itself are exempt from state and federal permitting and reporting requirements. Given the unclassifiable status of Elmore County, the small percentage increases (1 to 5 percent) in direct emissions will not alter or adversely affect this status. Thus, the increase in aircraft emissions, particularly of CO and NO_x, are not expected to substantially alter air quality conditions from those that exist under baseline conditions.

Overall, the increase in direct emissions would represent a range of 0.03 to 1 percent for all criteria pollutants. Based on these very small percentage increases, impacts would be minimal. Refer to Table 3.5-2 that summarizes the 2001 National Emission Inventory criteria pollutant emissions for Elmore County.

Mountain Home Range Complex and Associated Airspace

Emissions associated with RSAF F-15SG training flights in the portions of the Jarbidge and Owyhee MOAs, where operations occur below the mixing height of 5,000 feet AGL, also result in an increase in emissions. Table 3.5-6 summarizes the net emission increase of criteria pollutants due solely to the beddown of the RSAF F-15SG aircraft at Mountain Home AFB. Tables B-5 through B-9 in Appendix B provide information on the operational data used to estimate emissions from baseline aircraft and the RSAF F-15SGs.

Table 3.5-6. Percent Increase in Airspace Emissions from Baseline Conditions

Airspace Unit	*CO*	*VOCs*	*NO_x*	*SO_2*	*PM_{10}*
Jarbidge MOA	25.0	2.28	28.00	27.65	2.41
Owyhee MOA	19.36	2.25	26.82	25.11	0.96

Airspace use would increase as a result of the RSAF beddown, with commensurate increases in emissions below the mixing height within the MOAs, which are projected to range from less than 1 percent (0.12 tons) in PM_{10} emissions in the Owyhee MOA to a 28 percent increase (62 tons) in NO_x within the

Jarbidge MOA. With the exception of NO_x, all criteria pollutants fell well below 100 tons. While NO_x emissions increase from a baseline level of 222.75 tons in the Jarbidge MOA to 285.12 tons, this increase would not represent a significant deterioration of the regional air quality because the region in which the MOA is located is in attainment of NAAQS; the MOA overlies rural (not industrial) areas, and the aircraft activities would be dispersed within hundreds of cubic miles of airspace. Therefore, introduction of 31,799 more sortie-operations would not adversely affect the air quality of Idaho. The increase would result in negligible changes to the total amount of emissions where the airspace units are located. In addition, the Class I PSD area (a portion of Jarbidge Wilderness Wildlife Refuge located beneath the southern edge of Jarbidge MOA) would not be adversely affected due to the dispersed nature of aircraft activities. Therefore, PSD impacts would be minimal.

No-Action Alternative

There would be no changes to aircraft emissions under the No-Action Alternative. Therefore, there would be no additional impacts to air quality at Mountain Home AFB or on the MHRC and associated airspace.

3.6 BIOLOGICAL RESOURCES

Biological resources include 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 live there (Hall *et al.* 1997). Biological resources for this EA include vegetation, wildlife, and special-status species in the vicinity of projects occurring on Mountain Home AFB and in the airspace and ranges where they could be potentially affected by changes in the noise environment.

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

Wildlife includes all vertebrate animals with the exception of those identified as threatened, endangered, or sensitive species. Wildlife includes fish amphibians, reptiles, birds, and mammals. Wildlife potentially affected by demolition and construction activities will be discussed.

Special-Status Species are defined as those plant and animal species listed as threatened, endangered, or proposed as such by the 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 be 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

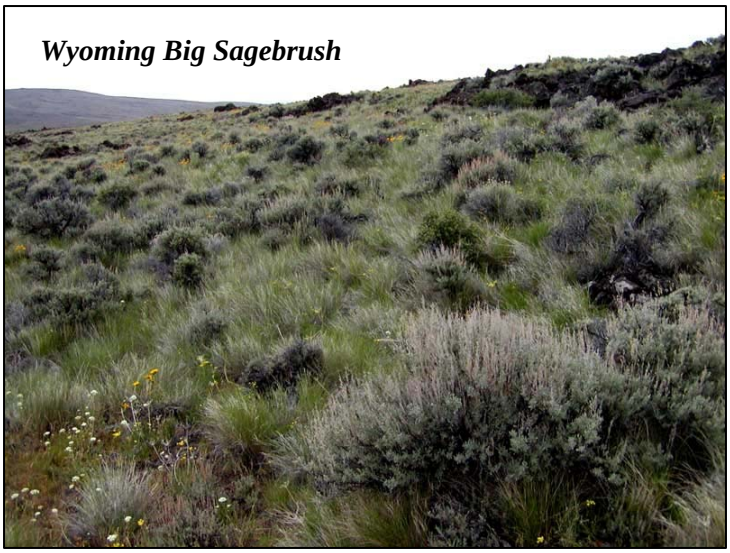
species focuses on those species with the potential to be affected by demolition, construction, and construction-related noise. Idaho species of concern are also discussed.

Wetlands and Waters of the United States are considered special category sensitive habitats and are subject to regulatory authority under Section 404 of the Clean Water Act (CWA) and Executive Order 11990 *Protection of Wetlands.* They include jurisdictional and non-jurisdictional wetlands. Jurisdictional wetlands are those defined by the U.S. Army Corps of Engineers (USACE) and USEPA 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 due to construction or demolition activities under the Proposed Action.

3.6.1 Affected Environment

Mountain Home AFB and Vicinity

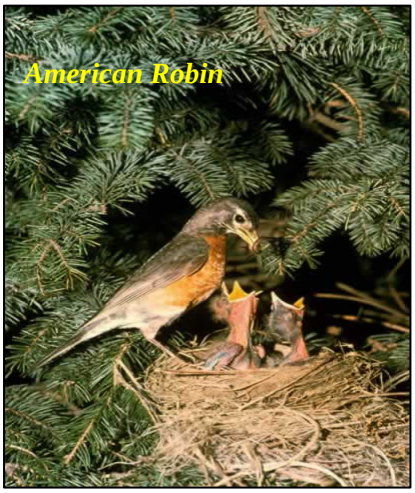
Vegetation. Prior to development, vegetation on and surrounding Mountain Home AFB consisted of sagebrush grasslands habitat. However, a regional history of development, agriculture, grazing, frequent fires, and exotic plant species invasions have removed all but scattered remnants of the original sagebrush habitat. Most (93 percent) of the base has been altered or developed, including conversions to landscaped areas, buildings, or paved lots. Only about 7 percent of base land has remaining native habitat. These areas consist of small patches of Wyoming big sagebrush (*Artemesia tridentata wyomingensis*) located on the periphery of the base.


Wyoming Big Sagebrush

Industrial and residential areas dominate the middle of Mountain Home AFB offering limited foraging habitat for wildlife. This area contains the runways, buildings, residences, training-related facilities, improved and unimproved parking lots and roads. Most open areas are either landscaped or dominated by a mix of exotic weedy species; native understory species have been eliminated as a result development and use. Trees and shrubs are planted throughout the base in landscaping and as wind breaks along the entrance road, near the hospital, and in recreational areas such as the Family Campground and ball field areas. In addition to being utilized as wind breaks, these trees and shrubs provide potential bird and wildlife habitat. Undeveloped natural areas are primarily found around the perimeter of Mountain Home

AFB. Natural areas are dominated by cheatgrass (*Bromus tectorum*) with some areas containing sagebrush and cheatgrass. These limited areas of sagebrush are being lost regularly, making it a priority for conservation (Air Force 2004).

Wildlife. Wildlife on and immediately surrounding Mountain Home AFB is limited due to the lack of suitable or undisturbed habitat for most species; no designated critical habitat exists on the base. However, some wildlife species are habitat generalists or tolerant of disturbance and include a variety of game and fur-bearing animals, small mammals, waterfowl, songbirds, and raptors. Several rodent species, American badgers, and coyotes (*Canis latrans*) are known to occur throughout Mountain Home AFB in all habitats.

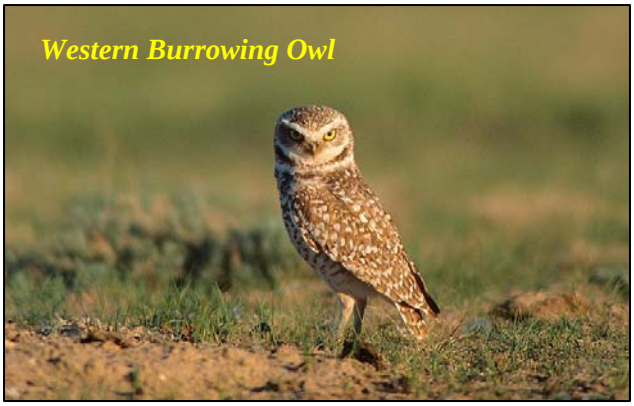


Aquatic habitat is limited to four small man-made ditches, eleven rapid infiltration basins, a golf course storage pond, and one effluent storage lagoon. In addition, nine small playas exist on base, which contain water for short periods during wet spring seasons. No amphibians have been recorded on base; however, these water sources provide habitat for waterfowl and shore birds when not frozen. The infiltration basins contain little or no water most of the year. Horned larks (*Eremophila alpestris)* killdeer (*Charadrius vociferous*), American robins (*Turdis migratorius*), quail, finches, and sparrows are common in these areas (Air Force 2004). Many species use the man-made structures for perch sites, nest sites, and cover.

The landfill supports many scavengers such as common ravens, Turkey vultures (*Catharles aura*), California gulls (*Larus californicus*), and coyotes. The landfill also provides habitat for bank swallows in the vertical banks of the burial pits. Barn owls and burrowing owls have been observed using cavities in the walls of the pits. Long-billed curlews (*Numenius americanus*) can be found in great numbers near the golf course. Bats have been observed in the evenings and may roost in buildings and trees, and forage around lights (Air Force 2004). The Silver Sage Golf Course is 230 acres of improved grounds. This area is dominated by turf and mature trees. Annual grasslands are common around the margins of the turf. Black-billed magpies (*Pica hudsonia*), quail , burrowing owls (*Athene cunicularia*), and American kestrels (*Falco sparverius*) are commonly seen on the golf course. Red-tailed hawks (*Buteo jamaicensis*), Swainson's hawks (*Buteo swainsoni*), and Great horned owls (*Bubo virginianus*) have reportedly nested in the trees on the golf course (Mountain Home AFB 2006c).

Reptiles that have been reported in the undeveloped areas of the base include gopher snakes (*Pituophis* sp.), common garter snake (*Thamnophis sirtalis*), and sagebrush lizard (*Sceloporous graciosusa*) and Desert horned lizard (*Phrynosoma platyrhinos*). Other reptile species likely exist in these areas, as well as rodents. European starling, common ravens, western meadowlark (*Sturnella neglecta)* mourning doves (*Zenaida macroura*) and Piute ground squirrels are the most widespread species found in the undeveloped areas, although black-tailed jack rabbits, American badgers, and coyotes are also common. Long-billed curlews can be found in the annual grasslands. Northern harriers (*Circus cyaneus*) and rough-legged hawks (*Buteo lagopus*) are frequently observed foraging in the natural areas.

Special-Status Species. Only one federally- listed species occurs near the area around Mountain Home AFB: the American bald eagle *(Haliaeetus leucocephalus).* The eagles winter along the Snake River, primarily near C.J. Strike Reservoir and at Deer Flat National Wildlife Refuge northwest of the base.



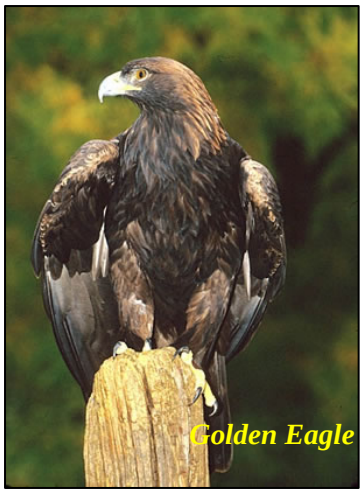
The majority of the base has been surveyed for both plant and animal species of concern. However, due to the disturbed nature of the habitats available on the base, the potential for occurrences on base is minimal. Appendix C lists threatened, endangered, and special-status species with potential to occur within the habitat located on or near Mountain Home AFB. Davis' peppergrass, long-billed curlew, and Western burrowing owl are the only special-status species with the potential to occur on the base. No federally-listed threatened or endangered species, or candidate species are known to occur on Mountain Home AFB (Air Force 2004). Davis' peppergrass occurs on the small arms range. One BLM state-listed sensitive species, the Western burrowing owl (*Athene cunicularia*), is known to occur on base. The burrowing owl species occupies abandoned mammal burrows in disturbed areas with short vegetation in the surrounding area (Air Force 2004). Burrowing owls frequently nest near the flightline, sometimes within 20 feet of the pavement (Air Force 2004). A decline in colonies of burrowing rodents has reduced burrowing owl habitat since these owls rely on modifying burrows constructed by other animals with their beaks and claws. Burrowing owls can hunt at all times of day and night but most prey is captured at dawn and dusk (Air Force 2004). The owls frequently hover a short distance above the ground, searching for insects, amphibians, small mammals, and birds that comprise their diet.

Wetlands and Waters of the United States. There are no jurisdictional wetlands on Mountain Home AFB (Air Force 2004). The playas, effluent storage lagoon, man-made drainage ditches, and infiltration basins on Mountain Home AFB are not considered jurisdictional wetlands (Air Force 2004). No waters of the U.S. are found on the base.

Mountain Home Range Complex and Associated Airspace

The training airspace associated with the MHRC overlies three states, southwestern Idaho, northern Nevada, and eastern Oregon (Figure 2.2-1). This large area overlies the Intermountain Sagebrush Province/Sagebrush Steppe Ecosystem (Air Force 2004). The ecosystem contains a large diversity of landform and vegetation types, ranging from rolling sagebrush flats to rugged mountains covered with juniper woodlands. Sagebrush is the most extensive habitat located underneath the airspace. Within the native sagebrush areas are large expanses of seeded and annual grasslands, the result of fires and rehabilitation practices. Deep, narrow rocky rhyolite canyons cut north to south though the sagebrush flats, and provide the highest diversity in grassland and shrubland species. In lower areas salt desert shrub habitat dominates. The Owyhee and Jarbidge Mountains run along the borders between the states, providing high elevations and forest-type cover. State and federally-listed species that occur or potentially occur within the affected environment are included in Appendix C. Appendix D summarizes the species known to occur on the MHRC.

Vegetation. Lands under the training airspace in southern Idaho, eastern Oregon, and northern Nevada are part of a larger regional ecosystem called the Intermountain Sagebrush Province/Sagebrush Steppe Ecosystem (Bailey and Kuchler 1996). This ecosystem contains a large diversity of landform and vegetation types, ranging from vast expanses of flat sagebrush-covered plateaus to rugged mountains blanketed with juniper woodlands and grasslands. Historic plant communities within this area consisted of big sagebrush-grass communities prior to widespread settlement. Intensive livestock grazing, fires and range reseeding programs have altered the vegetation so that most of the range is now dominated by non-native grasses such as crested wheatgrass (*Agropyron desertorum and A. cristatum*) and cheatgrass.



Wildlife. Wildlife found under the MHRC training airspace includes a variety of birds, mammals, reptiles, amphibians, and invertebrates. Birds found on both Saylor Creek Range and Juniper Butte Range include ferruginous hawk (*Buteo regalis*), sage grouse (*centrocercus urophasianus*), and Brewer's sparrow (*Spizella breweri*). Several bird species observed only on Saylor Creek Range included the bald eagle, and golden eagle (*Aquila chrysaetos*), while the sage thrasher (*Oreoscoptes monanus*) has been observed only on Juniper Butte Range. Numerous other bird species including red-tailed hawk (*Buteo jamaicensis*),

northern harrier (*Circus cyaneus*), prairie falcon (*Falco mexicanus*), American kestrel (*F. sparverius*), and sharp-shinned hawk (*Accipeier atriatus*) have been observed on both ranges.

Waterfowl concentrate along the Snake River, Lake Lowell, Minidoka National Wildlife Refuge, and Duck Valley. In addition, smaller numbers are found along the Bruneau, Jarbidge, and Owyhee Rivers, and in some of the vernal playas and livestock reservoirs. Waterfowl and other shore birds could move between these areas during any season; however, greater numbers of birds would be moving during spring and fall for migration. The USFWS report that waterfowl move up and down the Snake River extensively; the number of waterfowl using these areas is directly related to the amount of open water. Cold temperatures in winter and drought years limit waterfowl use.

Large mammals such as pronghorn antelope, elk (*Cervis canadenis*), mule deer (Odocoileus hemionus) and wild horses occur in the range areas or under the MOAs during migration, in winter, and for fawning. Pronghorn antelope use areas stretching from Saylor Creek Range into Oregon and Nevada. A few elk are present in the Jarbidge Mountains, on Big Island, and at Merritt Mountain (near the northeastern corner of the Paradise MOA) at the south end of the Bull Run Mountains. Mule deer are present in both Saylor Creek and Juniper Butte Ranges. Wild horses are also present in Oregon just west of the Owyhee River at the northern edge of the Paradise MOA and extending north. Other mammals include coyote (*Canis latrans*), badger (*Taxidea taxus*), white-tailed jackrabbit (*Lepus townsendii*) and a variety of rodents (see Appendix C).

Both ranges contain suitable habitat for numerous snakes and lizards. Stock ponds and wetlands provide habitat for a few species of amphibians (see Appendix C).

Special-Status Species. Several federally-listed species exist under the MHRC training airspace or on the associated ranges, including numerous endangered snails, threatened bull trout, and the threatened bald eagle. The bald eagle and a variety of other special-status species including birds and mammals transit or occupy areas under the existing MOAs (see Appendix C). Bald eagles occur in low numbers and are dispersed according to availability of appropriate habitat and prey. The species is known to winter west and north of Saylor Creek Range along the lower Bruneau River Canyon and Snake River, respectively (Air Force 2004).

The only large mammal special-status species under the training airspace is the California Bighorn Sheep, a BLM sensitive species. Two herds of California bighorn sheep occur in the area: the Owyhee River herd and the Bruneau/Jarbidge Rivers herd. The Owyhee herd range includes portions of the East and South Forks of the Owyhee River, as well as Battle, Deep, and Dickshooter Creeks. (BLM designated this area as an Area of Critical Environmental Concern primarily due to bighorn sheep habitat). The Oregon Department of Fish and Wildlife estimates that 700 bighorn sheep inhabit southeastern Oregon, particularly along the Owyhee River canyon that underlies the Paradise MOA. Some movement of bighorn sheep occurs along the Owyhee River corridor that extends from Idaho into Oregon. Bighorn sheep in southwest Idaho have been the subject of considerable study since the beginning of the 1990s. Idaho Fish and Game regularly conducts population surveys, and ongoing work addresses carry capacities and cattle-sheep interactions.

Wetlands. Wetland habitat is a rare but important feature in the sagebrush-grassland ecosystem. Under the training airspace this habitat typically exists in association with canyons and rivers and may be found as intermittent streams, seeps, or springs. In addition to natural wetlands and playas, man-made reservoirs, and stock watering ponds are found throughout the area. Numerous small seeps identified as jurisdictional wetlands are located on Saylor Creek Range. Two riverine, seven palustrine wetlands, and several small vernal pools have been identified on Saylor Creek Range; however, none of these meet the criteria of jurisdictional wetlands. Two impoundments and one natural reservoir located on Juniper Butte Range do not meet the criteria for jurisdictional wetlands; however, 63 miles of intermittent, ephemeral drainages that may be considered waters of the U.S. fall within the boundaries of the range (Air Force 2004).

3.6.2 Environmental Consequences

Determination of the significance of potential impacts to biological resources is based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource, 2) the proportion of the resource that would be affected relative to its occurrence in the region, 3) the sensitivity of the resource to proposed activities, and 4) the duration of ecological ramifications. Impacts to biological resources are significant if species or habitats of special concern are adversely affected over relatively large areas or disturbances cause reductions in population size or distribution of a species of special concern.

Proposed Action and Alternative A

Mountain Home AFB and Vicinity

The Proposed Action and Alternative A would require the construction, modification, and demolition of facilities. Since construction activities, structural modifications, and demolition associated with the

Proposed Action and Alternative A would occur predominantly in previously disturbed areas, there would be no adverse impacts on vegetation. Projected noise levels at Mountain Home AFB under the proposed beddown are similar to current baseline noise levels; therefore, the minimal change in the noise environment would not adversely affect wildlife at Mountain Home AFB. Two special-status species occur on Mountain Home AFB, but are unlikely to be adversely affected since construction and ground disturbance would occur in areas that have been previously and recently constructed. No designated wetlands or areas exhibiting wetland characteristics exist on or near the sites proposed for construction; therefore, implementation of the Proposed Action or Alternative A would have no impact on wetlands.

Mountain Home Range Complex and Associated Airspace

The use of flares and ordnance delivery on the ranges may occasionally result in accidental fires which could adversely affect vegetation and wildlife habitat by removal of plant cover (short-term effect) or altering the plant community (long-term effect). Lightning strikes are also responsible for a proportion of fires on the ranges. Under the Proposed Action and Alternative A, aircraft would continue to use existing ordnance delivery and training areas on the ranges; however, current procedures to minimize fire risks associated with training on the ranges would continue. All restrictions guiding the use of munitions would continue to be strictly enforced and fire response and suppression capabilities would continue to meet all Air Force requirements and fire management plans.

Flight activities do not result in any ground disturbance and since no roads, targets, or facilities would be built, vegetation and wildlife habitat within the MHRC and underlying the MOAs and restricted airspace would not be adversely affected under the Proposed Action or Alternative A.

Potential impacts to wildlife from aircraft overflights could result from the approaching aircraft and the related noise. Most reactions by wildlife to visual stimuli occur in response to overflights below 1,000 feet AGL (Lamp 1989, Bowles 1995). Studies on the effects of noise on wildlife have been predominantly conducted on mammals and birds. Studies on subsonic aircraft disturbances of ungulates (e.g., pronghorn, bighorn sheep, elk, and mule deer), in both laboratory and field conditions, have shown that effects of startle and elevated heart rate are transient and of short duration and suggest that the animals habituate to the sounds (Workman *et al*. 1992; Krausman *et al*. 1993, 1998; Weisenberger *et al*. 1996). Similarly, the impacts to raptors and other birds (e.g., waterfowl, grebes) from aircraft low-level flights were found to be brief and insignificant and not detrimental to reproductive success (Smith *et al*. 1988; Lamp 1989; Ellis *et al*. 1991; Grubb and Bowerman 1997). Subsonic noise levels and overflights associated with the Proposed Action and Alternative A are similar to those for baseline conditions and the negligible increase would not be perceptible since there is essentially no change. Overall, there would be no adverse impact to wildlife or special-status species from implementation of the Proposed Action or Alternative A.

Due to the dispersed nature of wetlands on the ranges and the lack of ground-disturbing activities (e.g., construction) at or near any wetland area, no adverse impacts to wetlands would occur.

No-Action Alternative

Under the No-Action Alternative, the RSAF beddown at Mountain Home AFB would not occur. There would be no change to baseline conditions; therefore, adverse impacts to biological resources on the base and in the MHRC are not expected to occur.

3.7 CULTURAL RESOURCES

Cultural resources are prehistoric and historic sites, buildings, districts, or objects that are important to a culture or community. Cultural resources are divided into three categories: archaeological resources, architectural resources, and traditional cultural resources.

Archaeological resources are places where people changed the ground surface or left artifacts or other physical remains (e.g., arrowheads or bottles). 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 resources are associated with the cultural practices and beliefs of a living community that link that community to its past and help maintain its cultural identity. Most traditional cultural resources in the affected environment are associated with Native Americans. Traditional cultural resources may include, but are not limited to, archaeological resources, locations of historic events, sacred areas, sources of raw materials for making tools, sacred objects, or traditional hunting and gathering areas.

Under the National Historic Preservation Act (NHPA) and various federal regulations, only significant cultural resources are considered when assessing the possible impacts of a federal action. Significant archaeological, architectural, and traditional cultural resources include those that are eligible or are recommended as eligible for inclusion in the National Register of Historic Places (National Register).

The significance of archaeological and architectural resources is usually determined by using specific criteria (listed in 36 CFR 60.4), including: association with an important events, association with a famous individual, embodiment of the characteristics of a period, and ability to contribute to scientific research. Cultural resources must usually be at least 50 years old to be considered eligible for listing. However, more recent structures, such as Cold War-era resources, may warrant protection if they

manifest "exceptional significance." Traditional cultural resources can be evaluated for National Register eligibility as well. However, even if a traditional cultural resource is determined to be not eligible for the National Register, it may still be significant to a particular Native American tribe. In this case, such resources may be protected under the Native American Graves Protection and Repatriation Act, and Executive Order 13007 addressing sacred Indian sites. The significance of a Native American traditional cultural resource is determined by consulting with the appropriate Native American tribes.

The area of analysis for cultural resources considers Mountain Home AFB, associated ranges, and areas under the associated airspace. However, resources examined are those most likely to be affected by aircraft operations or noise. Areas that will be affected by construction elements of the Proposed Action are also examined.

3.7.1 Affected Environment

Mountain Home AFB and Vicinity

Mountain Home AFB has been intensively surveyed for archaeological resources (Air Force 2006b). These surveys have identified five sites, none of which are eligible for or listed in the National Register of Historic Places (Air Force 2006b).

Six World War II structures and five Cold War structures at the base are eligible for listing on the National Register (Buildings 201, 204, 205, 208, 211, 291, 611, 2215, 4473, 4476, and 4478). A total of 97 buildings at Mountain Home AFB were evaluated for National Register eligibility in 2005. These buildings were built between 1943 and 1961 and include World War II and Cold War Era structures not previously evaluated. Among the 97 buildings, the Air Force considers 18 eligible to the National Register: 1329, 1330, 1331, 1332, 1333, 3000, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, and 3015. The remaining 79 buildings recorded during the 2005 study are recommended as not eligible for National Register inclusion (Air Force 2006a). No traditional resources have been identified at Mountain Home AFB (Air Force 2006b).

Mountain Home Range Complex and Associated Airspace

All of the 109,466 acres of the Saylor Creek Range have been surveyed using intensive methods. Archaeological surveys have identified and recorded 717 prehistoric and historic archaeological sites Saylor Creek Range. The Idaho State Historic Preservation Office (SHPO) considers 701 of these sites to be eligible to the National Register. One architectural resource in Saylor Creek Range, the remnants of a World War II control tower, is considered eligible to the National Register. Although no traditional cultural properties have been identified to date on Saylor Creek Range, the range falls within an area of concern to several Indian Tribes with historical ties to the area (Air Force 2006b).

A total of 18 archaeological sites have been identified on the Juniper Butte Range. Of these sites, 9 are considered eligible to the National Register. No architectural resources are located on Juniper Butte Range. No traditional cultural properties have been identified on Juniper Butte Range (Air Force 2006b).

Four National Register-listed properties have been identified under Mountain Home AFB airspace on BLM lands. In addition, many more eligible or potentially eligible cultural resources associated with the history of the region are likely to underlie airspace. Table 3.7-1 contains the National Register-listed resources under Mountain Home Range Complex airspace. The region also contains traditional cultural resources that have been recommended as eligible for the National Register as traditional cultural properties (Air Force 2001a). It is likely that other resources in the area could qualify as traditional cultural properties, and there are many archaeological sites and natural features that may be considered traditional resources (Air Force 2006b). The exact location of all traditional resources is confidential.

Table 3.7-1. National Register-Listed Properties under Mountain Home AFB Training Airspace

Airspace	*State*	*County*	*Property*
Owyhee MOA	Idaho	Owyhee	Camas and Pole Creeks Archaeological District
Jarbidge MOA	Idaho	Owyhee	Wickahoney Post Office and Stage Station
Saddle MOA	Oregon	Malheur	Sheep Ranch Fortified House
			Birch Creek Ranch Historic Rural District

Source: Air Force 2001b

Native Americans are likely to be concerned about potential impacts to traditional resources under the airspace. Two Native American reservations underlie Mountain Home AFB-associated airspace. Fort McDermitt Reservation lies under Paradise West MOA in Nevada and Oregon and a portion of the Duck Valley Reservation also underlies the Paradise East MOA in Nevada. The remainder of the Duck Valley Reservation underlies the Owyhee MOA. In previous studies, representatives of the Shoshone-Paiute Tribes have expressed concern regarding past and present Air Force use of airspace, including potential interference in tribal ceremonies and rituals by noise and visual impacts of Air Force overflights; disturbance to the solitude of certain traditional cultural resources; and the possible adverse effects of aircraft noise on wildlife resources in the region (Air Force 2006b).

3.7.2 Environmental Consequences

Procedures for assessing adverse effects to cultural resources are discussed in 36 CFR 800, regulations for Section 106 of the NHPA. An action results in adverse effects to a cultural resource eligible to the National Register when it alters the resource's characteristics that qualify it for inclusion in the National Register. Adverse effects are most often caused by physical destruction, damage, or alteration of a resource; alteration of the character of the surrounding environment that contributes to the resource's significance; introduction of visual, audible, or atmospheric intrusions out of character with the resource

or its setting; neglect of the resource that leads to its deterioration or destruction; or transfer, lease, or sale of the property out of federal ownership.

Proposed Action and Alternative A

Mountain Home AFB and Vicinity

The Proposed Action and Alternative A include several construction elements that have the potential to affect historic structures. Table 3.7-2 lists the structures for which demolition or additions are planned and their eligibility for National Register inclusion. None of the structures are considered to be eligible to the National Register. The Idaho SHPO concurred with these determinations (see Appendix E). Therefore, neither the Proposed Action or Alternative A would have adverse impacts on structures eligible to the National Register.

Table 3.7-2. Buildings for which Demolition or Additions are Planned under the Proposed Action and Alternative A

Building Number	*Construction Date*	*Building Use*	*Construction Activity*	*Action Alternative*	*Eligibility*	*Impact to Significant Resources*
272	1957	Squadron Operations Facility	Demolition	Proposed Action/A	Not eligible	None
273	1957	Aircraft Maintenance Shop	Demolition	Proposed Action/A	Not eligible	None
1327	1954	Avionics Shop	Demolition	A	Not eligible	None
1339	1995	Engine Shop	Addition – add 8,100 square feet	Proposed Action/A	Not eligible	None
1345	1982	Maintenance Facility	Addition	Proposed Action/A	Not eligible	None
1364	1971	RSAF Operations	Remodel – refurbish	Proposed Action/A	Not eligible	None
1365	1984	AMU	Remodel – refurbish	Proposed Action/A	Not eligible	None
1795	1987	Cowboy Control	Addition – Add 500 square feet	Proposed Action/A	Not eligible	None
3016	1956	Warehouse	Addition – add one additional bay and upgrade dividing wall	Proposed Action	Not Eligible	None
3023	1995		Addition – office	Proposed Action/A	Not eligible	None

Minimal changes would occur due to aircraft operations on base. Imperceptible changes to noise would occur on Mountain Home AFB and environs in the airspace. These changes would be a continuation of existing operations within the area and would not result in a change in setting (either visual or auditory) to any eligible or listed architectural resource. Personnel changes would fluctuate less than 7 percent and there would be no increase in access to eligible or listed resources.

Because there are no National Register-eligible or National Register-listed archaeological sites at Mountain Home AFB, construction associated with the Proposed Action and Alternative A would have no adverse impacts on archaeological resources on Mountain Home AFB or in the vicinity.

Mountain Home Range Complex and Associated Airspace

National Register-eligible sites currently exist on Saylor Creek Range. In response to current operations, however, mitigation and testing are underway. These efforts will result in the sites being removed from the National Register-eligible list approximately two years before RSAF operations would be scheduled to begin. As a result, neither the Proposed Action nor Alternative A would adversely impact National Register-eligible properties on Saylor Creek Range.

No National Register-eligible cultural resources on Juniper Butte Range would be adversely impacted by the Proposed Action or Alternative A.

There are National Register-listed or eligible archaeological, architectural, and traditional cultural resources under the airspace. However, there would be no adverse impacts to cultural resources due to the implementation of the Proposed Action or Alternative A. Minimal changes would occur to aircraft operations in the airspace. Imperceptible changes to noise would occur in the airspace. These changes would be a continuation of existing operations within the area and would not result in a change in setting (either visual or auditory) to any eligible or listed archaeological, architectural, or traditional resource. No ground disturbance would occur under the airspace due to the Proposed Action or Alternative A. Therefore, no adverse impacts would result to National Register-eligible or listed archaeological resources, architectural resources, or traditional cultural resources.

No-Action Alternative

Under the No-Action Alternative, the RSAF beddown at Mountain Home AFB would not occur. There would be no change to baseline conditions; therefore, adverse impacts to cultural resources on the base or in the MHRC are not expected to occur.

3.8 SOILS AND WATER RESOURCES

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.

Water resources include surface and ground water. 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 CWA of 1972 is the primary federal law that protects the nation's waters, including lakes, rivers, and aquifers. The primary objective of the Act is to restore and maintain the integrity of the nation's waters. 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 (wetlands are discussed in Section 3.6, Biological Resources).

For the purposes of this analysis, soils information pertains to all areas where proposed F-15SG construction projects would occur, namely, Mountain Home AFB proper. Inert ordnance would be dropped on established targets as parts of current training activities at the ranges. Since no new areas would be impacted, impacts to soils in the MHRC are not discussed further.

Water resources include all surface and groundwater underlying Mountain Home AFB and the watersheds potentially impacted by runoff from the base. Water resources on the MHRC ranges are discussed in the wetlands section of 3.6. The MHRC does not use groundwater or surface water resources, so water resources for the MHRC will not be discussed further in the affected environment or the environmental consequences section.

3.8.1 Affected Environment

Soils

The majority of southern Idaho is located within the Columbia Plateau, a generally arid province characterized by its distinct geologic origin, which consists of many series of lava flows that have built up

into a basaltic plateau. Specific to the area that includes the base and the City of Mountain Home is a broad, flat plateau known as the Mountain Home Plateau. This plateau overlies widespread lava flows and in a few locations, the basaltic lava is exposed on the surface, although no such locations occur on base. The thick basaltic lava flows and interbedded sedimentary units around Mountain Home AFB are known as the Snake River Basalt Group. Lake bed deposits and recent alluvium and colluvium deposits commonly overlie the lava flows that are located at Mountain Home AFB. South of the base, the Snake River cuts through the basalt and forms a large canyon composed of lake and stream deposits, as well as younger terrace gravels.

The general soil designation for the region surrounding the base is the Colthorp-Chilcott-Kunaton series (USDA 2006). Although the soils in the area vary locally, soils within the base are primarily composed of Bahem silt loam, Minidoka-Minveno silt loams, Minveno silt loam, and Minveno-Minidoka stony silt loams, with varying percentages of clay and silt (USDA 2006). The soils on the base are typical of a semi-arid region, with poor drainage and lack of organic matter. The soils vary in thickness, depending on the location of bedrock and hardpans, and may reach 60 inches in depth. These soils generally have a moderate potential for wind and water erosion. The original soils underlying the base have been physically altered (i.e., cut, shaped, graded, excavated, or covered) to create large, level areas with high load support capabilities designed to accommodate aircraft and support operations.

Water Resources

Surface Water. Mountain Home AFB and the City of Mountain Home are located on the Mountain Home Plateau, which comprises about 1,200 square miles of the western Snake River Plain. Both the base and the city are located in a small basin with a total drainage area of approximately 55 square miles. Annual precipitation in the vicinity of the base averages 9 inches (Weather Underground 2006) and no perennial streams cross the Mountain Home Plateau.

In general, surface water on base tends to flow from northeast to southwest into Canyon Creek, which drains southward into the Snake River. The only open water bodies located on base are the rapid infiltration basins and a treated effluent lagoon situated along the western base boundary; however, small playas located adjacent to the base serve as low-point collection areas where surface water runoff does not reach Canyon Creek. These playas are small basins that have no outlets and, as a result, any water they collect is lost to evaporation or infiltration. There is also a storage lagoon on the golf course that stores clean water.

Surface water resources in the immediate vicinity of the City of Mountain Home drain toward the Snake River to the south and include Miller Canal, East Side Canal, West Side Canal, and Rattlesnake Creek. The Mountain Home Reservoir, located northeast of the city, was created by impounding Rattlesnake

Creek; this water source has a storage capacity of about 5,100 acre-feet and is used primarily for agricultural irrigation. Mountain Home AFB does not receive an allotment from this water source.

Groundwater. The principal aquifer in the vicinity of Mountain Home AFB and the City of Mountain Home is the Bruneau Formation, a component of the Idaho Group. Depth to the Bruneau Formation beneath Mountain Home AFB is approximately 400 feet and yields from wells tapping this resource range from 10 to 3,500 gallons per minute (gpm). The Bruneau Formation is recharged primarily from subsurface flow. The formation consists primarily of deposits of coarse sands descendant of weathered granite; while these deposits rarely exceed 300 feet in thickness, other deposits of fine silts, diatomite, sand, and basalt reach thicknesses of much as 800 feet.

The Cinder Cone Butte groundwater source, located about 10 miles north of the base, has been designated a "Critical Groundwater Area" by the Idaho Department of Water Resources. The Mountain Home groundwater source, from which the base draws, has been designated a "Groundwater Management Area," meaning there are restrictions on additional groundwater use that ensure new users will not adversely impact existing water rights (Air Force 1992).

Potable Water. The State of Idaho has adopted drinking water standards established by the USEPA, under the Safe Drinking Water Act. The Idaho 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.

Groundwater is the sole source of potable water for Mountain Home AFB and the City of Mountain Home. The on-base water system serves Mountain Home AFB exclusively and no other municipal water systems are located in the immediate vicinity of the base. The base's water treatment and distribution system consists of six active potable water wells with a combined nominal capacity of 5,925 gallons per minute (gpm) or 8.53 million gallons per day (mgd) (Mountain Home AFB 2005c). Storage capacity for 2.95 million gallons of potable water is provided by five water storage tanks with distribution to the base delivered by 45 miles of pipe. Water consumption at the base is approximately 0.7 mgd during the winter and 5.0 mgd during the summer (Mountain Home AFB 2005c). Water demand during the summer is substantially higher than the winter time primarily because of housing/grounds maintenance irrigation requirements which account for approximately 90 percent of the total demand. The remaining 10 percent of water demand during the summer is used for personal consumption and industrial operations.
The City of Mountain Home draws potable water from 6 active municipal deep wells with good water quality and a maximum daily capacity of 13.0 mgd. The city's storage capacity is 3.1 mgd, which is used primarily for fire protection and for meeting peak day demands (City of Mountain Home 2004).

3.8.2 Environmental Consequences

Proposed Action and Alternative A

Soils

The potential impacts to soils at Mountain Home AFB would occur from ground-disturbing activities (i.e., construction). The Proposed Action would involve modification and construction of 13 facilities and buildings in order to meet the operational and maintenance requirements for the proposed beddown of the RSAF F-15SG. Included in the proposed construction program are new squadron operations facilities, a new parts store, and facilities to accommodate the maintenance requirements of the RSAF F-15SG. Some temporary facilities could be required until permanent facilities are constructed. In total, approximately 2.6 acres under the Proposed Action are expected to be affected, and approximately 3.5 acres under Alternative A. Many of the proposed construction projects would be on the site of a demolished building, or an addition to an existing facility. Generally, all soils in the industrial area of the base proposed for construction or modification under either the Proposed Action or Alternative A have been previously disturbed.

Since the Proposed Action or Alternative A would occur on small parcels of previously disturbed and developed land at the base, and best management practices would be implemented to minimize short-term impacts, soil resources would not be significantly affected.

Water

Projects associated with the Proposed Action and Alternative A include paving and construction of buildings with impermeable surfacing. If the area of disturbance for the Proposed Action is greater than one acre, it is subject to National Pollutant Discharge Elimination System (NPDES) permit conditions. No construction projects for the Proposed Action or Alternative A, are one acre in size or larger.

During construction at Mountain Home AFB, soils would be temporarily exposed to compaction, impeding drainage and reducing water infiltration. These activities would increase runoff volumes and could alter current hydrological processes. Required use of best management practices (soil cover, watering, and stockpiling) would further reduce this impact. However, the only open bodies of water located on base are treated effluent storage lagoons (these are situated adjacent to the western base boundary) and the golf course pond, approximately 4,000 feet from the nearest construction project. Since no surface water resources of consequence are located on base, implementation of the Proposed Action or alternative would not have the potential to significantly impact surface water. Existing spill prevention, control, and countermeasures plans would provide for protection of surface water sources

during construction and use of facilities. As such, the potential for off-base surface waters to be affected would be negligible.

Construction and paving activities associated with the Proposed Action or Alternative A would result in slightly fewer available acres to facilitate groundwater recharge. However, given the low average annual precipitation (i.e., 9 inches) and the lack of year-round surface water resources located on base, infiltration historically has not been a critical source of recharge. Additionally, less than 4 acres of the base would be affected by the proposed construction activities. Both shallow groundwater and deep aquifers in the Bruneau Formation are replenished primarily by subsurface flow. Therefore, groundwater resources would be negligibly impacted by the implementation of the Proposed Action or Alternative A.

No-Action Alternative

Under the No-Action Alternative, the proposed beddown of the RSAF F-15SG to Mountain Home AFB would not occur. Existing conditions would remain unchanged. Consequently, implementation of the No-Action Alternative would have no impact on soils or water resources.

3.9 HAZARDOUS MATERIALS AND WASTE

Hazardous materials (HAZMAT) are identified and regulated under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA); the Occupational Safety and Health Act (OSHA); and the Emergency Planning and Community Right-to-Know Act. Resource Conservation and Recovery Act (RCRA) defines hazardous waste as any solid, liquid, contained gaseous or semisolid waste, or any combination of waste that could or do pose a substantial hazard to human health or the environment. Hazardous materials have been identified in AFI 32-7086, *Hazardous Materials Management*, to include any substance with special characteristics that could harm people, plants, or animals when released. Waste may be classified as hazardous because of its toxicity, reactivity,, ignitability, or corrosiveness. In addition, certain types of waste are “listed” or identified as hazardous in Code of Federal Regulations at 40 CFR Part 261.

Hazardous materials and wastes are federally regulated by the EPA, in accordance with the Federal Water Pollution Control Act; CWA; Toxic Substance Control Act (TSCA); RCRA; CERCLA; and CAA. The federal government is required to comply with these acts and all applicable state regulations under EO 12088, DoD Directive 4150.7, and AFI 32-1053. Additionally, EO 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.

The affected areas for potential impacts related to HAZMAT and waste consists of Mountain Home AFB, with an emphasis on aircraft maintenance and munitions handling areas. Since the proposed RSAF

beddown and F-15SG aircraft operations within Mountain Home training airspace would not generate or require disposal of hazardous wastes, a discussion of hazardous wastes within and under the associated airspace is not provided.

3.9.1 Affected Environment

Operations at Mountain Home AFB require the use and storage of a variety of hazardous materials that include flammable and combustible liquids, acids, corrosives, caustics, anti-icing chemicals, compressed gases, solvents, paints, paint thinners, and pesticides.

The Mountain Home AFB *Hazardous Waste Management Plan (HWMP)* provides guidance and procedures for proper management of RCRA and non-RCRA hazardous waste generated on the base to ensure compliance with applicable regulations (Air Force 2006c). Base management plans and DoD directives also serve to implement these laws and regulations and include hazardous material management plans, spill prevention and contingency plans, and pollution prevention plans that are regularly updated to reflect any changes in the base mission.

The USEPA designates facilities as large quantity generators of hazardous waste when wastes generated exceed 2,200 pounds any month during the year. Mountain Home AFB is a large-quantity hazardous waste generator, shipping 20,000 pounds to the Defense Reutilization and Marketing Office (DRMO) at Hill AFB, Utah in 2005 (personal communication, Downen 2006). In keeping with the requirements outlined in the Mountain Home AFB HWMP, hazardous waste is properly segregated, stored, characterized, labeled, and packaged for collection at a designated initial satellite accumulation point. The base has approximately 72 waste accumulation points at work locations. A licensed contractor transports the waste from the accumulation points to one designated 90-day Hazardous Waste Storage Areas (HWSA) where they are stored until disposal is economically practicable or before 90 days has expired, whichever comes first. A licensed disposal contractor picks up the wastes and transports it off base for disposal in a licensed disposal facility. Accumulated wastes gathered at a 90-day HWSA are analyzed, characterized, prepared for shipment, and forwarded to the permitted Treatment Storage and Disposal Facility, which is responsible for arranging permanent disposal (personal communication, Downen 2006).

Mountain Home AFB has a proactive program to identify asbestos-containing material (ACM) and lead-based paint in all structures in order to reduce potential hazards to occupants, workers, and the environment during future construction projects. The presence of asbestos in a facility or specific portion of a facility is determined following an inspection by qualified civil engineering personnel in coordination with the Asbestos Program Officer. An asbestos survey is conducted whenever maintenance, repair, or minor construction could result in exposure to ACM. The Bio-Engineering Office is responsible for

lead-based paint sample surveys. Survey results for ACM and lead-based paint materials are available in a database compiled by the Civil Engineering Squadron.

The Environmental Restoration Program (ERP) is the process by which contaminated sites and facilities are identified and characterized and by which existing contamination is contained, removed, and disposed of to allow for beneficial reuse of the property. ERP sites include landfills, underground waste fuel storage areas (e.g., oil/water separators), and maintenance-generated wastes. Compliance activities for ERP sites address underground storage tanks, hazardous materials management, closure of active sites, polychlorinated biphenyls, water discharges, and other compliance projects that occur on or near ERP sites. Since the ERP began at Mountain Home AFB, 33 CERCLA-regulated sites have been identified on the base and are shown in Figure 3.9-1. All but 10 of the sites have no further action required. The 10 sites needing action are: sites OT-16, LF23/DP-17, SD-27, SS-29 will be remediated by removal; sites FT-08, ST-11, ST-13, SD-24 require pilot studies for remedial action; and sites LF-01 and LF-02 are former landfill sites that will require land use controls.

Although not an active ERP site, one inactive ERP site (FT-06) could be impacted by the proposed construction of new fill stands in the POL area (Figure 3.9-2a,b,c). FT-06 is an historic fire fighting exercise area used from 1948 to 1953 and was a circular area approximately 310 feet in diameter. Fuels, solvents, and POL were ignited and extinguished primarily with protein foam and water. A soil gas survey of the site was conducted in 1991, and no further action was recommended for the site. In 2004, eight soil samples were taken from six soil borings at depths ranging from 1.7 to 7.2 feet. Low concentrations of arsenic, VOCs and semivolatile organic compounds were detected, none exceeding site specific screening levels or respective EPA Region 9 preliminary remediation goals. Findings from the 2004 sampling support the previously determined no further action recommendation. Based on present plans, the proposed site is less than 200 feet from FT-06.

Another inactive ERP Site (SS-26) is adjacent to the proposed site for the new 391 FS squadron operations building (Figure 3.9-2a,b,c). SS-26 is a former drum accumulation pad and should not present a problem with the construction of the proposed facility. Should any contamination be encountered during excavation it would be mitigated as part of the project. A construction waiver would not be required.

A variety of activities on base, including aircraft maintenance and support, and civil engineering have been identified as primary contributors to hazardous waste streams. Numerous other shops add to hazardous waste streams, including AGE, Aircraft Structural Maintenance, Fuels Management, Non-Destructive Inspection, Munitions and Armament Shops, In-Squadron Maintenance, the Wheel and Tire Shop, and others (e.g., avionics, egress systems, electrical, metals, pneudraulics, hydraulics, radio, jet engine, and structural maintenance). The greatest volumes of hazardous waste are generated from aircraft support functions. Routine activities conducted on the flightline generate paints containing lead-mercury-

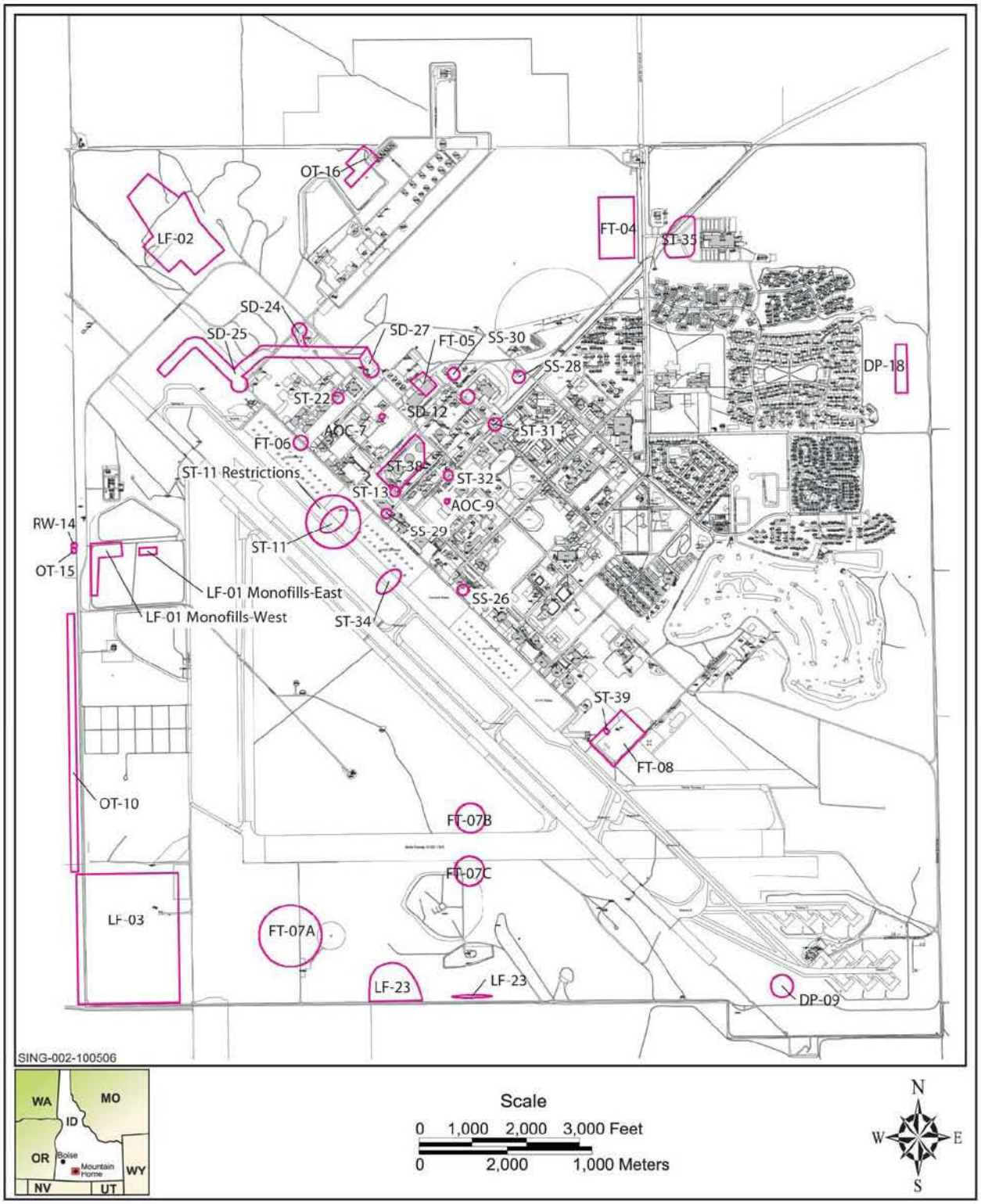


Figure 3.9-1. Environmental Restoration Sites at Mountain Home AFB

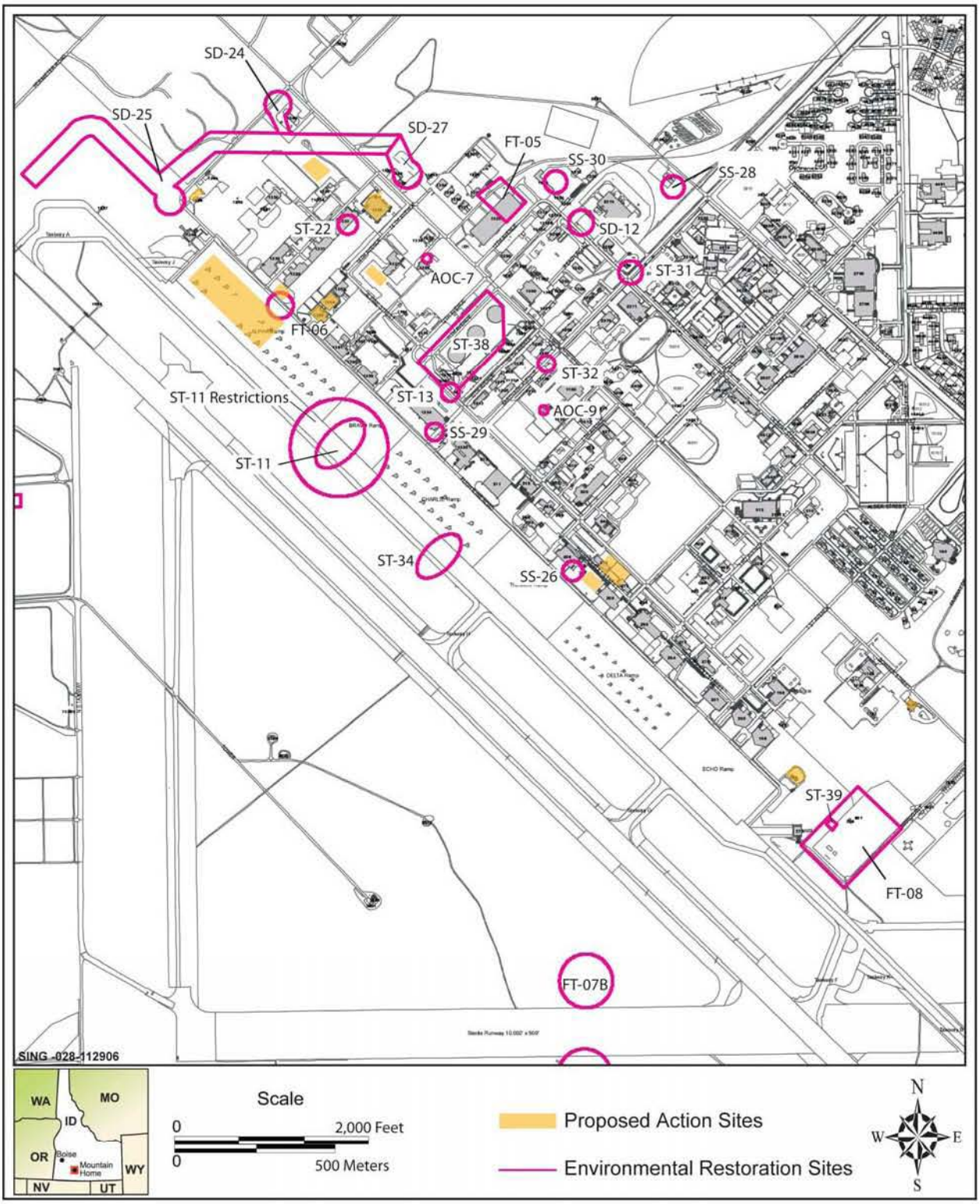


Figure 3.9-2a. Environmental Restoration Sites at Mountain Home AFB with Proposed Action Areas

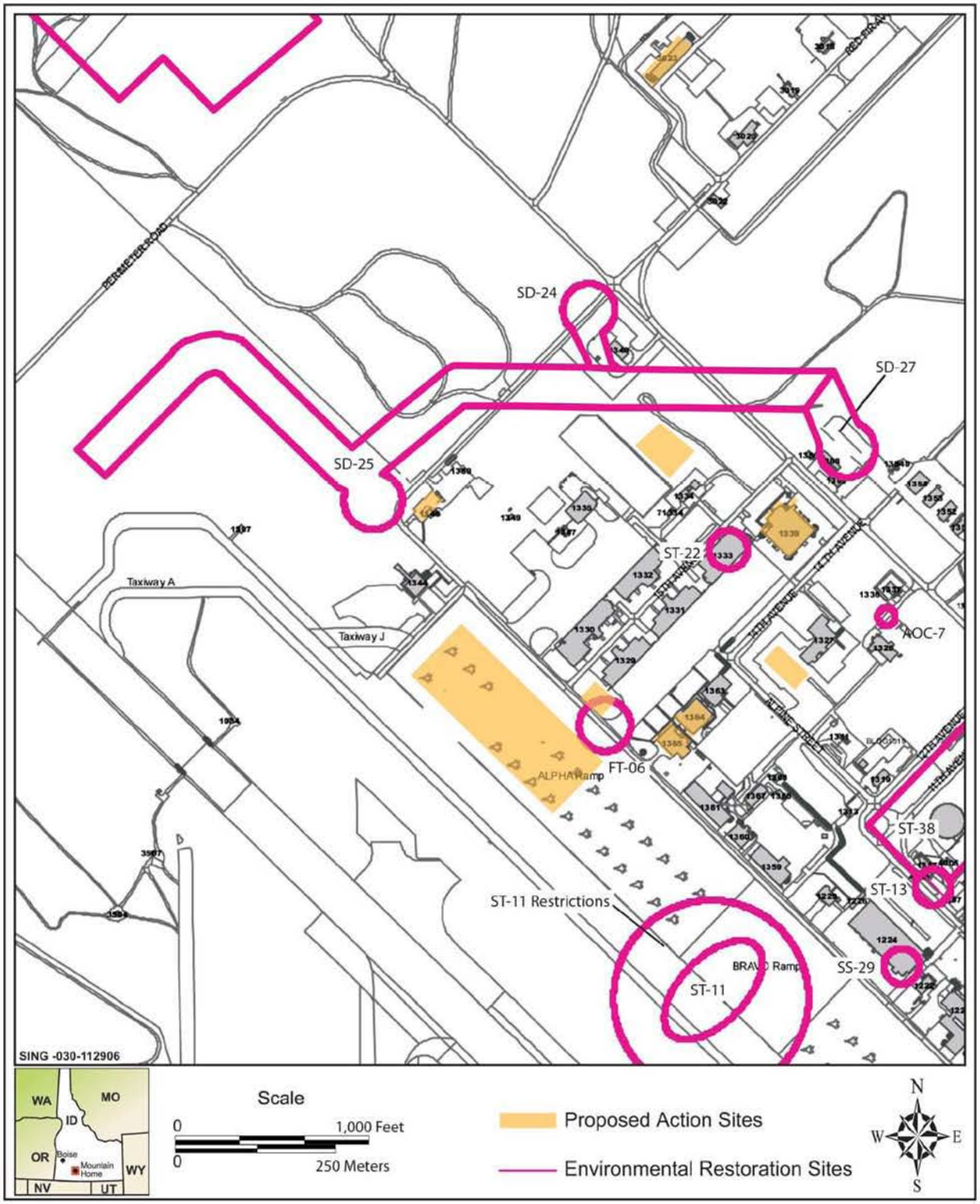


Figure 3.9-2b. Proposed Equipment Storage Pad and FT-06 ERP Site

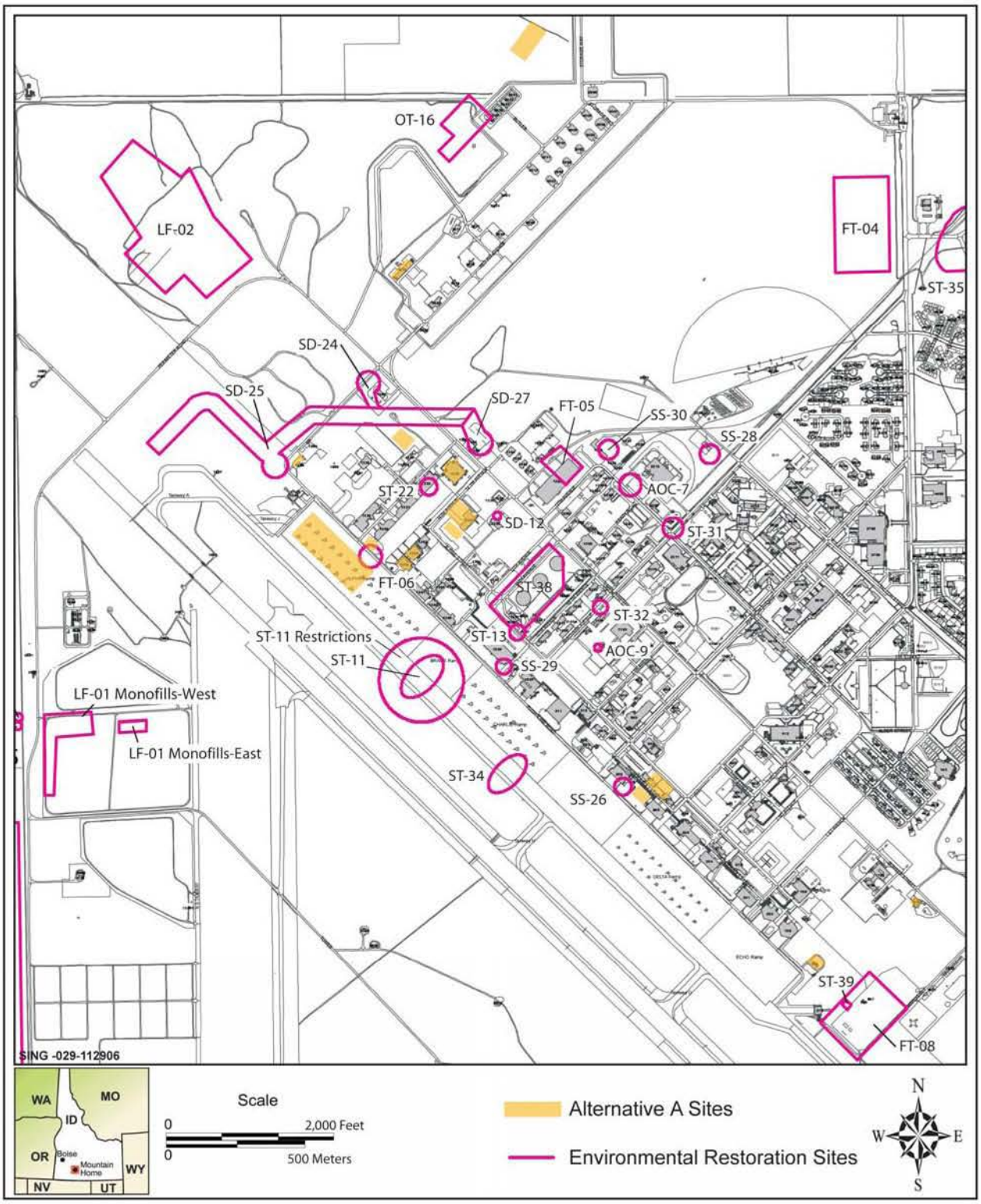


Figure 3.9-2c. Environmental Restoration Sites at Mountain Home AFB with Alternative A Areas

chromium, hazardous waste containers, and contaminated rags. Wastes derived from maintenance activities include petroleum, oils, and lubricants, paints and paint-related wastes such as thinners and strippers, batteries, contaminated spill absorbent, adhesives, sealers, solvents, fuel filters, photochemicals, ignitable wastes, and metals. Basic processes and waste handling procedures for general aircraft maintenance activities are identified in the Mountain Home AFB Hazardous Waste Management Plan (Air Force 2006c).

3.9.2 Environmental Consequences

The significance of potential impacts associated with hazardous materials and wastes is based on the toxicity, transportation, storage, and disposal of these substances. Hazardous materials and hazardous waste impacts are considered significant if the storage, use, transportation, or disposal of these substances substantially increases the human health risk or environmental exposure. An increase in the quantity or toxicity of hazardous materials and/or hazardous waste handled by a facility may also signify a potentially significant impact, especially if a facility was not equipped to handle the new waste streams.

No hazardous wastes are anticipated to be generated at Saylor Creek Range and no increases of solid waste are expected from increased range sorties involving delivery of ordnance to established range target areas (these wastes are considered non-hazardous) since the F-15SG would continue to use the same amount and type of ordnance. Also, no hazardous wastes would be generated within the MOAs or MTRs under the Proposed Action. Therefore, there would be no impact on hazardous materials and wastes and no further analysis of this resource is required for the airspace and ranges.

Proposed Action and Alternative A

No new types of hazardous waste streams would be created under the Proposed Action or Alternative A as the types of hazardous wastes generated by F-15SG support activities would not differ from waste streams already established to support Air Force F-15E aircraft currently assigned to Mountain Home AFB. Beddown of 10 RSAF F-15SGS aircraft to Mountain Home AFB would cause an increase in the amount of hazardous waste generated on base. The increase represents additional wastes entering existing waste streams such as waste fuels and oils. However, no new hazardous waste management permits would have to be obtained to accommodate increased waste generation under the Proposed Action or Alternative A, nor would there be any changes required in the techniques used to manage hazardous wastes generated on base. This increase would have no impact on the base's large quantity generator status and could be managed in accordance with existing hazardous waste management policies and procedures, and therefore, is considered negligible.

The quantity of hazardous materials stored on base would increase in response to the materials inventory required to maintain RSAF F-15SG aircraft. All hazardous materials stored in facilities proposed for

construction would be required to meet all applicable hazardous material storage regulations. There would be no change in the type of hazardous materials stored on base. Therefore, only limited changes would be required to the HAZMAT Emergency Planning and Response Plan, primarily addressing locations of hazardous materials storage in newly constructed facilities. No changes would be required as a result of newly established chemical hazards.

No changes are anticipated in the number of underground or above-ground storage tanks at the base. The base aircraft fueling system has adequate capacity to serve the increased fuel needs of the RSAF F-15SG aircraft.

Asbestos may be encountered as structures are remodeled or demolished to accommodate new RSAF F-15SG support facilities. It is current Air Force practice to remove exposed friable asbestos and manage other ACM in-place depending on the potential threat to human health. Friable asbestos, if encountered, should be removed and disposed of in a local asbestos-permitted landfill.

Given the assumptions listed above, hazardous waste generation at Mountain Home AFB would increase with implementation of the Proposed Action. The base is considered by the EPA to be a large quantity generator; this would be a manageable increase and could be accommodated by existing hazardous waste management policies and procedures. Therefore, hazardous materials and wastes impacts as they relate to the Proposed Action or Alternative A would be minimal.

Only the construction of the equipment storage pad would be affected by the location of inactive ERP site FT-06 (see Figure 3.9-2a,b,c). An ERP waiver would most likely be required from HQ ACC/A7V for construction of this facility at the location currently proposed (personal communication, J. Schleicher 2006).

No-Action Alternative

Under the No-Action Alternative, the proposed beddown of the RSAF F-15SG aircraft to Mountain Home AFB would not occur. Increases in the quantities of hazardous materials and waste stored at Mountain Home AFB would not occur and existing conditions would remain unchanged. Consequently, implementation of the No-Action Alternative would have no impact on hazardous materials and waste.

3.10 SOCIOECONOMICS

This section of the EA focuses on the general features of the local economy—employment, earnings, population, housing, and public schools—that could be affected by the Proposed Action or Alternative A. The affected area for socioeconomics is composed of the counties and communities whose economies are closely related to activities at the military installation.

3.10.1 Affected Environment

Mountain Home AFB and Vicinity

The counties of Ada, Elmore, and Owyhee, whose economies are closely associated with Mountain Home AFB, comprise the affected area (Figure 3.10-1). Information regarding employment and earnings is compared with conditions for the state of Idaho. The primary data sources for this section are the U.S. Census Bureau (USCB), the *Initial F-22 Operational Wing Beddown Environmental Impact Statement* (Air Force 2001b), and the *Mountain Home Air Force Base FY 05 Economic Impact Statement* (Mountain Home AFB 2006a).

Population

Population in the tri-county region has grown from 235,372 persons in 1990 to 340,678 in 2000, an increase of 31 percent. For comparison, the population of Idaho grew by 22 percent to 1,293,953 in 2000 (USCB 2006). As of 2005, the population of the state was estimated to have grown to approximately 1,395,634 people representing a 7.3 percent increase since 2000 (USCB 2006).

Employment and Earnings

The largest contributions to employment in the three affected counties were made by services (39 percent), manufacturing (14.2 percent), and retail trade (12.6 percent) which compared strongly with the services (39.7 percent), manufacturing (13.1 percent), and retail trade (12.6 percent) contributions to employment in the state. The sectors of the economy exhibiting the greatest addition of jobs in Idaho over the period 2000 to 2005 were services, construction, and real estate (USCB 2006).

In Idaho, military (i.e., armed forces) employment has declined from 2.6 percent of total employment in 1980, to 2.1 percent in 1990, to 0.5 percent in 2000. The number of active duty military personnel stationed at Mountain Home AFB in FY01 was 4,449 (Air Force 2001b). By comparison, the number of active duty military personnel in FY05 was 4,024, a decrease of 9.6 percent. The number of civilian employees at Mountain Home AFB in FY01 and FY05 remained nearly constant with 877 and 878 personnel, respectively.

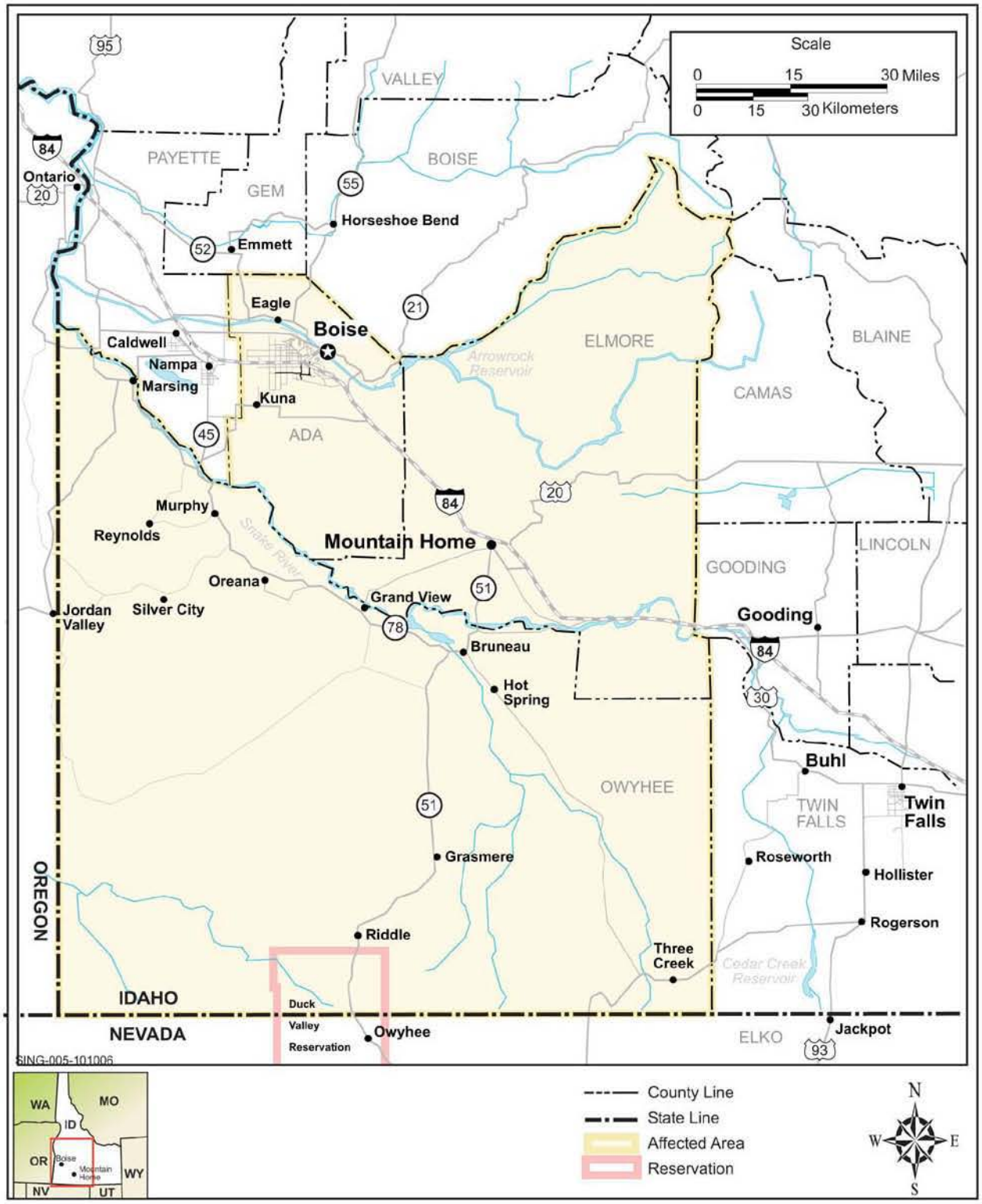


Figure 3.10-1. Socioeconomic Affected Environment

Mountain Home AFB is one of the largest employers in the region. Payroll expenditures associated with active-duty military and civilian personnel at the base was nearly $207 million in FY05 (Mountain Home AFB 2006a). In addition, Mountain Home AFB purchases significant quantities of goods and services from local regional firms. Construction costs; service contracts; and materials, supplies, and equipment for the base totaled over $116 million in FY05. Also generating substantial economic activity are about 6,450 retirees who received and spent payrolls exceeding $111 million in the region. Further, the Air Force estimates that the economic stimulus of Mountain Home AFB created approximately 1,545 secondary jobs in the civilian economy generating nearly $51 million to the local economy in FY05.

Mountain Home AFB contributed over $434 million to the local economy in FY05.

Housing and Public Schools

There were a total of 133,495 housing units in the tri-county region in 2000, with a homeowner vacancy rate of about 2.7 percent and a rental vacancy rate of about 8.1 percent. Of the vacant units, 4.0 percent were for seasonal and recreational use (USCB 2006). The City of Mountain Home is the only significant population and housing center within a 30-minute commute of the base. In 2000, there were 401 vacant housing units in the City of Mountain Home and the vacancy rate in the city was 8.5 percent. Most of the vacant housing units were rental units (12.8 percent vacancy rate) while the vacancy rate for homeowner units was much lower at 2.8 percent (Air Force 2001b). In November 2006, it was estimated that there were 60 to 70 rental units available, a 6 percent vacancy rate.

Currently, housing on Mountain Home AFB is available in military family housing units, dormitories, and billeting facilities. A total of 1,209 two-, three-, and four-bedroom homes are available to Mountain Home AFB personnel and their families. An additional 792 beds are available in base dormitories and temporary living quarters. In 2005, approximately 1,579 active duty personnel lived on Mountain Home AFB; approximately 2,445 relied on off-base housing (Mountain Home AFB 2006a).

In August 2006, the Mountain Home School District (MHSD) Board of Trustees and district administrators closed the base's Liberty Elementary School due to falling student enrollment rates over the past five years (MHSD 2006). Students enrolled at the elementary school were admitted to other elementary schools off-base in the district and on the base. MHSD 193 provides one high school, one junior high school, one middle school, and five elementary schools (one located on the base). The student capacity in the District is approximately 4,500 students. The total student enrollment for the 2006-2007 school year was 4,099 students as of October 3, 2006 (personal communication, Henderson 2006). MHSD 193 receives impact aide from the government for each child of a US military family that attends school off base. In 2005, MHSD received $3,893 in impact aid for each student with an active duty military person who lived on base.

3.10.2 Environmental Consequences

The threshold level of significance for socioeconomics consists of a combination of several factors, to including unusual population growth or reduction, unusual increase/decrease in demands on housing and public services, and the potential to substantially increase/decrease employment opportunities.

Analysis indicated that the Proposed Action and Alternative A would represent a minor short-term beneficial impact to the local communities through facility construction expenditures. Longer-term beneficial impacts in the region would be expected throughout the duration of the beddown as the Proposed Action would offset the loss of manpower positions at Mountain Home AFB following the base's realignment under the 2005 BRAC process. No adverse impacts to housing or public services would be expected from implementation of the RSAF beddown (either the Proposed Action or Alternative A.

Proposed Action and Alternative A

The Proposed Action and Alternative A would result in a net increase of 307 active-duty and civilian positions at Mountain Home AFB during FY09 to FY10. This total is comprised of 128 Air Force and civilian personnel and 179 RSAF personnel. On average, each personnel member is anticipated to have 1.52 dependents and this number was used in calculating potential affects of the Proposed Action (Mountain Home AFB 2006a). Table 3.10-1 provides base population changes associated with the RSAF beddown. The baseline numbers reflect FY05 base personnel numbers less manpower reductions due to the 2005 BRAC realignment at Mountain Home AFB.

Table 3.10-1 Comparison of Baseline and Projected Personnel and Dependents at Mountain Home AFB

	Personnel	***Dependents***	***Total***
Baseline	3,562	5,414	8,976
Proposed Action			
Air Force	5	8	13
RSAF	179	272	451
US Civilians	123	187	310
	3,869	5,881	9,750
Change in Baseline	**+307**	**+467**	**+774**

In FY05, active-duty Air Force personnel at Mountain Home AFB earned $43,639 on average while civilians averaged $35,026 (Mountain Home AFB 2006a). Based on this average, and assuming RSAF salaries would be comparable, military personnel associated with the Proposed Action and Alternative A would generate approximately $8.0 million in payroll disbursements in the region; civilians would generate approximately $4.3 million. This total would represent less than 6 percent of the Mountain Home AFB FY05 payroll.

To analyze the potential effects to military housing under the proposed action, the FY05 total of active duty personal (i.e., 4,024 persons) at Mountain Home AFB was used to estimate a potential peak in military personnel when the BRAC realignment and RSAF Beddown actions overlap in FY09. Applying the manpower changes under BRAC (refer to Table 1.2-3) and assuming military personnel under the RSAF beddown proposal would arrive in 2009, the number of military personnel on the base requiring housing could total nearly 4,430 persons. Mountain Home AFB economic data indicate approximately 31 percent of active duty personnel relied on on-base housing in FY05 (Mountain Home AFB 2006a). Using this percentage, approximately 1,372 on-base housing units and/or beds would be required to support military personnel at Mountain Home AFB in 2009.

The current on-base housing supply combined with adequate and suitable off-base housing would be sufficient to accommodate personnel changes under the Proposed Action. The short-term increase in base personnel and the subsequent demand for housing during FY09 to FY10 would not have an adverse impact on the housing market.

MHSD 193 would be able to accommodate the children of active-duty Air Force, RSAF, and civilian personnel under the Proposed Action and Alternative A. The downward trend of base personnel would reverse slightly between FY09 and FY10; however, the increase would be short-term in duration and the school district would be able to accommodate the student increase with no adverse impact.

Under the Proposed Action, RSAF dependent students will be included in the average daily attendance totals for the MHSD 193. MHSD 193 would be eligible to receive impact aid for all dependent students enrolled in the MHSD 193, as a result of the RSAF beddown, in accordance with Pub. L. 109-163, sec. 572(g), 119 Stat.

In summary, no adverse impacts to the socioeconomic conditions of Mountain Home AFB or the local region would be expected from implementation of the Proposed Action or Alternative A. Facility construction expenditures would provide short-term beneficial impacts while the beddown action would offset the loss of manpower positions from the 2005 BRAC process at the base.

No-Action Alternative

Under the No-Action Alternative, the RSAF beddown at Mountain Home AFB would not occur. Implementation of this alternative would not adversely affect the socioeconomic resources and opportunities associated with Mountain Home AFB or the affected counties; however, when combined with the 2005 BRAC activities at Mountain Home AFB, implementation of this alternative could adversely affect the local economy.

CHAPTER 4

CUMULATIVE EFFECTS, IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.0 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.1 CUMULATIVE EFFECTS

CEQ regulations stipulate that the cumulative effects analysis within an environmental document 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). Recent 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 this alternative. It must also evaluate the nature of interactions among these actions.

In this section, an effort has been made to identify past and present actions associated with Mountain Home AFB, plus those actions that are in the planning phase at this time. Only those foreseeable actions with a potential to interact with the Proposed Action and alternatives are addressed in this cumulative analysis. Although the level of available detail regarding such proposals varies, this approach provides decisionmakers with the most current information to evaluate the environmental consequences of adding RSAF aircraft at Mountain Home AFB and the aircraft operations in its associated training airspace.

Like any other major institution (e.g., university, industrial complex), Mountain Home AFB requires new construction, facility improvements, infrastructure upgrades, and maintenance and repairs. Such requirements are consistent and will continue to apply during and after the implementation of the Proposed Action or alternatives. Beyond the projects noted below, the specifics and timing of types of actions are not reasonably foreseeable at this time.

Past Actions Relevant to the RSAF Proposal

Mountain Home AFB is an active military installation that undergoes continuous change in mission and in training requirements in response to defense policies, current threats, and technological advances. This process of change is consistent with the U.S. defense policy that the Air Force must be ready to respond to threats to American interests throughout the world.

- In 1992, the Air Force established the Composite Wing or 366th Aerospace Expeditionary Wing (366 WG) at Mountain Home AFB. The 366 WG consisted of F-16, F-15C, F-15E, B-1, and KC-135 aircraft that trained and fought together as a unit.

- In 1996, the Air Force relocated seven B-1 aircraft to Mountain Home AFB to complete the 366 WG. Both of the force structure changes to the 366 WG involved construction and modification of facilities on base, as well as addition of personnel.

- In 1998, the Air Force established the Juniper Butte Range, five no-drop targets and 20 threat emitter sites in southwest Idaho under existing airspace. Use of the range and associated facilities shifted the pattern of use of existing Saylor Creek Range and the MOAs. This action altered the location of potential impacts from overflights, noise, chaff and flare use, and ordnance use.

- In 2002, the Air Force implemented force structure changes consisting of drawdowns of the seven B-1 and six KC-135 aircraft and a beddown of six F-15E aircraft at Mountain Home AFB. These actions reduced sorties at the airfield, sortie-operations in the airspace, and personnel at the base. As a result, noise levels decreased at the airfield and in the airspace, air emissions decreased, fewer low-altitude flights occurred, and the general potential for impacts declined.

In combination and sequence, these past actions created the operational and environmental conditions for Mountain Home AFB and its associated training airspace. Despite the establishment of Juniper Butte Range, the general trend reflected reduced aircraft operations, lower noise and emission levels, and less potential for environmental consequences. Cumulatively, the effects of these past actions should be considered minor when combined with those resulting from present and potential future actions.

Present Actions Relevant to the RSAF Proposal

- The 2005 DoD Base Realignment and Closure Commission recommended realignment of aircraft for Mountain Home AFB. The final BRAC recommendations called for a departure of all Mountain Home AFB F-16 aircraft (18), loss of all F-15C aircraft (18), and a gain of 18 F-15Es at the base. This action will reduce the total inventory of aircraft from 60 to 42. This realignment must begin by 2007 and be completed by 2011. The Air Force evaluated these actions under NEPA, and determined no adverse impacts would result (Mountain Home AFB 2006f). As a result of the BRAC realignment, annual airfield operations at Mountain Home AFB and use of munitions, chaff, and flares in Mountain Home AFB airspace would decrease relative to previous operational levels, thus generating an associated reduction in noise, air emissions, and other impacts.

- The Idaho Air National Guard at Gowen Field in Boise is currently analyzing a proposal to employ 2.75-inch rockets on Saylor Creek Range. Based on the Draft EA (Mountain Home AFB 2006d), impacts to analyzed resources would be minor, except for cultural resources where the potential exists for adverse effects. Mountain Home AFB and the Idaho Air National Guard would implement measures to mitigate the potential adverse effects to insignificance.

- Numerous construction projects are in progress at the base, including facility improvements and infrastructure upgrades that would coincide with the Proposed Action timeline. The largest of these improvements is the completion of a base housing construction project which should conclude in FY08. Environmental evaluation of these projects indicates minor impacts would result from implementation.

Of these present actions, only the BRAC realignment has the potential for cumulative effects. Both the 2.75 inch rocket proposal and the Mountain Home projects may affect the environment, but both generate only localized impacts to limited resources. Neither substantively overlaps with other actions, including the RSAF beddown. In contrast, the BRAC realignment has important implications for and interactions with the proposed RSAF beddown. Primarily, the reduction in total aircraft and the associated decrease in operations provide a context for the potential impacts of the RSAF beddown. Some important factors of the BRAC realignment potentially affecting the environment include:

- Aircraft reduced from 60 to 42
- Airfield sorties decrease by 21 percent
- Sortie-operations in the training airspace decrease 42 to 45 percent
- Noise levels for the airfield environs and training airspace reduced
- Air emissions decrease
- Reduction in personnel by 462

Based on these factors, the BRAC action would: 1) lessen the existing potential for impacts on many resources; 2) lower the baseline to which the RSAF beddown would be compared; and 3) create a greater degree of change between baseline conditions and those resulting from the proposed RSAF beddown.

Reasonably Foreseeable Actions

The 2006 Mountain Home AFB General Plan identified short- and long-term development plans for the base. During the timeframe FY08 to FY10, Mountain Home AFB proposed to implement numerous major construction projects which include: a new Logistics Readiness Center, additional Visiting Quarters, construction of a new Airman Dining Hall, and a new Group Complex. Various military construction and improvement projects are proposed and would require environmental analysis if undertaken. Examples of these projects include administration, operations, and support facilities.

Mountain Home is a growing city and one proposed commercial action in the vicinity of the base, planned for completion in 2007, is the Marathon Cheese packing plant being constructed adjacent to the Mountain Home International Airport on Airbase Road. Another possible action in the area is a corrections facility that could potentially be awarded to the City of Mountain Home. The facility would be privately owned, but with a contract with the State of Idaho. It is estimated that the facility would provide 100 new jobs.

These future actions are unlikely to result in adverse impacts individually. While temporarily and locationally overlapping with the RSAF beddown, neither set of actions would appear to interact sufficiently to produce adverse cumulative impacts.

In August 2006, U.S. Senator Mike Crapo introduced legislation to address and resolve decades-old land management issues in Owyhee County, Idaho. The Owyhee Initiative is a collaborative effort with broad representation, started by the Owyhee County Commissioners in 2001, with a goal to protect wilderness, ensure the economic viability of ranching families, and to tackle land management issues throughout Owyhee County. In late September, the Senate Energy and Natural Resources Committee held hearings on the legislation.

The Owyhee Initiative would designate 517,000 acres of public land as the Owyhee-Bruneau Wilderness, release 199,000 acres of wilderness study areas to non-wilderness multiple use management, and designate 384 miles of Wild and Scenic Rivers. The goal of the agreement is a cooperative solution and the effort includes six focus areas: establishment of an ongoing, advisory Owyhee Initiative Board of Directors; establishment of an advisory Science Review Process; establishment of a Conservation and Research Center; designation of Wilderness and Wild and Scenic Rivers; starting a recreation management plan on public lands for the whole county; and commitment to cultural and historic protection (Crapo 2006).

Six areas under the Jarbidge and Owyhee MOAs are part of the Owyhee-Bruneau Wilderness: Bruneau-Jarbidge Rivers Wilderness, Big Jacks Creek Wilderness, Little Jacks Creek Wilderness, Owyhee River Wilderness, Pole Creek Wilderness, and the North Fork Owyhee Wilderness.

Analysis of Cumulative Effects

The following analysis examines how the impacts of these other actions might be affected by those resulting from the Proposed Action and Alternative A at Mountain Home AFB, and whether such a relationship would result in potentially adverse impacts not identified when the Proposed Action or Alternative A is considered alone.

As noted in section 3.4, Land Use, Elmore County controls development and land use in the vicinity of the base to prevent encroachment. The Marathon Cheese packing plant is located in the vicinity of the base, but it is outside the Mountain Home AFB AICUZ area and presents no encroachment or other issues. Also, the corrections facility potential location, which would be in the industrial park on Highway 26 adjacent to a similar existing facility, would be peripheral to activities on the base and have a negligible effect.

The RSAF beddown proposal, when combined with future foreseeable proposals, would disturb a fraction of the 6,844 acres of Mountain Home AFB over the next 3 years, most of which would be in the industrial or flightline area of the base and occur on previously disturbed land. They would not negatively impact land use, recreation, or visual resources, nor would there be any wetland loss associated with any construction project. Airspace operations and munitions use would be less than in years preceding the BRAC actions. Personnel numbers would also not exceed the peak workforce numbers experienced by the base previously.

However, during the period when the BRAC action is ongoing and the RSAF beddown is taking place, there will be an overlap of the two actions. The schedule for the BRAC action is to transfer F-15C aircraft and personnel out of Mountain Home AFB by October 2010. RSAF personnel and aircraft would arrive in April through August 2009. This would mean that the introduction of RSAF F-15SG aircraft and personnel would take place before the F-15Cs are removed (an overlap of approximately 1 year). From August 2009 through October 2010, the number of aircraft would temporarily increase to 70 (42 F-15Es, 10 RSAF F-15SGs, and 18 F-15Cs), slightly higher than the 67 aircraft at Mountain Home AFB in 2000 (Air Force 2001b). The number of personnel would increase by 526 over current levels. It would not exceed personnel numbers (approximately 5,000) at Mountain Home AFB in 1999 (Air Force 2001b). After the transfer of the F-16Cs in 2010, the aircraft numbers would drop to 52 and the total personnel at Mountain Home AFB would decrease by 681. The implementation of the RSAF beddown would minimize the effects of personnel decreases at Mountain Home AFB over the last 5 years.

Nothing in the Owyhee Initiative legislation restricts or precludes the overflights or operations of military aircraft. The U.S. Air Force would continue to train in the skies over the Owyhee-Bruneau Canyonlands (Crapo 2006).

In summary, the RSAF beddown would not, in and of itself, result in any adverse cumulative impacts. Rather, any impacts would be negligible to minimal in scope, intensity, and duration. Because implementation of the Proposed Action or Alternative A would result in temporary or very minor impacts to the resources analyzed, it is not anticipated that the Proposed Action or Alternative A, when combined with other future Proposed Actions, would have a negative cumulative effect on other resources.

4.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

NEPA requires that environmental analysis include identification of "… any irreversible and irretrievable commitments of resource 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 that the uses of these resources 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.

For the RSAF beddown at Mountain Home AFB, resource commitments are neither irreversible nor irretrievable. Impacts are negligible; minor increases in noise would result in imperceptible changes. Personnel numbers increase slightly under the Proposed Action and Alternative A, but these gains are less than the manpower strength of the base in recent peak years. Training operations would continue and involve consumption of nonrenewable resources, such as gasoline used in vehicles and jet fuel used in aircraft. Use of training ordnance would involve commitment of chaff and flares. None of these activities would be expected to greatly decrease the availability of minerals or petroleum resources. Construction in previously disturbed areas would result in minimal loss of soils or wildlife habitat. Personal vehicle use by the personnel continuing to support the existing missions would consume fuel, oil, and lubricants. The amount of these materials as well as materials used in construction would decrease or slightly increase, however, this change is not expected to adversely affect the availability of the resources.

CHAPTER 5

REFERENCES CITED

5.0 REFERENCES CITED

Bailey, R.G. and A. W. Kuchler. 1996. Potential Natural Vegetation of the United States. U.S. Geological Survey. Washington, D.C.

Bowles, A.E. 1995. Responses of Wildlife to Noise *in* R.L. Knight and K.J. Gutzwiller, eds. *Wildlife and Recreationalists: Coexistence through Management and Research.* Island Press: Covelo, CA. Pp. 109-156.

Bureau of Indian Affairs (BIA). 1998. Indian Lands and BIA Office Sites. Portland Area Office and Phoenix and Navajo Area Offices. Geographic Data Service Center.

City of Mountain Home. 2004. Community Profile 2004. Mountain Home, ID. March.

Crapo, Senator Mike. 2006. http://crapo.senate.gov/issues/owyhee_initiative.cfm. Accessed 29 November.

Ellis, D.H., C.H. Ellis, and D.P. Mindell. 1991. Raptor Responses to Low-Level Jet Aircraft and Sonic Booms. *Environmental Pollution* 74:53-83.

Elmore County. 2004. Comprehensive Growth and Development Plan. Elmore County, ID. 7 April.

_____. 1995. Zoning and Development Ordinance. Elmore County, ID. 26 December.

Fidell, S., P. White, and M. Sneddon. 2003. Monitoring of Aircraft Noise in the Owyhee and Jarbidge MOAs. September.

Frampton, K.D., Lucas, M.J., and Cook, B. 1993. Modeling the Sonic Boom Noise Environment in Military Operating Areas. AIAA Paper 93-4432.

Grubb, T.G., and W.W. Bowerman. 1997. Variations in Breeding Bald Eagle Responses to Jets, Light Planes, and Helicopters. *Journal of Raptor Research*, Volume 31:213-222.

Hall, L.S., P.R. Krausman, and M.L. Morrison. 1997. The Habitat Concept and a Plea for Standard Terminology. *Wildlife Society Bulletin*. Volume 25, pages 173-182.

Idaho Department of Fish and Game (IDFG). 2006. County Distribution of Idaho's Special Status Vertebrates Web Page. Accessed 1 September. http://fishandgame.idaho.gov/cms/tech/CDC/animals/vertebrates_by_county.cfm.

Krausman, P.R., M.C. Wallace, C.L. Hayes, and D.W. DeYoung. 1998. Effects of Jet Aircraft on Mountain Sheep. *Journal of Wildlife Management*, Volume 62:1246-1254.

Krausman, P.R., M.C. Wallace, D.W. DeYoung, M.E. Weisenberger, and C.L. Hayes. 1993. The Effects of Low-Altitude Jets Aircraft on Desert Ungulates. International Congress: *Noise as a Public Health Problem*, Volume 6(3):471-478.

Lamp, R.E. 1989. Monitoring the Effect of Military Air Operations at Naval Air Station Fallon on the Biota of Nevada. Nevada Department of Wildlife.

Mountain Home AFB. 2006a. FY05 Economic Impact Statement. Mountain Home AFB, ID. 28 June.

_____. 2006b. General Plan. 366 CES/CECP. Mountain Home AFB, ID. August.

_____. 2006c. Wildlife Data Summary. Carl Rudeen. 366 CES Biologist. Mountain Home AFB. September.

_____. 2006d. Employment of the 2.75-Inch Rocket at Saylor Creek Air Force Range. Draft Environmental Assessment. May.

_____. 2006e. Mountain Home AFB FY 2006 Mishap and Event Tracking Log.

_____. 2006f. BRAC Realignment Categorical Exclusion, Mountain Home. May.

_____. 2005a. Air Emissions Inventory. 366 CES/CEVP. Mountain Home AFB, ID.

_____. 2005b. Mishap Response Plan. 366 Fighter Wing Plan 9101-05. Mountain Home AFB, ID. 1 December.

_____. 2005c. Water System Study. 366 CES/CEOEC. Mountain Home AFB, ID. October.

_____. 2003. Support Agreement Between 366th Fighter Wing, Mountain Home AFB, and the Department of Interior Bureau of Land Management Lower Snake River District.

Mountain Home School District (MHSD) 193. 2006. http:www//mtnhomesd.org. October.

National Register Information System (NRIS). 2000. National Register of Historic Places. http://www.nr.nps.gov.

Pacific Biodiversity Institute. 2006. Endangered Species Information Network. http://www.pacificbio.org/ESIN/Infopages/Idaholist.html. Accessed 3 October.

Smith, D.G., D.H. Ellis, and T.H. Johnson. 1988. Raptors and Aircraft *in* R.L. Glinski, B.Giron-Pendleton, M.B. Moss, M.N. LeFranc, Jr., B.A. Millsap, and S.W. Hoffman, eds. *Proceedings of the Southwest Raptor Management Symposium. National Wildlife Federation.* Washington, DC. Pp. 360-367.

Stephen, D.A. and S.H. Sturts. 1991. *Idaho Bird Distribution, Special Publication Number 11*. Idaho Department of Fish and Game, Boise, ID. August.

United States Air Force (Air Force). 2006a. Mountain Home Air Force Base Historic Building Inventory and Evaluations, Mountain Home Air Force Base, Elmore County, Idaho. Mountain Home AFB, Idaho.

_____. 2006b. Mountain Home Air Force Base Integrated Cultural Resource Management Plan.

_____. 2006c. Mountain Home Air Force Base Hazardous Waste Management Plan. 366th Fighter Wing Plan 3208-06. July.

_____. 2006d. Request for Environmental Impact Analysis. August.

_____. 2006e. Mountain Home AFB 2006 AICUZ Report. Headquarters Air Combat Command. Langley AFB, Virginia.

_____. 2004. Integrated Natural Resources Management Plan for Mountain Home, Small Arms Range, Saylor Creek Range, Juniper Butte Range, and Mountain Home Training Range Complex Sites. January.

_____. 2002. Final Mountain Home AFB Force Structure Change Environmental Assessment. May.

_____. 2001a. Air Force Manual 91-201. Explosives Safety Standards. 18 October.

_____. 2001b. Initial F-22 Operational Wing Beddown Environmental Impact Statement (EIS). Headquarters Air Combat Command. Langley AFB, Virginia. April.

_____. 1998a. Enhanced Training in Idaho. Environmental Impact Statement. Headquarters Air Combat Command. Langley AFB, Virginia.

_____. 1998b. Record of Decision. Enhanced Training in Idaho. Mountain Home AFB, Idaho. 10 March.

_____. 1997. Final Report. Environmental Effects of Self Protection Chaff and Flares.

_____. 1993. Draft Environmental Impact Statement, Draft Plan Amendment, Idaho Training Range. Langley AFB, VA. November.

_____. 1992. Final Environmental Impact Statement, Proposals for the Air Force in Idaho. Volumes I and II. Washington, DC. January.

United States Army Corps of Engineers (USACE). 1987. Wetlands Delineation Manual. Waterways Experiment Station Technical Report Y-87-1. Vicksburg, MS. January.

United States Census Bureau (USBS). 2006. American FactFinder.

United States Department of Agriculture (USDA). 2006. Natural Resources Conservation Service. http://soils.usda.gov/survey/ Accessed 4 October.

United States Environmental Protection Agency (USEPA). 2006. Criteria Air Pollutants – 2001 Area and Point Source Emissions for Elmore County. October. http://www.epa.gov/oar/data/emcatrep.html

USFWS Threatened and Endangered Species System. 2006. http://www.fws.gov/endangered/wildlife.html#Species. Accessed 3 October.

Weather Underground. 2006. Weather Station History, Mountain Home, ID. http://www.wunderground.com. Accessed 30 November.

Weisenberger, M.E., P.R. Krausman, M.C. Wallace, D.W. DeYoung, and O.E. Maughan. 1996. Effects of Simulated Jet Aircraft Noise on Heart Rate and Behavior of Desert Ungulates. *Journal of Wildlife Management*, Volume 60: 52-61.

Workman, G.W., T.D. Bunch, J.W. Call, R.C. Evans, L.S. Neilson, and E.M. Rawlings. 1992. Sonic Boom/Animal Disturbance Studies on Pronghorn Antelope, Rocky Mountain Elk, and Bighorn Sheep. Utah State University Foundation: Logan. Prepared for USAF, Hill AFB, UT.

Worldwide Bird-Aircraft Strike Hazard (BASH) Conference. 1990. Worldwide Bird-Aircraft Strike Hazard Conference Report. April 10-12. Little Rock, Arkansas.

CHAPTER 6

PERSONS AND AGENCIES CONTACTED

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Austin, John. HQ ACC/A7ZP. Langley AFB, VA. 2006.

Bailey, Rob. 366 CES/CEVP. Mountain Home AFB, ID. 2006.

Binder, Angelia. 366 CES/CEVA. Mountain Home AFB, ID. 2006.

Creasy, Del. HQ ACC/A5B. Langley AFB, VA. 2006.

Downen, Drew. 366 CES/CEVC. Mountain Home AFB, ID. 2006.

Dreier, MSgt Jeffery. 366 FW/SEF. Mountain Home AFB, ID. 2006.

Dugger, Pam. 366 FW/JA. Mountain Home AFB, ID. 2006.

Dunn, Mary. Chief, Housing Facilities. Mountain Home AFB, ID. 2006.

Dwire, Owen. RSAF Liaison, ACC/A3TS. Langley AFB, VA. 2006.

England, Major Joel. 366 FW/JA. Mountain Home AFB, ID. 2006.

Gibbs, Steve. 366 CES/CECO. Mountain Home AFB, ID. 2006.

Hedrick, Rich. 366 CES/CECP. Mountain Home AFB, ID. 2006.

Henderson, Bonnie. Mountain Home School District. Mountain Home, ID. 2006.

Kendall, Tom. 366 CES/CEVC. Mountain Home AFB, ID. 2006.

Mattoon-Bowden, Sheri. 366 CES/CEVA. Mountain Home AFB, ID. 2006.

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CHAPTER 7

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APPENDIX A

AIRCRAFT NOISE ANALYSIS

APPENDIX A
NOISE

Noise is generally described as unwanted sound. Unwanted sound can be based on objective effects (hearing loss or damage to structures) or subjective judgments (community annoyance). Noise analysis thus requires a combination of physical measurement of sound, physical and physiological effects, plus psycho- and socio-acoustic effects.

Section 1 of this appendix describes how sound is measured and summarizes noise impact in terms of community acceptability and land use compatibility. Section 2 presents detailed descriptions of the effects of noise that lead to the impact guidelines presented in Section 1. Section 3 provides a description of the specific methods used to predict aircraft noise.

1.0 NOISE DESCRIPTORS AND IMPACT

Aircraft operating in the restricted and MOA airspace generate two types of sound. One is "subsonic" noise, which is continuous sound generated by the aircraft's engines and also by air flowing over the aircraft itself. The other is sonic booms (only in those airspace units authorized for supersonic activity), which are transient impulsive sounds generated during supersonic flight. These are quantified in different ways.

Section 1.1 describes the quantities which are used to describe sound. Section 1.2 provides the specific noise metrics used for noise impact analysis. Section 1.3 describes how environmental impact and land use compatibility are judged in terms of these quantities.

1.1 Quantifying Sound

Measurement and perception of sound involves two basic physical characteristics: amplitude and frequency. Amplitude is a measure of the strength of the sound and is directly measured in terms of the pressure of a sound wave. Because sound pressure varies in time, various types of pressure averages are usually used. Frequency, commonly perceived as pitch, is the number of times per second the sound causes air molecules to oscillate. Frequency is measured in units of cycles per second, or hertz (Hz).

Amplitude

The loudest sounds the human ear can comfortably hear have acoustic energy one trillion times the acoustic energy of sounds the ear can barely detect. Because of this vast range, attempts to represent sound amplitude by pressure are generally unwieldy. Sound is, therefore, usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as a sound

level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Because of the logarithmic nature of the decibel scale, sounds levels do not add and subtract directly and are somewhat cumbersome to handle mathematically. However, some simple rules of thumb are useful in dealing with sound levels. First, if a sound's intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. For example: 60 dB + 60 dB = 63 dB and 80 dB + 80 dB = 83 dB. The total sound level produced by two sounds of different levels is usually only slightly more than the higher of the two. For example: 60.0 dB + 70.0 dB = 70.4 dB.

This addition is often referred to as "decibel addition" or "energy addition" because the addition of sound levels behaves differently than that of ordinary numbers. The latter term (energy addition) arises from the fact that combination of decibel values consists of first converting each decibel value to its corresponding acoustic energy, then adding the energies using the normal rules of addition, and finally converting the total energy back to its decibel equivalent.

The difference in dB between two sounds represents the ratio of the amplitudes of those two sounds. Because human senses tend to be proportional (i.e., detect whether one sound is twice as big as another) rather than absolute (i.e., detect whether one sound is a given number of pressure units bigger than another), the decibel scale correlates well with human response.

Under laboratory conditions, differences in sound level of 1 dB can be detected by the human ear. In the community, the smallest change in average noise level that can be detected is about 3 dB. A change in sound level of about 10 dB is usually perceived by the average person as a doubling (or halving) of the sound's loudness, and this relation holds true for loud sounds and for quieter sounds. A decrease in sound level of 10 dB actually represents a 90 percent decrease in sound *intensity* but only a 50 percent decrease in perceived *loudness* because of the nonlinear response of the human ear (similar to most human senses).

Frequency

The normal human ear can hear frequencies from about 20 Hz to about 20,000 Hz. It is most sensitive to sounds in the 1,000 to 4,000 Hz range. When measuring community response to noise, it is common to adjust the frequency content of the measured sound to correspond to the frequency sensitivity of the human ear. This adjustment is called A-weighting (American National Standards Institute [ANSI] 1988). Sound levels that have been so adjusted are referred to as A-weighted sound levels. The amplitude of A-weighted sound levels is measured in dB. It is common for some noise analysts to denote the unit of A-weighted sounds by dBA or dB(A). As long as the use of A-weighting is understood, there is no difference between dB, dBA or dB(A). It is only important that the use of A-weighting be made clear. In this study, sound levels are reported in dB and are A-weighted unless otherwise specified.

A-weighting is appropriate for continuous sounds, which are perceived by the ear. Impulsive sounds, such as sonic booms, are perceived by more than just the ear. When experienced indoors, there can be secondary noise from rattling of the building. Vibrations may also be felt. C-weighting (ANSI 1988) is applied to such sounds. This is a frequency weighting that is flat over the range of human hearing (about 20 Hz to 20,000 Hz) and rolls off above and below that range. In this study, C-weighted sound levels are used for the assessment of sonic booms. As with A-weighting, the unit is dB, but dBC or dB(C) are sometimes used. In this study, sound levels are reported in dB, and C-weighting is specified as necessary.

Time Averaging

Sound pressure of a continuous sound varies greatly with time, so it is customary to deal with sound levels that represent averages over time. Levels presented as instantaneous (i.e., as might be read from the dial of a sound level meter) are based on averages of sound energy over either 1/8 second (fast) or 1 second (slow). The formal definitions of fast and slow levels are somewhat complex, with details that are important to the makers and users of instrumentation. They may, however, be thought of as levels corresponding to the root-mean-square sound pressure measured over the 1/8-second or 1-second periods.

The most common uses of the fast or slow sound level in environmental analysis is in the discussion of the maximum sound level that occurs from the action, and in discussions of typical sound levels. Figure A-1 is a chart of A-weighted sound levels from typical sounds. Some (air conditioner, vacuum cleaner) are continuous sounds whose levels are constant for some time. Some (automobile, heavy truck) are the maximum sound during a vehicle passby. Some (urban daytime, urban nighttime) are averages over some extended period. A variety of noise metrics have been developed to describe noise over different time periods. These are described in Section 1.2.

1.2 Noise Metrics

Maximum Sound Level

The highest A-weighted sound level measured during a single event in which the sound level changes value as time goes on (e.g., an aircraft overflight) is called the maximum A-weighted sound level or maximum sound level, for short. It is usually abbreviated by ALM, L_{max}, or L_{Amax}. The maximum sound level is important in judging the interference caused by a noise event with conversation, television, or radio listening, sleeping, or other common activities.

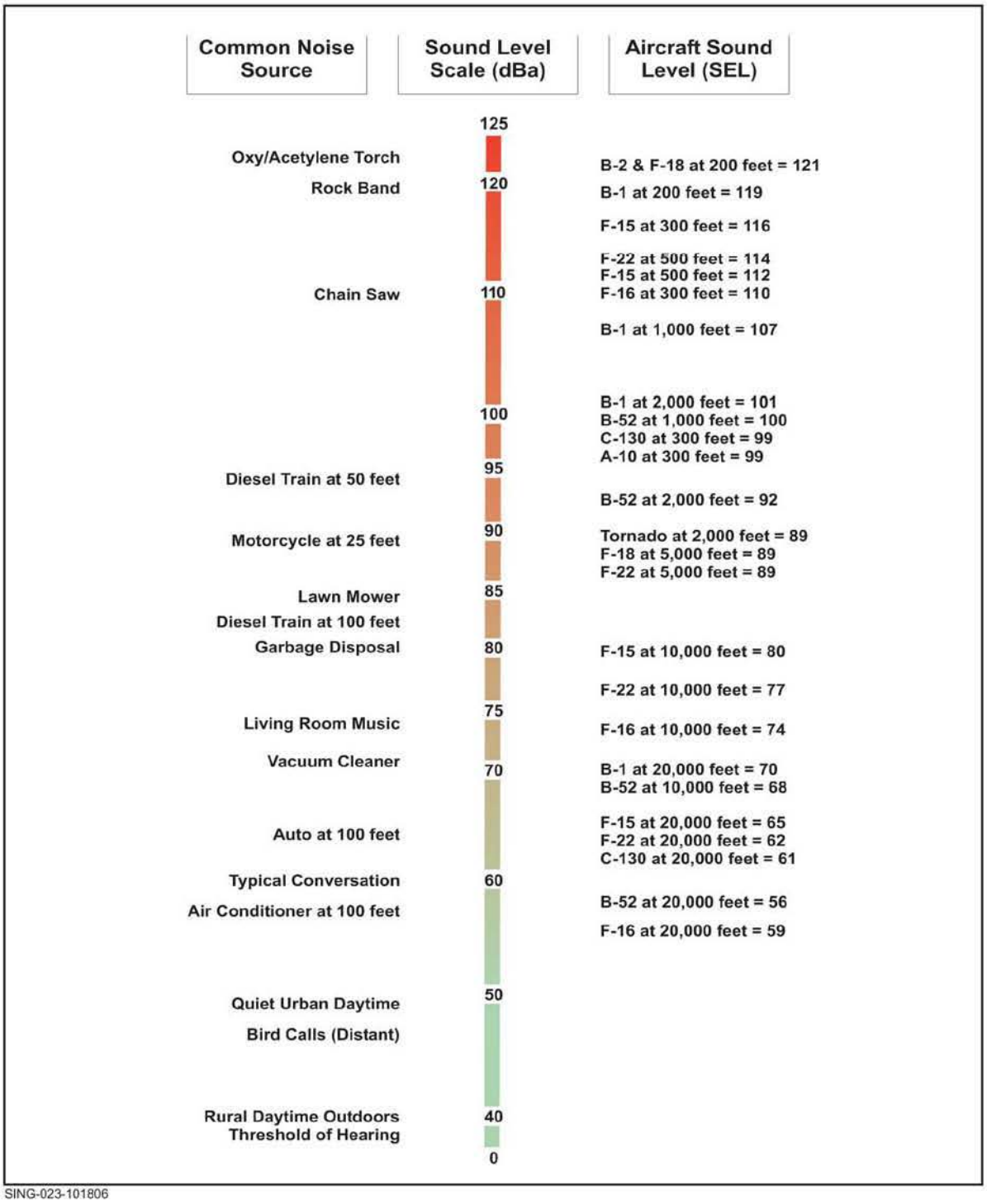

Figure A-1 Noise Appendix - Sound level Scale

Peak Sound Level

For impulsive sounds, the true instantaneous sound pressure is of interest. For sonic booms, this is the peak pressure of the shock wave, as described in Section 3.2 of this appendix. This pressure is usually presented in physical units of pounds per square foot. Sometimes it is represented on the decibel scale, with symbol L_{pk}. Peak sound levels do not use either A or C weighting.

Sound Exposure Level

Individual time-varying noise events have two main characteristics: a sound level that changes throughout the event and a period of time during which the event is heard. Although the maximum sound level, described above, provides some measure of the intrusiveness of the event, it alone does not completely describe the total event. The period of time during which the sound is heard is also significant. The Sound Exposure Level (abbreviated SEL or L_{AE} for A-weighted sounds) combines both of these characteristics into a single metric.

SEL is a composite metric that represents both the intensity of a sound and its duration. Mathematically, the mean square sound pressure is computed over the duration of the event, then multiplied by the duration in seconds, and the resultant product is turned into a sound level. It does not directly represent the sound level heard at any given time, but rather provides a measure of the net impact of the entire acoustic event. It has been well established in the scientific community that SEL measures this impact much more reliably than just the maximum sound level.

Because the SEL and the maximum sound level are both used to describe single events, there is sometimes confusion between the two, so the specific metric used should be clearly stated.
SEL can be computed for C-weighted levels (appropriate for impulsive sounds), and the results denoted CSEL or LCE. SEL for A-weighted sound is sometimes denoted ASEL. Within this study, SEL is used for A-weighted sounds and CSEL for C-weighted.

Equivalent Sound Level

For longer periods of time, total sound is represented by the equivalent continuous sound pressure level (L_{eq}). L_{eq} is the average sound level over some time period (often an hour or a day, but any explicit time span can be specified), with the averaging being done on the same energy basis as used for Sound Exposure Level (SEL). SEL and L_{eq} are closely related, differing by (a) whether they are applied over a specific time period or over an event, and (b) whether the duration of the event is included or divided out.

Just as SEL has proven to be a good measure of the noise impact of a single event, L_{eq} has been established to be a good measure of the impact of a series of events during a given time period. Also,

while L_{eq} is defined as an average, it is effectively a sum over that time period and is, thus, a measure of the cumulative impact of noise.

Day-Night Average Sound Level

Noise tends to be more intrusive at night than during the day. This effect is accounted for by applying a 10-dB penalty to events that occur after 10 pm and before 7 am. If L_{eq} is computed over a 24-hour period with this nighttime penalty applied, the result is the day-night average sound level (DNL or L_{dn}). DNL is the community noise metric recommended by the USEPA (USEPA 1972) and has been adopted by most federal agencies (FICON 1992). It has been well established that DNL correlates well with community response to noise (Schultz 1978; Finegold *et al.* 1994). This correlation is presented in Section 1.3 of the appendix.

While DNL carries the nomenclature "average," it incorporates all of the noise at a given location. For this reason, DNL is often referred to as a "cumulative" metric. It accounts for the total, or cumulative, noise impact.

It was noted earlier that, for impulsive sounds, C-weighting is more appropriate than A-weighting. The day-night average sound level can be computed for C-weighted noise and is denoted CDNL or L_{Cdn}. This procedure has been standardized, and impact interpretive criteria similar to those for DNL have been developed (CHABA 1981).

Onset-Adjusted Monthly Day-Night Average Sound Level

Aircraft operations in military airspace, such as restricted areas and MOAs, generate a noise environment somewhat different from other community noise environments. Overflights are sporadic, occurring at random times and varying from day to day and week to week. This situation differs from most community noise environments, in which noise tends to be continuous or patterned. Individual military overflight events also differ from typical community noise events in that noise from a low-altitude, high-airspeed flyover can have a rather sudden onset.

To represent these differences, the conventional DNL metric is adjusted to account for the "surprise" effect of the sudden onset of aircraft noise events on humans (Plotkin *et al.* 1987; Stusnick *et al.* 1992; Stusnick *et al.* 1993). For aircraft exhibiting a rate of increase in sound level (called onset rate) of from 15 to 150 dB per second, an adjustment or penalty ranging from 0 to 11 dB is added to the normal SEL. Onset rates above 150 dB per second require an 11 dB penalty, while onset rates below 15 dB per second require no adjustment. The DNL is then determined in the same manner as for conventional aircraft noise events and is designated as Onset-Rate Adjusted Day-Night Average Sound Level (abbreviated L_{dnmr}).

Because of the irregular occurrences of aircraft operations, the number of average daily operations is determined by using the calendar month with the highest number of operations. The monthly average is denoted L_{dnmr}.

1.3 Noise Impact

Community Reaction

Studies of community annoyance to numerous types of environmental noise show that DNL correlates well with impact. Schultz (1978) showed a consistent relationship between DNL and annoyance. Figure A-2 presents Shultz's original curve fit. This shows that there is a remarkable consistency in results of attitudinal surveys which relate the percentages of groups of people who express various degrees of annoyance when exposed to different DNLs.

A more recent study has reaffirmed this relationship (Fidell *et al.* 1991). Figure A-3 (FICON 1992) shows an updated form of the curve fit (Finegold *et al.* 1994) in comparison with the original. The updated fit, which does not differ substantially from the original, is the current preferred form. In general, correlation coefficients of 0.85 to 0.95 are found between the percentages of groups of people highly annoyed and the level of average noise exposure. The correlation coefficients for the annoyance of individuals are relatively low, however, on the order of 0.5 or less. This is not surprising, considering the varying personal factors that influence the manner in which individuals react to noise. Nevertheless, findings substantiate that community annoyance to aircraft noise is represented quite reliably using DNL.

As noted earlier for SEL, DNL does not represent the sound level heard at any particular time, but rather represents the total sound exposure. DNL accounts for the sound level of individual noise events, the duration of those events, and the number of events. Its use is endorsed by the scientific community (ANSI 1980; ANSI 1988; USEPA 1972; FICUN 1980; FICON 1992).

While DNL is the best metric for quantitatively assessing cumulative noise impact, it does not lend itself to intuitive interpretation by non-experts. Accordingly, it is common for environmental noise analyses to include other metrics for illustrative purposes. A general indication of the noise environment can be presented by noting the maximum sound levels which can occur and the number of times per day noise events will be loud enough to be heard. Use of other metrics as supplements to DNL has been endorsed by federal agencies (FICON 1992).

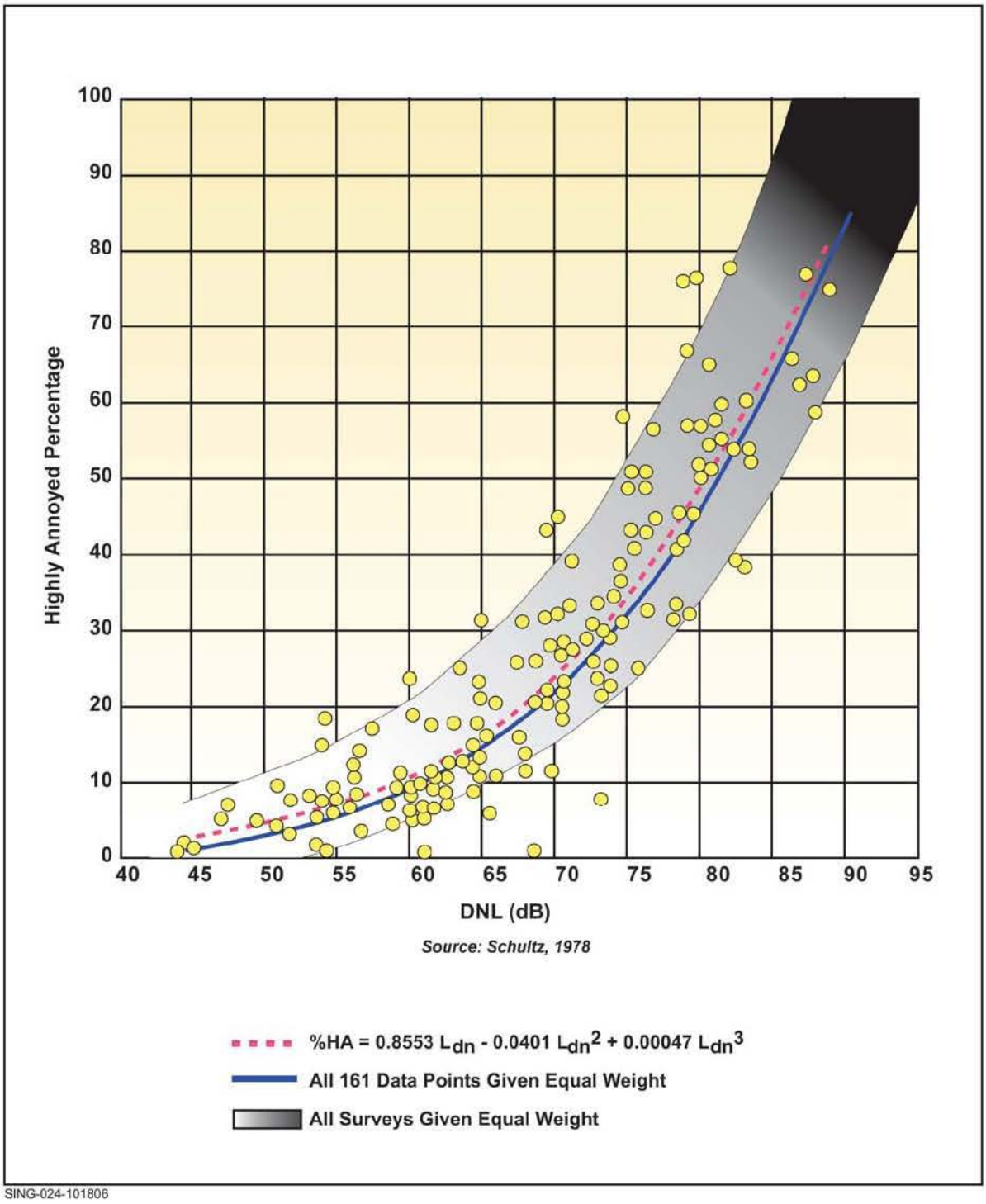

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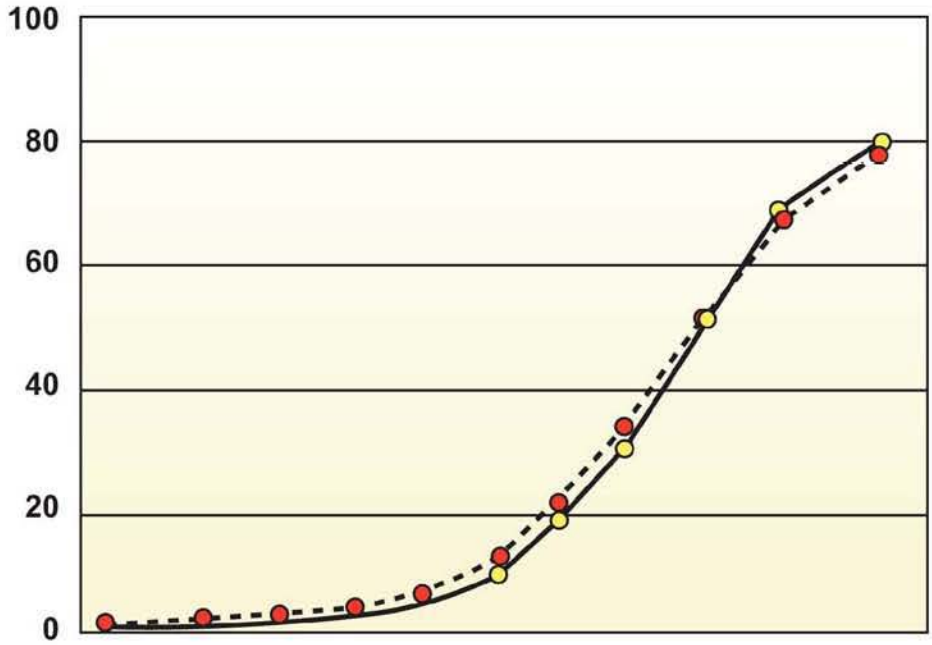
Figure A-2 Community Surveys of Noise Annoyance



Day-Night Average Sound Level in dB	40	45	50	55	60	65	70	75	80	85	90

Calculated % HA Points												
	FINEGOLD	0.41	0.83	1.66	3.31	6.48	12.3	22.1	36.5	53.7	70.2	82.6
	SCHULTZ	0.58	1.11	2.12	4.03	7.52	13.6	23.3	37.1	53.3	68.8	81

Finegold DATA 400 POINTS (Finegold *et al.* 1992)
%HA = 100/[1+EXP (11.13 - 0.141 LDN)]

SCHULTZ DATA 161 POINTS
%HA = 100/[1 + exp (10.43 - 0.132 LDN)]

HA = Highly Annoyed

SING-025-101806

Figure A-3 Day-Night Average Sound Level Chart

The Schultz curve is generally applied to annual average DNL. In Section 1.2, L_{dnmr} was described and presented as being appropriate for quantifying noise in military airspace. In the current study, the Schultz curve is used with L_{dnmr} as the noise metric. L_{dnmr} is always equal to or greater than DNL, so impact is generally higher than would have been predicted if the onset rate and busiest-month adjustments were not accounted for.

There are several points of interest in the noise-annoyance relation. The first is DNL of 65 dB. This is a level most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities like aviation which do cause noise. Areas exposed to DNL above 65 dB are generally not considered suitable for residential use. The second is DNL of 55 dB, which was identified by USEPA as a level below which there is effectively no adverse impact (USEPA 1972). The third is DNL of 75 dB. This is the lowest level at which adverse health effects could be credible (USEPA 1972). The very high annoyance levels make such areas unsuitable for residential land use.

Sonic boom exposure is measured by C-weighting, with the corresponding cumulative metric being CDNL. Correlation between CDNL and annoyance has been established, based on community reaction to impulsive sounds (CHABA 1981). Values of the C-weighted equivalent to the Schultz curve are different than that of the Schultz curve itself. Table A-1 shows the relation between annoyance, DNL, and CDNL.

Table A-1 Relation Between Annoyance, DNL, and CDNL

CDNL	*% Highly Annoyed*	*DNL*
48	2	50
52	4	55
57	8	60
61	14	65
65	23	70
69	35	75

Interpretation of CDNL from impulsive noise is accomplished by using the CDNL versus annoyance values in Table C-1. CDNL can be interpreted in terms of an “equivalent annoyance” DNL. For example, CDNL of 52, 61, and 69 dB are equivalent to DNL of 55, 65, and 75 dB, respectively. If both continuous and impulsive noise occurs in the same area, impacts are assessed separately for each.

Land Use Compatibility

As noted above, the inherent variability between individuals makes it impossible to predict accurately how any individual will react to a given noise event. Nevertheless, when a community is considered as a whole, its overall reaction to noise can be represented with a high degree of confidence. As described above, the best noise exposure metric for this correlation is the DNL or L_{dnmr} for military overflights.

Impulsive noise can be assessed by relating CDNL to an "equivalent annoyance" DNL, as outlined in section 1.3.1.

In June 1980, an ad hoc Federal Interagency Committee on Urban Noise (FICUN) published guidelines (FICUN 1980) relating DNL to compatible land uses. This committee was composed of representatives from Department of Defense, Transportation, and Housing and Urban Development; USEPA; and the Veterans Administration. Since the issuance of these guidelines, federal agencies have generally adopted these guidelines for their noise analyses.

Following the lead of the committee, Department of Defense and FAA adopted the concept of land-use compatibility as the accepted measure of aircraft noise effect. The FAA included the committee's guidelines in the Federal Aviation Regulations (USDOT 1984). These guidelines are reprinted in Table A-2, along with the explanatory notes included in the regulation. Although these guidelines are not mandatory (note the footnote "*" in the table), they provide the best means for determining noise impact in airport communities. In general, residential land uses normally are not compatible with outdoor DNL values above 65 dB, and the extent of land areas and populations exposed to DNL of 65 dB and higher provides the best means for assessing the noise impacts of alternative aircraft actions. In some cases, where noise change exceeds 3 dB, the 1992 FICON indicates the 60 dB DNL may be a more appropriate incompatibility level for densely populated areas.

2.0 NOISE EFFECTS

The discussion in Section 1.3 presents the global effect of noise on communities. The following sections describe particular noise effects.

2.1 Hearing Loss

Noise-induced hearing loss is probably the best defined of the potential effects of human exposure to excessive noise. Federal workplace standards for protection from hearing loss allow a time-average level of 90 dB over an 8-hour work period, or 85 dB averaged over a 16-hour period. Even the most protective criterion (no measurable hearing loss for the most sensitive portion of the population at the ear's most sensitive frequency, 4,000 Hz, after a 40-year exposure) suggests a time-average sound level of 70 dB over a 24-hour period (USEPA 1972). Since it is unlikely that airport neighbors will remain outside their homes 24 hours per day for extended periods of time, there is little possibility of hearing loss below a DNL of 75 dB, and this level is extremely conservative.

Table A-2 Land-Use Compatibility With Yearly Day-Night Average Sound Levels

Land Use	*Yearly Day-Night Average Sound Level (DNL) in Decibels*					
	Below 65	*65–70*	*70–75*	*75–80*	*80–85*	*Over 85*
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	**N**	**N**
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoria, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware, and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Numbers in parentheses refer to notes.

* The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under federal, state, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses.

KEY TO TABLE D-2

SLUCM = Standard Land-Use Coding Manual.
Y (YES) = Land Use and related structures compatible without restrictions.
N (No) = Land Use and related structures are not compatible and should be prohibited.
NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35 = Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structures.

NOTES FOR TABLE D-2

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor-to-indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide an NLR of 20 dB; thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
(3) Measures to achieve NLR 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
(5) Land-use compatible provided special sound reinforcement systems are installed.
(6) Residential buildings require an NLR of 25.
(7) Residential buildings require an NLR of 30.
(8) Residential buildings not permitted.

2.2 Nonauditory Health Effects

Nonauditory health effects of long-term noise exposure, where noise may act as a risk factor, have not been found to occur at levels below those protective against noise-induced hearing loss, described above. Most studies attempting to clarify such health effects have found that noise exposure levels established for hearing protection will also protect against any potential nonauditory health effects, at least in workplace conditions. The best scientific summary of these findings is contained in the lead paper at the National Institutes of Health Conference on Noise and Hearing Loss, held on January 22 through 24, 1990 in Washington, D.C., which states the following: "The nonauditory effects of chronic noise exposure, when noise is suspected to act as one of the risk factors in the development of hypertension, cardiovascular disease, and other nervous disorders, have never been proven to occur as chronic manifestations at levels below these criteria (an average of 75 dBA for complete protection against hearing loss for an eight-hour day). At the International Congress (1988) on Noise as a Public Health Problem, most studies attempting to clarify such health effects did not find them at levels below the criteria protective of noise-induced hearing loss, and even above these criteria, results regarding such health effects were ambiguous. Consequently, it can be concluded that establishing and enforcing exposure levels protecting against noise-induced hearing loss would not only solve the noise-induced hearing loss problem but also any potential nonauditory health effects in the work place (von Gierke 1990; parenthetical wording added for clarification).

Although these findings were directed specifically at noise effects in the work place, they are equally applicable to aircraft noise effects in the community environment. Research studies regarding the nonauditory health effects of aircraft noise are ambiguous, at best, and often contradictory. Yet, even those studies which purport to find such health effects use time-average noise levels of 75 dB and higher for their research.

For example, in an often-quoted paper, two University of California at Los Angeles (UCLA) researchers found a relation between aircraft noise levels under the approach path to Los Angeles International Airport (LAX) and increased mortality rates among the exposed residents by using an average noise exposure level greater than 75 dB for the "noise-exposed" population (Meecham and Shaw 1979). Nevertheless, three other UCLA professors analyzed those same data and found no relation between noise exposure and mortality rates (Frerichs *et al*. 1980).

As a second example, two other UCLA researchers used this same population near LAX to show a higher rate of birth defects during the period of 1970 to 1972 when compared with a control group residing away from the airport (Jones and Tauscher 1978). Based on this report, a separate group at the United States Centers for Disease Control performed a more thorough study of populations near Atlanta's Hartsfield International Airport for 1970 to 1972 and found no relation in their study of 17 identified categories of birth defects to aircraft noise levels above 65 dB (Edmonds 1979).

A review of health effects, prepared by a Committee of the Health Council of The Netherlands (CHCN 1996), analyzed currently available published information on this topic. The committee concluded that the threshold for possible long-term health effects was a 16-hour (6:00 am to 10:00 pm) L_{eq} of 70 dB. Projecting this to 24 hours and applying the 10 dB nighttime penalty used with DNL, this corresponds to DNL of about 75 dB. The study also affirmed the risk threshold for hearing loss, as discussed earlier.

In summary, there is no scientific basis for a claim that potential health effects exist for aircraft time-average sound levels below 75 dB.

2.3 Annoyance

The primary effect of aircraft noise on exposed communities is one of annoyance. Noise annoyance is defined by the USEPA as any negative subjective reaction on the part of an individual or group (USEPA 1972). As noted in the discussion of DNL above, community annoyance is best measured by that metric.

Because the USEPA Levels Document (USEPA 1972) identified DNL of 55 dB as ". . . requisite to protect public health and welfare with an adequate margin of safety," it is commonly assumed that 55 dB should be adopted as a criterion for community noise analysis. From a noise exposure perspective, that would be an ideal selection. However, financial and technical resources are generally not available to achieve that goal. Most agencies have identified DNL of 65 dB as a criterion which protects those most impacted by noise, and which can often be achieved on a practical basis (FICON 1992). This corresponds to about 13 percent of the exposed population being highly annoyed. Although DNL of 65 dB is widely used as a benchmark for significant noise impact, and is often an acceptable compromise, it is not a statutory limit, and it is appropriate to consider other thresholds in particular cases.

In this Draft EA, no specific threshold is used. The noise in the affected environment is evaluated on the basis of the information presented in this appendix and in the body of the Draft EA. Community annoyance from sonic booms is based on CDNL, as discussed in Section 1.3. These effects are implicitly included in the "equivalent annoyance" CDNL values in Table C-1, since those were developed from actual community noise impact.

2.4 Speech Interference

Speech interference associated with aircraft noise is a primary cause of annoyance to individuals on the ground. The disruption of routine activities in the home, such as radio or television listening, telephone use, or family conversation, gives rise to frustration and irritation. The quality of speech communication is also important in classrooms, offices, and industrial settings and can cause fatigue and vocal strain in those who attempt to communicate over the noise. Research has shown that the use of the SEL metric

will measure speech interference successfully, and that a SEL exceeding 65 dB will begin to interfere with speech communication.

2.5 Sleep Interference

Sleep interference is another source of annoyance associated with aircraft noise. This is especially true because of the intermittent nature and content of aircraft noise, which is more disturbing than continuous noise of equal energy and neutral meaning. Sleep interference may be measured in either of two ways. "Arousal" represents actual awakening from sleep, while a change in "sleep stage" represents a shift from one of four sleep stages to another stage of lighter sleep without actual awakening. In general, arousal requires a somewhat higher noise level than does a change in sleep stage.

An analysis sponsored by the Air Force summarized 21 published studies concerning the effects of noise on sleep (Pearsons *et al*. 1989). The analysis concluded that a lack of reliable in-home studies, combined with large differences among the results from the various laboratory studies, did not permit development of an acceptably accurate assessment procedure. The noise events used in the laboratory studies and in contrived in-home studies were presented at much higher rates of occurrence than would normally be experienced. None of the laboratory studies were of sufficiently long duration to determine any effects of habituation, such as that which would occur under normal community conditions. A recent extensive study of sleep interference in people's own homes (Ollerhead 1992) showed very little disturbance from aircraft noise.

There is some controversy associated with the recent studies, so a conservative approach should be taken in judging sleep interference. Based on older data, the USEPA identified an indoor DNL of 45 dB as necessary to protect against sleep interference (USEPA 1972). Assuming a very conservative structural noise insulation of 20 dB for typical dwelling units, this corresponds to an outdoor DNL of 65 dB as minimizing sleep interference.

A 1984 publication reviewed the probability of arousal or behavioral awakening in terms of SEL (Kryter 1984). Figure A-4, extracted from Figure 10.37 of Kryter (1984), indicates that an indoor SEL of 65 dB or lower should awaken less than 5 percent of those exposed. These results do not include any habituation over time by sleeping subjects. Nevertheless, this provides a reasonable guideline for assessing sleep interference and corresponds to similar guidance for speech interference, as noted above.

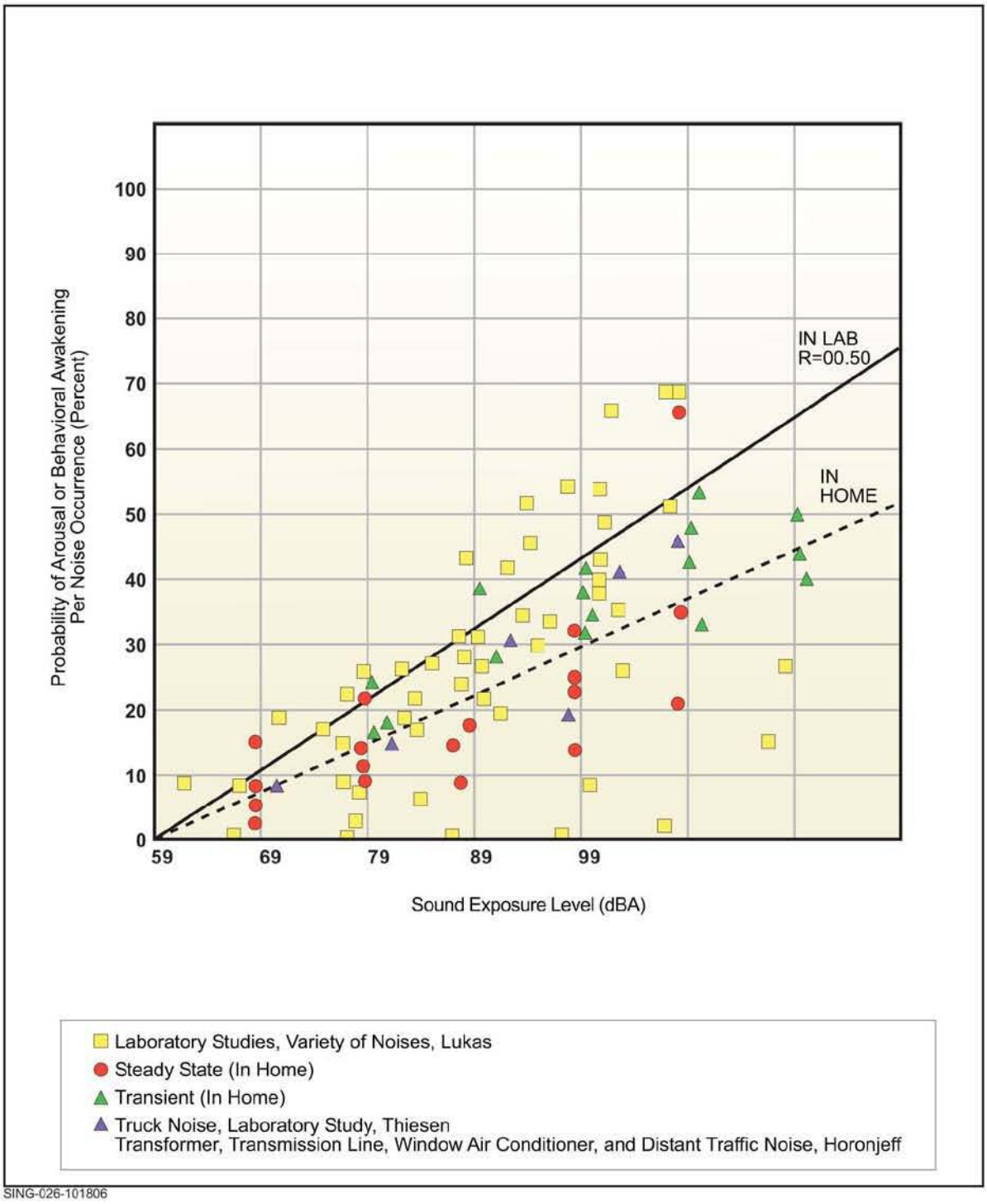


Figure A-4 Probability of Arousal or Behavioral Awakening in Terms of Sound Exposure Level

2.6 Noise Effects on Domestic Animals and Wildlife

Animal species differ greatly in their responses to noise. Each species has adapted, physically and behaviorally, to fill its ecological role in nature, and its hearing ability usually reflects that role. Animals rely on their hearing to avoid predators, obtain food, and communicate with and attract other members of their species. Aircraft noise may mask or interfere with these functions. Secondary effects may include nonauditory effects similar to those exhibited by humans: stress, hypertension, and other nervous disorders. Tertiary effects may include interference with mating and resultant population declines.

2.7 Noise Effects on Structures

Subsonic Aircraft Noise

Normally, the most sensitive components of a structure to airborne noise are the windows and, infrequently, the plastered walls and ceilings. An evaluation of the peak sound pressures impinging on the structure is normally sufficient to determine the possibility of damage. In general, at sound levels above 130 dB, there is the possibility of the excitation of structural component resonance. While certain frequencies (such as 30 Hz for window breakage) may be of more concern than other frequencies, conservatively, only sounds lasting more than one second above a sound level of 130 dB are potentially damaging to structural components (NRC NAS 1977).

A recent study, directed specifically at low-altitude, high-speed aircraft showed that there is little probability of structural damage from such operations (Sutherland 1989). One finding in that study is that sound levels at damaging frequencies (e.g., 30 Hz for window breakage or 15 to 25 Hz for whole-house response) are rarely above 130 dB.

Noise-induced structural vibration may also cause annoyance to dwelling occupants because of induced secondary vibrations, or “rattle,” of objects within the dwelling, such as hanging pictures, dishes, plaques, and bric-a-brac. Window panes may also vibrate noticeably when exposed to high levels of airborne noise, causing homeowners to fear breakage. In general, such noise-induced vibrations occur at sound levels above those considered normally incompatible with residential land use. Thus assessments of noise exposure levels for compatible land use should also be protective of noise-induced secondary vibrations.

Sonic Booms

Sonic booms are commonly associated with structural damage. Most damage claims are for brittle objects, such as glass and plaster. Table A-3 summarizes the threshold of damage that might be expected at various overpressures. There is a large degree of variability in damage experience, and much damage

depends on the pre-existing condition of a structure. Breakage data for glass, for example, spans a range of two to three orders of magnitude at a given overpressure. While glass can suffer damage at low overpressures, as shown in Table A-3, laboratory tests of glass (White 1972) have shown that properly installed window glass will not break at overpressures below 10 pounds per square foot (psf), even when subjected to repeated booms. In general, structural damage from sonic booms should be expected only for overpressures above 10 psf.

Table A-3 Possible Damage to Structures From Sonic Booms

Sonic Boom Overpressure Nominal (psf)	***Type of Damage***	***Item Affected***
0.5 - 2	Plaster	Fine cracks; extension of existing cracks; more in ceilings; over door frames; between some plaster boards.
	Glass	Rarely shattered; either partial or extension of existing.
	Roof	Slippage of existing loose tiles/slates; sometimes new cracking of old slates at nail hole.
	Damage to outside walls	Existing cracks in stucco extended.
	Bric-a-brac	Those carefully balanced or on edges can fall; fine glass, such as large goblets, can fall and break.
	Other	Dust falls in chimneys.
2 - 4	Glass, plaster, roofs, ceilings	Failures show that would have been difficult to forecast in terms of their existing localized condition. Nominally in good condition.
4 - 10	Glass	Regular failures within a population of well-installed glass; industrial as well as domestic greenhouses.
	Plaster	Partial ceiling collapse of good plaster; complete collapse of very new, incompletely cured, or very old plaster.
	Roofs	High probability rate of failure in nominally good state, slurry-wash; some chance of failures in tiles on modern roofs; light roofs (bungalow) or large area can move bodily.
	Walls (out)	Old, free standing, in fairly good condition can collapse.
	Walls (in)	Inside ("party") walls known to move at 10 psf.
Greater than 10	Glass	Some good glass will fail regularly to sonic booms from the same direction. Glass with existing faults could shatter and fly. Large window frames move.
	Plaster	Most plaster affected.
	Ceilings	Plaster boards displaced by nail popping.
	Roofs	Most slate/slurry roofs affected, some badly; large roofs having good tile can be affected; some roofs bodily displaced causing gale-end and will-plate cracks; domestic chimneys dislodged if not in good condition.
	Walls	Internal party walls can move even if carrying fittings such as hand basins or taps; secondary damage due to water leakage.
	Bric-a-brac	Some nominally secure items can fall; e.g., large pictures, especially if fixed to party walls.

Source: Haber and Nakaki 1989

2.8 Noise Effects on Terrain

Members of the public often believe that noise from low-flying aircraft can cause avalanches or landslides by disturbing fragile soil or snow structures in mountainous areas. There are no known instances of such effects, and it is considered improbable that such effects will result from routine, subsonic aircraft operations.

2.9 Noise Effects on Historical and Archaeological Sites

Because of the potential for increased fragility of structural components of historical buildings and other historical sites, aircraft noise may affect such sites more severely than newer, modern structures. Again, there are few scientific studies of such effects to provide guidance for their assessment.

One study involved the measurements of sound levels and structural vibration levels in a superbly restored plantation house, originally built in 1795, and now situated approximately 1,500 feet from the centerline at the departure end of Runway 19L at Washington Dulles International Airport. These measurements were made in connection with the proposed scheduled operation of the supersonic Concorde airplane at Dulles (Wesler 1977). There was special concern for the building's windows, since roughly half of the 324 panes were original. No instances of structural damage were found. Interestingly, despite the high levels of noise during Concorde takeoffs, the induced structural vibration levels were actually less than those induced by touring groups and vacuum cleaning within the building itself.

As noted above for the noise effects of noise-induced vibrations of normal structures, assessments of noise exposure levels for normally compatible land uses should also be protective of historic and archaeological sites.

3.0 NOISE MODELING

3.1 Subsonic Aircraft Noise

An aircraft in subsonic flight generally emits noise from two sources: the engines and flow noise around the airframe. Noise generation mechanisms are complex and, in practical models, the noise sources must be based on measured data. The Air Force has developed a series of computer models and aircraft noise databases for this purpose. The models include NOISEMAP (Moulton 1992) for noise around airbases, ROUTEMAP (Lucas and Plotkin 1988) for noise associated with low-level training routes, and MR_NMAP (Lucas and Calamia 1996) for use in MOAs and ranges. These models use the NOISEFILE database developed by the Air Force. NOISEFILE data includes SEL and LA_{max} as a function of speed and power setting for aircraft in straight flight.

Noise from an individual aircraft is a time-varying continuous sound. It is first audible as the aircraft approaches, increases to a maximum when the aircraft is near its closest point, then diminishes as it departs. The noise depends on the speed and power setting of the aircraft and its trajectory. The models noted above divide the trajectory into segments whose noise can be computed from the data in NOISEFILE. The contributions from these segments are summed.

MR_NMAP was used to compute noise levels in the MOAs and Warning Areas. The primary noise metric computed by MR_NMAP was L_{dnmr} averaged over each airspace. Supporting routines from NOISEMAP were used to calculate SEL and L_{Amax} for various flight altitudes and lateral offsets from a ground receiver position.

3.2 Sonic Booms

When an aircraft moves through the air, it pushes the air out of its way. At subsonic speeds, the displaced air forms a pressure wave that disperses rapidly. At supersonic speeds, the aircraft is moving too quickly for the wave to disperse, so it remains as a coherent wave. This wave is a sonic boom. When heard at the ground, a sonic boom consists of two shock waves (one associated with the forward part of the aircraft, the other with the rear part) of approximately equal strength and (for fighter aircraft) separated by 100 to 200 milliseconds. When plotted, this pair of shock waves and the expanding flow between them has the appearance of a capital letter “N,” so a sonic boom pressure wave is usually called an “N-wave.”

The ground pattern of a sonic boom depends on the size, shape, speed, and trajectory of the aircraft. The Air Force’s PCBoom3 computer program (Plotkin 1996) can be used to compute sonic boom for a given single event. Supersonic operations for the proposed action and alternative are associated with air combat training, however, which can best be described statistically. Accordingly, cumulative sonic boom impact (CDNL) was computed using the Air Force’s BOOMAP model (Frampton *et al*. 1993). This is based on measurements of sonic booms, together with analysis of tracking data, for major field studies. BOOMAP provides CDNL in a supersonic air combat arena, plus the average number of booms per day that would be heard at any given location.

4.0 EVOLUTION OF THE AICUZ PROGRAM

The military services, particularly the Air Force, have been advocates of noise planning for a long time. Many aspects of the noise program presently used for civilian airports have their roots in the Air Force’s experiences. As early as 1957, the Air Force began establishing procedures for estimating noise exposure and gauging community reaction to aircraft operations. By 1964, the Air Force was working on the relationship between land use planning and aircraft noise. Even at that early time, the Air Force

recognized the need to address noise from a land use planning perspective. The Air Force's major concern is the threat posed to the flying mission at an installation as a result of incompatible development.

The late 1960s and early 1970s marked the beginning of the environmental movement. Emphasis on incorporating environmental concerns into the planning process was of major concern to the U.S. Government. Notable events included Air Force research on sonic boom exposure in the 1960s, FAA civilian aircraft certification in 1969, the National Environmental Policy Act in 1969, and the Noise Control Act in 1972. These efforts only increased the awareness of the military on noise planning issues and provided the basis for institutionalizing its programs.

In 1971, the Greenbelt concept was initiated by the Air Force to address the growing problem of incompatible development around airfields (encroachment). The idea behind "Greenbelt" was to establish a buffer zone around the installation through the purchase of property. For obvious budgetary considerations, this concept proved to be economically infeasible.

4.1 Noise Description

The AICUZ study was first implemented by the Air Force in 1973. The Air Force adopted the NOISEMAP computer program to describe noise impacts created by aircraft operations. NOISEMAP is one of two EPA-approved programs, the other being the Integrated Noise Model (INM), used by the FAA for civilian airports. The Air Force continues to improve the NOISEMAP program.

The next significant event in the development of the military noise program was the 1974 EPA designation of the noise descriptor "DNL," or Day-Night Average Sound Level. In that year, the EPA Administrator, under authority in the Noise Control Act of 1972, recommended federal agencies adopt the DNL noise descriptor system. The Air Force and EPA agreed upon an implementation procedure by which all future AICUZ studies would be prepared in DNL.

The development of DNL was an important milestone in the AICUZ program. It provides a single descriptor for the noise level. This reduced confusion, increased credibility, and allowed for comparative research efforts on the effects of noise.

4.2 Height Restrictions

Another aspect of the AICUZ program, which is paralleled in the civilian community, is the height obstruction criteria. U.S. standard instrument approach and departure procedures (Joint Air Force, Navy, Army, and FAA Criteria Handbook – AFM 55-9) prescribe flight path area and vertical clearances from terrain and manmade obstructions. The restrictions limit the height of buildings and other structures in

the vicinity of the airfield to ensure the safety of pilots, aircraft and individuals and structures on the ground. AFJM 32-8008 provides more details on the height restriction criteria.

4.3 Accident Potential Zones

Accident Potential Zones (APZs) are one aspect of the AICUZ program where military application differs from civilian airfields. In 1973 the Air Force conducted their first study of aircraft accidents in conjunction with the AICUZ program. The 1973 study examined 369 major accidents that happened between 1968 and 1972. These consisted of all the Class A aircraft accidents (accidents that resulted in either $1 million dollars worth of damage or loss of life) which occurred within 10 nautical miles of the runway. Based on a statistical analysis of the locations of these accidents the Air Force developed APZs where relatively high concentrations of aircraft accidents occurred. These APZs include Clear Zones (CZs), where the majority of accidents occurred, APZ I where 8 percent occurred, and APZ II, where 5 percent occurred.

The Air Force collected additional aircraft accident data and published the cumulative results of 838 accidents occurring between 1968 and 1995 in AFH 32-7084, AICUZ Program Manager's Guide, Appendix B, page 99, Figure B-3.

In 1999 the Air Force conducted an entirely new study of major aircraft accidents taking advantage of more accurate geo-referenced data on the locations of the accidents. The study covered the period of 1984 to 1998 since that was the time period for which the geo-referenced information was available. To ensure consistency with the original study, the 1999 study duplicated the types of analyses that were conducted on accident data in the original 1973 study.

The study found that the numbers of accidents had significantly decreased. During the time period of the original accident study the total annual accidents ranged from 311 to 163 per year. By comparison the annual accidents ranged from 62 to 24 per year during the 1999 study period.

The study also determined that the spatial distribution of the accidents relative to the runway remained essentially the same as in the original 1973 accident analysis. These results supported a decision to maintain the current size and location of the three accident potential zones.

The Air Force has spent approximately $65 million to acquire real property interests within the clear zones. The percentages of accidents within the two APZs are such that while purchase is not necessary, some type of land use control is essential. The Air Force recommendation is to limit the number of people exposed through selective land use planning.

4.4 Land Use Guidelines

Most complaints are related to noise generated by aircraft operations. Noise around an airport is a fact of life, however, as aircraft operations increase the noise exposure increases and complaints increase with demands for noise reductions. In most cases, noise reduction is accomplished by restricting airfield or aircraft operations.

The Federal Interagency Committee on Noise (FICON), published "Guidelines for Considering Noise in Land Use Planning and Control" in June 1980. The committee, now called FICAN (Federal Interagency Committee on Aircraft Noise) is made up of representatives from federal departments that include Transportation, Defense, Environmental Protection Agency, Veterans Administration, and Housing and Urban Development. The purpose of these guidelines is to encourage the best land use, consistent with community planning objectives, while minimizing exposure to excessive noise levels.

4.5 Noise Reduction Efforts

Military and civilian noise planning efforts have benefited from mutual interest and efforts. One area is research and development. Developing quieter engines for the KC-135, for example, came about through commercial efforts to reduce fuel costs and noise impacts of the Boeing 707. Other efforts have gone into developing engine test facilities, or hush houses, where engines can run at full power with dramatically reduced noise effects to the surrounding environment. Noise abatement procedures are also practiced in Air Force flight scheduling and aircraft operating procedures. Modification to flight tracks, imposition of quiet hours, and use of preferential runways are all techniques used by both the military and civilian airfields to reduce noise. At most installations, Air Force noise reduction efforts have been used to their maximum degree, and land use planning and controls are the answer for further protection of the community.

4.6 Conclusion

In summary, the difference between noise concerns for the military and the civilian sector continue to become less. The exchange of technical noise information and assistance is needed to address and solve similar problems. Requests from the civilian side to jointly use military airfields are increasing. The Air Force presently has several joint use airfields. Air National Guard and Air Force Reserve units operate from several major airports in the country. There are also large scale joint service operations that include activities at civilian airports. Therefore, both civilian and military airfield operators need to understand each other's mission requirements and their implication with regard to noise and land use planning.

The overall goal of the Air Force AICUZ program is to reduce people's exposure to high levels of aircraft noise and accident potential through compatible land use controls adopted by the local communities. To

this end, the Air Force initiated a program to assist local communities in implementing AICUZ recommendations. This program is called the Joint Land Use Study (JLUS) program. Meanwhile, the Air Force must continue to provide the public with current information which will assist them in making prudent land use decisions and mutually work together to resolve the problems of growth and encroachment. Attachment 5 provides a list of policy letters and guidance's that apply to AICUZ program.

REFERENCES

American National Standards Institute (ANSI). 1980. Sound Level Descriptors for Determination of Compatible Land Use. American National Standards Institute Standard ANSI S3.231980.

ANSI. 1988. Quantities and Procedures for Description and Measurement of Environmental Sound, Part 1. American National Standards Institute Standard ANSI S12.9-1988.

CHABA. 1981. Assessment of Community Noise Response to High-Energy Impulsive Sounds. Report of Working Group 84, Committee on Hearing, Bioacoustics and Biomechanics, Assembly of Behavioral and Social Sciences. National Research Council, National Academy of Sciences. Washington, DC.

Committee of the Health Council of the Netherlands (CHCN). 1996. Effects of Noise on Health. Noise/News International 4. September.

Edmonds, L.D., *et al.* 1979. *Airport Noise and Teratogenesis*. Archives of Environmental Health, 243 247. July/August.

Federal Interagency Committee on Noise (FICON). 1992. Federal Agency Review of Selected Airport Noise Analysis Issues. Federal Interagency Committee on Noise. August.

Federal Interagency Committee on Urban Noise (FICUN). 1980. Guidelines for Considering Noise in Land-Use Planning and Control. Federal Interagency Committee on Urban Noise. June.

Fidell, S., Barger, D.S., and Schultz, T.J. 1991. Updating a Dosage-Effect Relationship for the Prevalence of Annoyance Due to General Transportation Noise. *J. Acoust. Soc. Am.*, 89, 221 233. January.

Finegold, L.S., C.S. Harris, and H.E. von Gierke. 1994. Community Annoyance and Sleep Disturbance: Updated Criteria for Assessing the Impacts of General Transportation Noise on People. In *Noise Control Engineering Journal*, Volume 42, Number 1. pp. 25-30. January-February.

Frampton, K.D., Lucas, M.J., and Cook, B. 1993. Modeling the Sonic Boom Noise Environment in Military Operating Areas. AIAA Paper 93-4432.

Frerichs, R.R., *et al.* 1980. Los Angeles Airport Noise and Mortality: Faulty Analysis and Public Policy. *Am. J. Public Health*, 357-362. April.

Haber, J. and D. Nakaki. 1989. Sonic Boom Damage to Conventional Structures. HSD-TR-89 01. April.

Jones, F.N., and Tauscher, J. 1978. Residence Under an Airport Landing Pattern as a Factor in Teratism. *Archives of Environmental Health*, 10-12. January/February.

Kryter, K.D. 1984. Physiological, Psychological, and Social Effects of Noise. *NASA Reference Publication* 1115, 446. July.

Lucas, M.J. and P.T. Calamia. 1996. Military Operations Area and Range Noise Model: NRNMAP User's Manual. Final. Wright-Patterson AFB, Ohio: AAMRL. A1/OE-MN-1996-0001.

Lucas, M.J. and K. Plotkin, 1988. ROUTEMAP Model for Predicting Noise Exposure From Aircraft Operations on Military Training Routes. Final, Wright-Patterson AFB, Ohio. AAMRL. AAMRL-TR-88-060.

Meacham, W.C., and Shaw, N. 1979. Effects of Jet Noise on Mortality Rates. *British J. Audiology*, 77-80. August.

Moulton, C.L. 1992. Air Force Procedure for Predicting Noise Around Airbases: Noise Exposure Model (NOISEMAP). Technical Report AL-TR-1992-59.

National Research Council/National Academy of Sciences (NRC/NAS). 1977. Guidelines for Preparing Environmental Impact Statements on Noise. Committee on Hearing, Bioacoustics, and Biomechanics.

Ollerhead, J.B., *et al*. 1992. Report of a Field Study of Aircraft Noise and Sleep Disturbance. The Department of Transport, Department of Safety Environment and Engineering. Civil Aviation Authority, London. December.

Pearsons, K.S., Barber, D.S., and Tabachick, B.G. 1989. Analyses of the Predictability of Noise-Induced Sleep Disturbance. USAF Report HSD-TR-89-029. October.

Plotkin, K.J., 1996. PCBoom3 Sonic Boom Prediction Model: Version 1.0c. Wyle Research Report WR 95-22C. May.

Plotkin, K.J., Sutherland, L.C., and Molino, J.A. 1987. Environmental Noise Assessment for Military Aircraft Training Routes, Volume II: Recommended Noise Metric. Wyle Research Report WR 86-21. January.

Schultz, T.J. 1978. Synthesis of Social Surveys on Noise Annoyance. *J. Acoust. Soc. Am*., 64, 377 405. August.

Stusnick, E., D.A. Bradley, M.A. Bossi, and D.G. Rickert. 1993. The Effect of Onset Rate on Aircraft Noise Annoyance. Volume 3: Hybrid Own-Home Experiment. Wyle Laboratories Research Report WR 93-22. December.

Stusnick, E., D.A. Bradley, J.A. Molino, and G. DeMiranda. 1992. The Effect of Onset Rate on Aircraft Noise Annoyance. Volume 2: Rented Own-Home Experiment. Wyle Laboratories Research Report WR 92-3. March.

Sutherland, L. 1990. Assessment of Potential Structural Damage from Low Altitude Subsonic Aircraft. Wyle Laboratories Research Report WR 89-16. El Segundo, CA.

United States Air Force. 1999. Air Force Handbook (AFH) 32-7084. AICUZ Program Manager's Guide, Appendix B, Figure B-3.

United States Department of Transportation (USDOT). 1984. Airport Noise Compatibility Planning; Development of Submission of Airport Operator's Noise Exposure Map and Noise Compatibility Program; Final Rule and Request for Comments. 14 CFR Parts 11 and 150, Federal Register 49(244): 18 December.

United States Environmental Protection Agency (USEPA). 1972. Information on Levels of Environmental Noise Requisite to Protect the Public Health and Welfare With an Adequate Margin of Safety. U.S. Environmental Protection Agency Report 550/9-74-004. March.

von Gierke, H.R. 1990. The Noise-Induced Hearing Loss Problem. NIH Consensus Development Conference on Noise and Hearing Loss. Washington, D.C. 22-24 January.

Wesler, J.E. 1977. Concorde Operations At Dulles International Airport. NOISEXPO '77, Chicago, IL. March.

White, R. 1972. Effects of Repetitive Sonic Booms on Glass Breakage. FAA Report FAA-RD-72 43. April.

APPENDIX B

AIR QUALITY ANALYSIS

APPENDIX B
AIR QUALITY ANALYSIS

Air Quality Standards

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. The CAA and its CAAA established the NAAQS for six "criteria" pollutants: O_3, CO, NO_2, SO_2, PM_{10}, and Pb. 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 state ambient air quality standards are also summarized in Table B-1.

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

Air Pollutant	***Average Time***	***Federal NAAQS***		***Idaho AAQS***	
		Primary (>)	*Secondary (>)*	*Primary (>)*	*Secondary (>)*
Carbon Monoxide	8-hour 1-hour	9.0 ppm 35 ppm	9.0 ppm 35 ppm	9.0 ppm 35 ppm	9.0 ppm 35 ppm
Nitrogen Dioxide	Annual 24-hour	0.053 ppm ---	0.053 ppm ---	0.053 ppm ---	0.053 ppm ---
Sulfur Dioxide	Annual 24-hour 3-hour	0.03 ppm 0.14 ppm ---	--- --- 0.50 ppm	0.03 ppm 0.14 ppm ---	--- --- 0.50 ppm
$PM_{2.5}$	Annual[a] 24-hour	15 µg/m^3 65µg/m^3	15 µg/m^3 65µg/m^3	15 µg/m^3 65µg/m^3	15 µg/m^3 65µg/m^3
PM_{10}	Annual[a] 24-hour	50µg/m^3 150µg/m^3	50µg/m^3 150µg/m^3	50µg/m^3 150µg/m^3	50µg/m^3 150µg/m^3
Ozone [c]	1-hour 8-hour	0.12 ppm 0.08 ppm	0.12 ppm 0.08 ppm	0.12 ppm 0.08 ppm	0.12 ppm 0.08 ppm
Lead	Calendar Quarter	1.5µg/m^3	1.5µg/m^3	1.5µg/m^3	1.5µg/m^3

a=Annual arithmetic mean
b=At elevation of 5,000 feet above mean sea level (MSL) or greater, the carbon monoxide standard is 6.0 ppm.
c=EPA promulgated new federal 8-hour ozone standards on April 15, 2004.

Emission Estimation Approaches

The air quality analysis examined impacts from construction and air emissions associated with the Proposed Action versus the No-Action Alternative. As part of the analysis, emissions generated from multiyear construction projects, aircraft operations (aircraft takeoff and landing cycles) at the airfield, and AGE were estimated for CO, VOCs, NO_x, SO_2, and respirable PM_{10}.

Factors needed to derive construction source emission rates were obtained from *Compilation of Air Pollution Emission Factors*, AP-42, Volume I (USEPA 1995); *Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling* (USEPA 2004a); *Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling—Compression-Ignition* (USEPA 2004b); *Nonroad Engine and Vehicle Emission Study—Report* (USEPA 1991); *Conversion Factors for Hydrocarbon Emission Components*, EPA 420-P-04-001, NR-002b (USEPA 2004c); *Comparison of Asphalt Paving Emission Factors* (CARB 2005); and *EMFAC 2002* (v2.2) *Emission Factors (On-Road)* (CARB 2002). The construction analysis assumes that all construction equipment was manufactured before 2000. This approach over-estimates emissions from proposed construction equipment, as the future equipment fleet would include a substantial amount of newer, lower-emitting equipment compared to 2000 vintage equipment. The analysis also reduced PM_{10} emissions from earth-moving activities by 75 percent to take into consideration proposed fugitive dust control measures.

Emissions for AGE and motor vehicle emissions were estimated using the most current version of the *Emissions and Dispersion Modeling System* (EDMS), Version 4.5, June 2006. EDMS is a combined emissions and dispersion model for assessing air quality at civilian airports and military air bases. The model was developed by the FAA in cooperation with the Air Force. The model is used to produce an inventory of emissions generated by sources on and around the airport or air bases. The emissions inventory module incorporates EPA approved methodologies for calculating aircraft emissions, on-road and off-road vehicles emissions, and stationary source emissions. Finally, airspace emissions were estimated separately, using data consistent with aircraft operations and obtained from the EDMS database. The emission estimation methodologies are described below.

Construction Activities. Emissions were calculated for years 2007-2009, and account for the Proposed Action and Alternative A. In addition to emissions calculated based on the use of heavy equipment, emissions factors from EMFAC 2002 were also used to estimate the emissions of POVs driven inside the fenceline by workers during the construction periods. Calculation spreadsheets are included at the end of the Appendix.

Table B-2. Construction Emissions (2007-2009)

	CO (T/yr)	*VOC (T/yr)*	*NO_x (T/yr)*	*SO_2 (T/yr)*	*PM_{10} (T/yr)*
2007					
Proposed Action	0.46	0.08	0.45	0.05	1.61
Alternative A	0.7	0.12	0.63	0.07	0.71
2008					
Proposed Action	0.77	0.15	0.84	0.09	1.38
Alternative A	1.23	0.18	0.97	0.10	2.62
2009					
Proposed Action	0.07	0.46	0.31	0.03	0.34
Alternative A	0.08	0.59	0.38	0.04	0.97

Aircraft Operations. Emissions were calculated for airfield operations associated with the Proposed Action and the No-Action Alternative (baseline) based on emission factors for engines in various operational modes (Approach, Taxi/Idle, Takeoff and Climb Out). The takeoff mode is the time from when the aircraft starts moving until it reaches 1,000 feet above the surface. The idle time used for emissions calculations includes the sum of the landing roll time, the taxi time and the time spent in queue. The approach time in mode for the emissions inventory is the time from the mixing height to the surface. The climb out time in mode for the emissions inventory is the time from 1,000 feet Above Ground Level to the mixing height (5,000 feet was using as the mixing height for this analysis). All aircraft time-in-modes and emission factors used in the emission calculations for this EA were obtained from the EDMS version 4.5 database. Aircraft operations were developed using baseline airfield operations and then adding F-15SG sorties for the plus-up. Aircraft operations for the Proposed Action modeled F-15SG emissions with the newer F110-GE-100 engines. Emission estimates for transient sorties were performed using surrogate aircraft and engines to represent different classes of aircraft.

Ground Support Equipment (GSE). GSE is ground-based vehicles and equipment used in support of aircraft. It includes equipment such as, but not limited to, air conditioners, generators, tankers, tractors, and various truck types. EDMS Version 4.5 calculated GSE emissions associated with both the baseline and the Proposed Action scenarios. EDMS 4.5 defaults were used for military aircraft equipment assignments and operating times.

Vehicular emission factors contained in EDMS for GSE were developed based on national average GSE emission factors by the USEPA for EDMS 4.1.

Commuting emissions were not calculated for the Proposed Action because RSAF personnel and their dependents are expected to reside on the installation in provided housing. Direct (aircraft emissions) and indirect (vehicle) emissions (support equipment) for the Proposed Action, fully implemented by 2010, are presented in Table B-3.

Table B-3. Direct and Indirect Emissions Associated with the Proposed Action (Full Year Implementation)

	Aircraft Operation Emissions				
	CO	*VOCs*	*NO_x*	*SO_2*	*PM_{10}*
Proposed Action	29.62	2.36	21.15	1.08	1.44
	GSE Emissions				
	CO	*VOCs*	*NO_x*	*SO_2*	*PM_{10}*
Proposed Action	23.72	1.71	10.95	1.93	0.86
Total	**53.34**	**4.07**	**32.10**	**3.01**	**2.30**

Airspace Emissions. Airspace emissions were estimated for MOAs with floors beneath the mixing height. These emissions were calculated using emission factors supplied in EDMS 4.5 for emission inventory purposes (EPA/ICAO default times in mode used for all system aircraft in tallying the emissions inventory) with the exception of PM_{10} and the emission factors for the J85-GE-5H emissions factors, which were derived from the ACAM 4.3 Technical Documentation, Appendix D. The airspace emission calculations take into account the amount of time that the aircraft would spend below the mixing height (taken as 5,000 feet for Mountain Home AFB). Table B-4 identifies the net increase in emissions due to the Proposed Action. Table B-5 presents the emission data that were used to calculate the airspace emissions. Emissions for all aircraft are summed (Table B-6 through B-9).

Table B-4. Percent Increase in Airspace Emissions from Baseline Conditions

Airspace Unit	*CO*	*VOCs*	*NO_x*	*SO_2*	*PM_{10}*
Jarbidge MOA	25.0	2.28	28.00	27.65	2.41
Owyhee MOA	19.36	2.25	26.82	25.11	0.96

Table B-5. Airspace Emissions Data[1]

Aircraft	*Engine*	*# Engines*	*Fuel Flow kg/s*	*CO g/kg*	*VOCs g/kg*	*NO_x g/kg*	*SO_x g/kg*	*PM[2] g/kg*
A-10	TF34-GE-100-100A	2	0.2869	6.17	0.59	6.78	0.54	2.67
F-15	F100-PW-220	2	0.727	0.86	2.89	22.18	0.54	1.23
F-15 SG	F110-GE-100	2	0.8313	2.2	0.19	18.25	0.54	0.14
F-16	F110-GE-100	1	0.8313	2.2	0.19	18.25	0.54	0.14
T-38	J85-GE-5H	2	0.3547[2]	28.98[2]	7.62[2]	4.66[2]	1[2]	1.13

[1] Taken from EDMS Version 4.5 Database (June 2006) for Climbout Mode (MI)
[2] Taken from ACAM Version 4.3 Technical Documentation, Appendix D, December 2005

Aircraft	*Jarbidge Annual # sorties*	*Average Duration*	*% time below mixing height*
A-10	2,401	38	90%
F-15	5,989	38	41%
F-15 SG	1,995	38	41%
F-16	221	24	40%
T-38	221	24	40%

Aircraft	*Owyhee Annual # sorties*	*Average Duration*	*% time below mixing height*
A-10	1,632	38	56%
F-15	5,830	20	23%
F-15 SG	1,942	20	23%
F-16	121	24	20%
T-38	121	24	20%

Table B-6. Jarbidge Baseline Sortie-Operations Emissions					
Aircraft	***CO T/yr***	***VOCs T/yr***	***NO_x T/yr***	***SO_x T/yr***	***PM T/yr***
A-10	19.23	1.84	21.13	1.68	8.32
F-15	7.72	25.93	199.02	4.85	11.04
F-16	0.26	0.02	2.13	0.06	0.02
T-38	2.88	0.76	0.46	0.10	0.11
Totals	30.09	28.55	222.75	6.69	19.49

Table B-7. Jarbidge Baseline + Complete Plus Up (2010 on) Sortie-Operations Emissions					
Aircraft	***CO T/yr***	***VOCs T/yr***	***NO_x T/yr***	***SO_x T/yr***	***PM T/yr***
A-10	19.23	1.84	21.13	1.68	8.32
F-15	7.72	25.93	199.02	4.85	11.04
F-15 SG	7.52	0.65	62.38	1.85	0.47
F-16	0.26	0.02	2.13	0.06	0.02
T-38	2.88	0.76	0.46	0.10	0.11
Totals	37.61	29.20	285.12	8.54	19.96

Table B-8. Owyhee Baseline Sortie-Operations Emissions					
Aircraft	***CO T/yr***	***VOCs T/yr***	***NO_x T/yr***	***SO_x T/yr***	***PM T/yr***
A-10	8.13	0.78	8.94	0.71	3.52
F-15	2.22	7.45	57.20	1.39	11.04
F-16	0.07	0.01	0.58	0.02	0.00
T-38	0.79	0.21	0.13	0.03	0.03
Totals	11.21	8.44	66.85	2.15	14.59

Table B-9. Owyhee Baseline + Complete Plus Up (2010 on) Sortie-Operations Emissions					
Aircraft	***CO T/yr***	***VOCs T/yr***	***NO_x T/yr***	***SO_x T/yr***	***PM T/yr***
A-10	8.13	0.78	8.94	0.71	3.52
F-15	2.22	7.45	57.20	1.39	11.04
F-15 SG	2.17	0.18	17.93	0.54	0.14
F-16	0.07	0.01	0.58	0.02	0.00
T-38	0.79	0.21	0.13	0.03	0.03
Totals	**13.38**	**8.63**	**84.78**	**2.69**	**14.73**

REFERENCES

California Air Resources Board (CARB). 2005. Comparison of Asphalt Paving Emission Factors.

_____. 2002. Emissions Factors (EMFAC) 2002 (v2.2) Emission Factors (On-Road). September.

United States Environmental Protection Agency (USEPA). 2004a. Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling. EPA Report No. NR-005c.

_____. 2004b. Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling—Compression-Ignition. EPA Report No. NR-009c.

_____. 2004c. Exhaust Emission Factors for Nonroad Engine Modeling—Spark-Ignition. EPA Report No. NR-010d.

_____. 2004d. Conversion Factors for Hydrocarbon Emission Components. EPA 420-P-04-001, NR-002b.

_____. 1995. Compilation of Air Pollution Emission Factors, AP-42, Volume I.

_____. 1991. Nonroad Engine and Vehicle Emission Study—Report. EPA 460/3-91-02.

APPENDIX C

STATE AND FEDERALLY LISTED SPECIES THAT OCCUR OR POTENTIALLY OCCUR WITHIN THE AFFECTED ENVIRONMENT

APPENDIX C
STATE AND FEDERALLY LISTED SPECIES THAT OCCUR OR POTENTIALLY OCCUR WITHIN THE AFFECTED ENVIRONMENT

The following provides a list of all state and federally listed species potentially found on Mountain Home AFB or within the associated ranges and airspace.

Table C-1 Threatened, Endangered, and Special-Status Species/Communities That Occur or Potentially Occur on Mountain Home AFB (Page 1 of 2)

Species	***Status***	***Areas of Occurrence***
Lichens		
Wovenspore lichen *Texosporium sancti-jacobi*	FSC	Sagebrush steppe with native bunch grass component. No records from base.
Plants		
Bugleg goldenweed *Haplopappus insecticruris*	FSC	Disturbed sagebrush communities with grass component. No records from base.
Davis' Peppergrass *Lepidium davisii*	FSC	Davis' Peppergrass occurs on playas, typically in association with Wyoming Big Sagebrush. Found on the Small Arms Range and on Base.
Slickspot peppergrass *Lepidium papilliferum*	PE	Small sodic slickspots in shrubsteppe habitat. Endemic to western Idaho. No records from base.
Ute ladies'-tresses *Spiranthes diluvialis*	LT	Sandy gravel bars in a riverine situation. No records from western Idaho. No habitat on base.
Invertebrates		
Bliss Rapids snail *Taylorconcha serpenticola*	FT	Aquatic habitats. Does not occur on base.
Idaho springsnail *Fontelicella idahoensis*	FE	Aquatic habitats. Does not occur on base.
Bruneau hot springsnail *Pyrgulopsis bruneauensis*	FT	Aquatic habitats. Does not occur on base.
Snake River physa snail *Physa natricina*	FE	Aquatic habitats. Does not occur on base.
Amphibians		
Northern leopard frog *Rana pipiens*	FSC/SSC	Riparian areas with high vegetation. No records from base.
Western toad *Bufo boreas*	FSC/SSC	Variety of forested, meadow, and desert habitats in proximity to appropriate aquatic breeding habitat. Not well known from southwestern Idaho. No records from base.

Table C-1 Threatened, Endangered, and Special-Status Species/Communities That Occur or Potentially Occur on Mountain Home AFB (Page 2 of 2)

Species	*Status*	*Areas of Occurrence*
Reptiles		
Ground snake *Sonora Semiannulata*	SSC	Sagebrush, grasslands, and salt desert scrub with loose or sandy soil. Does not occur on base.
Longnose snake *Rhinocheilus lecontei*	SSC	Shrub habitats and grasslands with rocky component. Does not occur on base.
Birds		
Bald eagle *Haliaeetus leucocephalus*	FT/SE	Near rivers and lakes with tall trees or cliffs. Winters along Bruneau, Owyhee, and Snake rivers. No habitat on base. Has potential to range onto base from Snake River habitats.
Black tern *Chlidonias niger*	SSC	Lakeshores and wetlands. Potential habitat exists, but no confirmed occurrences on the base or in the airspace.
Columbian sharp-tailed grouse *Tympanuchus phasianellus*	FSC/SSC	Open grassland and shrub habitats in proximity to stands of low growing trees. Extirpated from most of its former range. No records from base.
Long-billed curlew *Numenius americanus*	FSC	Open grasslands in landscapes with good visibility. May occur in non-native vegetation and near agricultural fields. Birds observed on base.
Western burrowing owl *Athene cunicularia hypugaea*	SSC	Grasslands and shrublands. Frequents disturbed habitats. Associated with Townsend's ground squirrel and badger burrows. Four use areas identified on base.
Mammals		
Kit fox *Vulpes macrotis*	SSC	Steppe and desert habitats. Little known for Idaho; occurrence based on very limited data.
Pygmy rabbit *Brachylagus idahoensis*	SSC/SGSC	Occurs in dense stands of tall sagebrush (big sagebrush). Distribution not well described. No habitat on base. No records on base.

C = Candidate
FE = Federal Endangered
FSC = Federal Species of Concern
LT = Listed Threatened
SGSC = State Game Species of Concern
SSC = State Species of Concern
XN = Experimental Nonessential
PE = Proposed Endangered

Table C-2 Threatened, Endangered, and Special-Status Animal Species That Occur or Potentially Occur Under Mountain Home AFB Affected Airspace (Page 1 of 3)

Species	*Status*	*Areas of Occurrence*
Invertebrates		
Bliss rapids snail *Tayloconcha serpenticola*	FT	Aquatic habitats.
Bruneau hot springsnail *Pyrgulopsis bruneauensis*	FE	Hot Creek and 120 hot springs adjacent to the Bruneau River.
Idaho dunes tiger beetle *Cicindela arenicola*	FSC	Sand dunes and sandy alkaline soils.
Idaho springsnail *Pyrgulopsis idahoensis*	FE	Aquatic habitats.
Snake River physa snail *Physa natricina*	FE	Aquatic habitats.
Utah valvata snail *Valvata utahensis*	FE	Aquatic habitats.
Fish		
Bull trout *Salvelinus confluentus*	FT	Rivers and streams within the Columbia River Basin. Require streams with high water quality and tree cover.
Amphibians		
Columbia spotted frog (Great Basin sub-population) *Rana luteiventris*	FC, SSC	High elevation riparian areas with appropriate escape cover. No habitat on base, but occurs in Owyhee and Jarbidge Mountains, and Jordan Valley in Oregon.
Northern leopard frog *Rana pipiens*	FSC/SSC	Riparian areas with high vegetation. Declining in many parts of range.
Western toad *Bufo boreas*	FSC/SSC	Variety of forested, meadow, and desert habitats in proximity to appropriate aquatic breeding habitat. Not well known from southwestern Idaho.
Reptiles		
Ground snake *Sonora semiannulata*	SSC	Sagebrush, grasslands, and salt desert scrub with loose or sandy soil. Does not occur on base.
Longnose snake *Rhinocheilus lecontei*	SSC	Deserts, grasslands, and rocky canyons.
Mojave black-collared lizard *Crotaphytus bicinctores*	SSC	Talus, cliffs, and sagebrush habitats with a rocky component.
Birds		
Bald eagle *Haliaeetus leucocephalus*	FT/SE	Near rivers and lakes with tall trees or cliffs. Winters along Bruneau, Owyhee, and Snake rivers. No known nesting within airspace.

Table C-2 Threatened, Endangered, and Special-Status Animal Species That Occur or Potentially Occur Under Mountain Home AFB Affected Airspace (Page 2 of 3)

Species	*Status*	*Areas of Occurrence*
Black tern *Chlidonias niger*	SSC	Lakeshores and wetlands. Potential habitat exists, but no confirmed occurrences on the base or in the airspace.
Flammulated owl *Otus flammeolus*	SSC	Deciduous and evergreen forest, especially ponderosa; nests and roosts in tree cavities.
Loggerhead shrike *Lanius ludovicianus*	FSC/SSC	Late seral sagebrush steppe habitats. Shrub obligate appears to be declining because of habitat loss.
Long-billed curlew *Numenius americanus*	FSC	Open grasslands in landscapes with good visibility. May occur in non-native vegetation and near agricultural fields.
Mountain quail *Oreortyx pictus*	SSC	Chapparal, brushy ravines, mountain slopes, altitudes up to 10,000 feet.
Northern goshawk *Accipiter gentilis*	SSC	Deep, conifer-dominated mixed woodlands.
Peregrine falcon *Falco peregrinus anatum*	SE	Wetlands near cliffs.
Trumpeter swan *Cygnus buccinator*	SSC	Marshes, also Henrys Fork of the Snake River, near Island Park, Idaho, and are likely migrants through the area.
Western burrowing owl *Athene cunicularia hypugaea*	SSC	Grasslands and shrublands. Frequents open disturbed habitats. Associated with Townsend's ground squirrel and badger burrows.
White-faced ibis *Plegadis chihi*	FSC	Riparian areas in shrubsteppe habitats. Frequents many small isolate stock ponds under airspace.
White-headed woodpecker *Picoides albolarvatus*	SSC	Nests in open coniferous mountain forests, especially in ponderosa and sugar pine, lower altitudes in winter.
Yellow-billed cuckoo *Coccyzus americanus*	SSC	Higher elevation open woods and riparian areas.
Mammals		
California bighorn sheep *Ovis anadensis californiana*	FSC/ SSC	Found in canyons including those associated with the Owyhee, Bruneau, and Jarbidge rivers.
Fringed myotis *Myotis thysanodes*	SSC	Forest and desert habitats providing caves or mines for roosting. Use abandoned buildings as roosts in some areas.
Gray wolf *Canis lupus*	XN	Extirpated. Experimental reintroduced population occurs in montane habitats of central Idaho.
Kit fox *Vulpes macrotis*	SSC	Steppe and desert habitat, with shrubs or grasses. Little known for Idaho; occurrence based on very limited data.

Table C-2 Threatened, Endangered, and Special-Status Animal Species That Occur or Potentially Occur Under Mountain Home AFB Affected Airspace (Page 3 of 3)

Species	***Status***	***Areas of Occurrence***
Little pocket mouse *Perognathus longimembris*	SSC	Shadescale and dwarfed sage areas on lower slopes of alluvial fans, particularly pea-sized gravel.
Pygmy rabbit *Brachylagus idahoensis*	SSC/SGSC	Occurs in dense stands of tall sagebrush. Not known to occur on the base or airspace. Occurs in Wyoming big sagebrush habitat.
Spotted bat *Euderma maculatum*	SSC	Arid/semi-arid regions. Occurs within airspace, primarily in or near large canyons.
Townsend's big-eared bat *Corynorhinus townsendii*	SSC	Caves, abandoned mine shafts, old buildings, crevices, cliffs. Found in Bruneau/Jarbidge River Canyon.

C = Candidate
FE = Federal Endangered
FSC = Federal Species of Concern
LT = Listed Threatened
SGSC = State Game Species of Concern
SSC = State Species of Concern
XN = Experimental Nonessential

APPENDIX D

WILDLIFE DATA SUMMARY REPORT FOR MOUNTAIN HOME AFB AND MOUNTAIN HOME RANGE COMPLEX

APPENDIX D
WILDLIFE DATA SUMMARY REPORT FOR MOUNTAIN HOME AFB AND MOUNTAIN HOME RANGE COMPLEX

	Total number of observations during surveys	***Mountain Home AFB***	***Saylor Creek Range***	***Juniper Butte Range***	***Remote Training Sites***
Birds					
Total	**8,015**	**4,502**	**1,575**	**648**	**1,290**
California Gull (*Larus californicus*)	10	10			
American White Pelican (*Pelecanus erythrorhynchos*)	1	1			
Mallard (*Anas platyrhynchos*)	155	106	17		32
Gadwall (*Anas strepera*)	4	2			2
American Wigeon (*Anas americana*)	5	1	4		
Green-winged Teal (*Anas crecca*)	4		4		
Blue-winged Teal (*Anas discors*)	1	1			
Cinnamon Teal (*Anas cyanoptera*)	1	1			
Northern Shoveler (*Anas clypeata*)	3	3			
Redhead (*Aythya americana*)	1	1			
Common Goldeneye (*Bucephala clangula*)	25	25			
Bufflehead (*Bucephala albeola*)	10	10			
Ruddy Duck (*Oxyura jamaicensis*)	2	2			
Canada Goose (*Branta canadensis*)	11	2		1	8
Tundra Swan (*Cygnus columbianus*)	118	4			114
Sandhill Crane (*Grus canadensis*)	3				3
American Coot (*Fulica americana*)	4	2	2		
Wilson's Phalarope (*Phalaropus tricolor*)	22	21			1
American Avocet (*Recurvirostra americana*)	2	2			
Black-necked Stilt (*Himantopus mexicanus*)	6				6
Short-billed Dowitcher (*Limnodromus griseus*)	2				2
Lesser Yellowlegs (*Tringa flavipes*)	2				2
Willet (*Catoptrophorus semipalmatus*)	1				1
Spotted Sandpiper (*Actitis macularius*)	30	25			5
Long-billed Curlew (*Numenius americanus*)	20	4	15		1
Killdeer (*Charadrius vociferus*)	149	114	3		32
Gray Partridge (*Perdix perdix*)	13		13		
Chukar (*Alectoris chukar*)	11				11
California Quail (*Callipepla californica*)	388	382	6		
Greater Sage Grouse (*Centrocercus urophasianus*)	193		17	10	166
Ring-necked Pheasant (*Phasianus colchicus*)	6	6			
Rock Dove (*Columba livia*)	7	5			2
Mourning Dove (*Zenaida macroura*)	188	148	26	6	8
Turkey Vulture (*Cathartes aura*)	10	1	3	1	5
Northern Harrier (*Circus cyaneus*)	91	18	48	12	13
Sharp-shinned Hawk (*Accipiter striatus*)	3		2	1	
Red-tailed Hawk (*Buteo jamaicensis*)	26	4	17	3	2
Swainson's Hawk (*Buteo swainsoni*)	15	1	3	11	

	Total number of observations during surveys	*Mountain Home AFB*	*Saylor Creek Range*	*Juniper Butte Range*	*Remote Training Sites*
Birds (con't)					
Rough-legged Hawk (*Buteo lagopus*)	33	11	13	7	2
Ferruginous Hawk (*Buteo regalis*)	28		16	11	1
Golden Eagle (*Aquila chrysaetos*)	60		51	1	8
Gyrfalcon (*Falco rusticolus*)	1		1		
Prairie Falcon (*Falco mexicanus*)	36	4	20	9	3
Merlin (*Falco columbarius*)	2		1		1
American Kestrel (*Falco sparverius*)	47	25	13	5	4
Barn Owl (*Tyto alba*)	5	4	1		
Short-eared Owl (*Asio flammeus*)	104	1	76	21	6
Western Screech-owl (*Megascops kennicottii*)	5		1		4
Great Horned Owl (*Bubo virginianus*)	6	3		1	2
Western Burrowing Owl (*Athene cunicularia hypugaea*)	63	32	29	1	1
Northern Flicker (*Colaptes auratus*)	13	9	1	1	2
Common Poorwill (*Phalaenoptilus nuttallii*)	4			2	2
Common Nighthawk (*Chordeiles minor*)	95	22	58	15	
Ruby-throated Hummingbird (*Archilochus colubris*)	1	1			
Black-chinned Hummingbird (*Archilochus alexandri*)	298	298			
Broad-tailed Hummingbird (*Selasphorus platycercus*)	1	1			
Rufous Hummingbird (*Selasphorus rufus*)	118	118			
Calliope Hummingbird (*Stellula calliope*)	65	65			
Western Kingbird (*Tyrannus verticalis*)	14	12	1	1	
Say's Phoebe (*Sayornis saya*)	16			8	8
Hammond's Flycatcher (*Empidonax hammondii*)	1	1			
Horned Lark (*Eremophila alpestris*)	1,344	229	582	216	317
Black-billed Magpie (*Pica hudsonia*)	185	175	4	2	4
Common Raven (*Corvus corax*)	554	383	21	24	126
American Crow (*Corvus brachyrhynchos*)	56	48			8
European Starling (*Sturnus vulgaris*)	1,070	994		35	41
Bullock's Oriole (*Icterus bullockii*)	2	1		1	
Brown-headed Cowbird (*Molothrus ater*)	11	10		1	
Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)	1	1			
Red-winged Blackbird (*Agelaius phoeniceus*)	8				8
Western Meadowlark (*Sturnella neglecta*)	697	118	298	93	188
Brewer's Blackbird (*Euphagus cyanocephalus*)	36	16	14		6
House Finch (*Carpodacus mexicanus*)	116	116			
American Goldfinch (*Carduelis tristis*)	22	22			
Pine Siskin (*Carduelis pinus*)	69	69			
Vesper Sparrow (*Pooecetes gramineus*)	54	3	10	28	13
Savannah Sparrow (*Passerculus sandwichensis*)	5				5
Grasshopper Sparrow (*Ammodramus savannarum*)	5		3		2
Lark Sparrow (*Chondestes grammacus*)	2		2		
White-crowned Sparrow (*Zonotrichia leucophrys*)	43	26	11	6	
Brewer's Sparrow (*Spizella breweri*)	112	18	42	21	31

	Total number of observations during surveys	*Mountain Home AFB*	*Saylor Creek Range*	*Juniper Butte Range*	*Remote Training Sites*
Birds (con't)					
Dark-eyed Junco (*Junco hyemalis*)	107	101		6	
Black-throated Sparrow (*Amphispiza bilineata*)	2				2
Sage Sparrow (*Amphispiza belli*)	99	2	32	24	41
Song Sparrow (*Melospiza melodia*)	4			4	
Fox Sparrow (*Passerella iliaca*)	17			10	7
Spotted Towhee (*Pipilo maculatus*)	1		1		
Black-headed Grosbeak (*Pheucticus melanocephus*)	2	2			
Western Tanager (*Piranga ludoviciana*)	26	26			
Cliff Swallow (*Petrochelidon pyrrhonota*)	55		28	25	2
Barn Swallow (*Hirundo rustica*)	194	194			
Bank Swallow (*Riparia riparia*)	140	140			
Cedar Waxwing (*Bombycilla cedrorum*)	20	20			
Loggerhead Shrike (*Lanius ludovicianus*)	48	7	32	1	8
Yellow Warbler (*Dendroica petechia*)	3	3			
Yellow-rumped Warbler (*Dendroica coronata*)	1				1
House Sparrow (*Passer domesticus*)	60	60			
Sage Thrasher (*Oreoscoptes montanus*)	41	10	12	2	17
Rock Wren (*Salpinctes obsoletus*)	38	16	6	15	1
Marsh Wren (*Cistothorus palustris*)	2		2		
Red-breasted Nuthatch (*Sitta canadensis*)	3	3			
Black-capped Chickadee (*Poecile atricapillus*)	7	7			
Mountain Chickadee (*Poecile gambeli*)	7	2	4	1	
American Robin (*Turdus migratorius*)	178	170	3	4	1
Mountain Bluebird (*Sialia currucoides*)	8		6	1	1
Mammals					
Total	**1,770**	**239**	**714**	**123**	**694**
Mountain Cottontail (*Sylvilagus nuttallii*)	158	79	37	24	18
White-tailed Jackrabbit (*Lepus townsendii*)	6			2	4
Black-tailed Jackrabbit (*Lepus californicus*)	193	28	104	4	57
Feral Rabbit (*Oryctolagus cuniculus*)	12	12			
North American Porcupine (*Erethizon dorsatum*)	1		1		
Yellow-bellied Marmot (*Marmota flaviventris*)	1			1	
Merriam's Ground Squirrel (*Spermophilus canus*)	1				1
Piute Ground Squirrel (*Spermophilus mollis*)	132	74	51		7
Least Chipmunk (*Tamias minimus*)	10			7	3
Northern Pocket Gopher (*Thomomys talpoides*)	49		42	6	1
Great Basin Pocket Mouse (*Perognathus parvus*)	1			1	
Ord's Kangaroo Rat (*Dipodomys ordii*)	94	2	84	5	3
Bushy-tailed Woodrat (*Neotoma cinerea*)	3	2		1	
Desert Woodrat (*Neotoma lepida*)	28		17	11	
Deer Mouse (*Peromyscus maniculatus*)	1			1	
Sagebrush Vole (*Lemmiscus curtatu curtatus*)	1			1	
Yuma Myotis (*Myotis yumanensis*)	1	1			
Silver-haired Bat (*Lasionycteris noctivagans*)	1	1			

	Total number of observations during surveys	***Mountain Home AFB***	***Saylor Creek Range***	***Juniper Butte Range***	***Remote Training Sites***
Mammals (con't)					
Bobcat (*Lynx rufus*)	1				1
Cougar (*Puma concolor*)	2			1	1
Coyote (*Canis latrans*)	186	21	39	43	83
Kit Fox (*Vulpes macrotis*)	5				5
American Badger (*Taxidea taxus*)	46	18	17	6	5
Pronghorn Antelope (*Antilocapra americana*)	557		247	2	308
Elk (*Cervus canadensis*)	5		3	1	1
Feral Horse (*Equus caballus*)	80				80
Reptiles					
Total	**61**	**15**	**32**	**8**	**6**
Longnose Leopard Lizard (*Gambelia wislizenii*)	3		3		
Side-blotched Lizard (*Uta stansburiana*)	1			1	
Desert Horned Lizard (*Phrynosoma platyrhinos*)	17	1	15	1	
Western Fence Lizard (*Sceloporus occidentalis*)	4	1	1	1	1
Sagebrush Lizard (*Sceloporus graciosus*)	18	10	6	1	1
Western Whiptail (*Aspidoscelis tigris*)	1		1		
Striped Whipsnake (*Masticophis taeniatus*)	1				1
Great Basin Gopher Snake (*Pituophis catenifer deserticola*)	6	1	3	1	1
Common Gartersnake (*Thamnophis sirtalis*)	5	1	2	1	1
Western Yellow-bellied Racer (*Coluber constrictor mormon*)	1			1	
Western Rattlesnake (*Crotalus virdis*)	4	1	1	1	1

Source: Mountain Home AFB. 2006. Wildlife Data Summary Report for Mountain Home Air Force Base and Mountain Home Range Complex. Mountain Home Air Force Base, ID, 366 CES/CEVA, Rudeen, C. October 2006.

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING

These letters were mailed or hand delivered on October 13, 2006.

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Snake River Fish and Wildlife Service
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Mr. Terry Gibson, Tribal Chairman
Duck Valley Reservation
Shoshone-Paiute Tribes
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State Historic Preservation Office

Mr. Steve Guerber
State Historic Preservation Officer
1109 Main Street, Suite 250
Boise, Idaho 83702

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

MEMORANDUM FOR: Colonel William Ritchie (Ret)
Special Assistant, Military Affairs
Office of the Governor
150 South 3rd Street East
Mountain Home, ID 83647

FROM: HQ ACC/A7Z
129 Andrews St., Suite 102
Langley AFB, VA 23665-2769

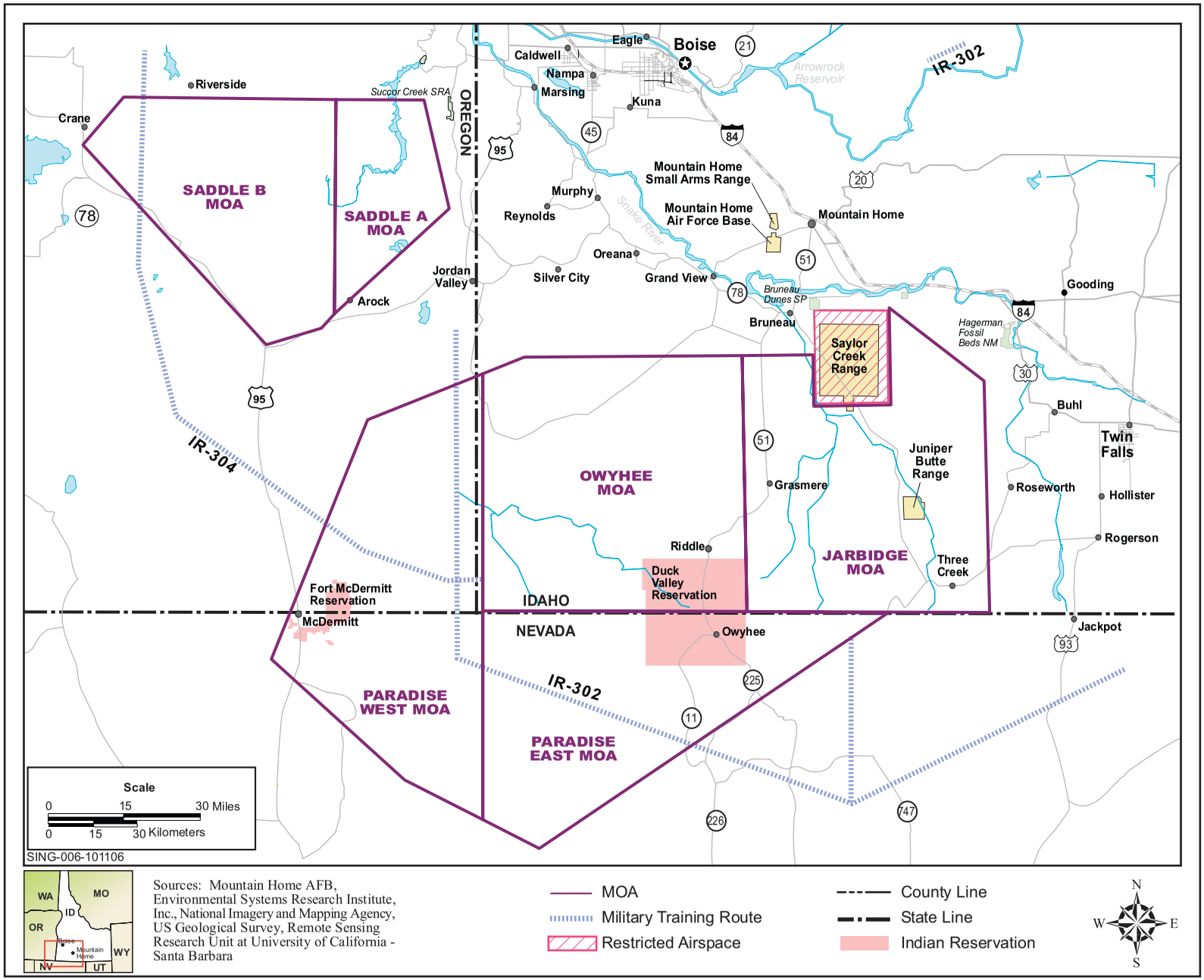
SUBJECT: Proposed Beddown of Republic of Singapore Air Force (RSAF) F-15SG aircraft at Mountain Home Air Force Base (AFB), ID

1. The United States Air Force Air Combat Command (Air Force) and Mountain Home AFB are preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to beddown and operate 10 RSAF F-15SG aircraft for training purposes. This stand-up is desirable to continue building our relationship and interoperability with the Singapore armed forces. Under the proposed action, the RSAF squadron would operate out of Mountain Home AFB for 5 to 20 years to train on the new F-15SG aircraft, co-located with USAF F-15E aircraft at Mountain Home AFB. Modification of buildings and construction of new facilities within the boundaries of Mountain Home AFB and the addition of personnel would occur under this proposal. The Air Force has also identified an additional action alternative, under which the RSAF F-15SG squadron and personnel would beddown and operate 10 F-15SG aircraft; however, construction and building modifications would occur in different locations at Mountain Home AFB. Under the no-action alternative, the Air Force would not beddown the RSAF F-15SG squadron.

2. The EA will be prepared to evaluate potential environmental and mission impacts resulting from implementation of the proposed action and alternatives while examining the potential for cumulative impacts when combined with past, present, and any future proposals. In support of this process, we request your input in identifying general or specific issues or areas of concern you feel should be addressed in the environmental analysis.

3. Please forward any identified issues or concerns to Mr. Ken Walker at the above address. Though we will consider comments received at any time during the environmental process to the extent possible, we would appreciate comments by October 30, 2006. In advance, we thank you for your assistance in this activity. If you have any specific questions relative to the proposal, we would like to hear from you. Please contact Mr. Walker at (757) 764-9339.

ANTHONY A. FOTI, Colonel, USAF
Chief, Programs Division (A7Z)



Mountain Home AFB and Associated Airspace

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

MEMORANDUM FOR: Mr. Howard Hedrick
Twin Falls District Manager
2536 Kimberly Road
Twin Falls, ID 83301

FROM: HQ ACC/A7ZP
129 Andrews St., Suite 102
Langley AFB, VA 23665-2769

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LARRY H. DRYDEN, P.E.
Chief, Planning Branch (A7ZP)

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

MEMORANDUM FOR: Mr. Jeff Foss
U.S. Fish and Wildlife Service
Snake River Fish and Wildlife Service
1387 S. Vinnell Way, Room 368
Boise, ID 83709

FROM: HQ ACC/A7ZP
129 Andrews St., Suite 102
Langley AFB, VA 23665-2769

SUBJECT: Proposed Beddown of Republic of Singapore Air Force (RSAF) F-15SG aircraft at Mountain Home Air Force Base (AFB), ID

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LARRY H. DRYDEN, P.E.
Chief, Planning Branch (A7ZP)

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

MEMORANDUM FOR: Mr. Terry Gibson, Tribal Chairman
Duck Valley Reservation
Shoshone-Paiute Tribes
P.O. Box 219
Owyhee, NV 89832

FROM: HQ ACC/A7ZP
129 Andrews St., Suite 102
Langley AFB, VA 23665-2769

SUBJECT: Proposed Beddown of Republic of Singapore Air Force (RSAF) F-15SG aircraft at Mountain Home Air Force Base (AFB), ID

1. The United States Air Force Air Combat Command (Air Force) and Mountain Home AFB are preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to beddown and operate 10 RSAF F-15SG aircraft for training purposes. This stand-up is desirable to continue building our relationship and interoperability with the Singapore armed forces. Under the proposed action, the RSAF squadron would operate out of Mountain Home AFB for 5 to 20 years to train on the new F-15SG aircraft, co-located with USAF F-15E aircraft at Mountain Home AFB. Modification of buildings and construction of new facilities within the boundaries of Mountain Home AFB and the addition of personnel would occur under this proposal. The Air Force has also identified an additional action alternative, under which the RSAF F-15SG squadron and personnel would beddown and operate 10 F-15SG aircraft; however, construction and building modifications would occur in different locations at Mountain Home AFB. Under the no-action alternative, the Air Force would not beddown the RSAF F-15SG squadron.

2. The EA will be prepared to evaluate potential environmental and mission impacts resulting from implementation of the proposed action and alternatives while examining the potential for cumulative impacts when combined with past, present, and any future proposals. In support of this process, we request your input in identifying general or specific issues or areas of concern you feel should be addressed in the environmental analysis.

3. Please forward any identified issues or concerns to Mr. Ken Walker at the above address. Though we will consider comments received at any time during the environmental process to the extent possible, we would appreciate comments by October 30, 2006. In advance, we thank you for your assistance in this activity. If you have any specific questions relative to the proposal, we would like to hear from you. Please contact Mr. Walker at (757) 764-9339.

LARRY H. DRYDEN, P.E.
Chief, Planning Branch (A7ZP)

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

MEMORANDUM FOR: Mr. Steve Guerber
State Historic Preservation Officer
1109 Main Street, Suite 250
Boise, Idaho 83702

FROM: HQ ACC/A7ZP
129 Andrews St., Suite 102
Langley AFB, VA 23665-2769

SUBJECT: Proposed Beddown of Republic of Singapore Air Force (RSAF) F-15SG aircraft at Mountain Home Air Force Base (AFB), ID

1. The United States Air Force Air Combat Command (Air Force) and Mountain Home AFB are preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to beddown and operate 10 RSAF F-15SG aircraft for training purposes. This stand-up is desirable to continue building our relationship and interoperability with the Singapore armed forces. Under the proposed action, the RSAF squadron would operate out of Mountain Home AFB for 5 to 20 years to train on the new F-15SG aircraft, co-located with USAF F-15E aircraft at Mountain Home AFB. Modification of buildings and construction of new facilities within the boundaries of Mountain Home AFB and the addition of personnel would occur under this proposal. The Air Force has also identified an additional action alternative, under which the RSAF F-15SG squadron and personnel would beddown and operate 10 F-15SG aircraft; however, construction and building modifications would occur in different locations at Mountain Home AFB. Under the no-action alternative, the Air Force would not beddown the RSAF F-15SG squadron.

2. The EA will consider the proposal's potential impacts on historic or culturally significant properties, and we will coordinate related information with your office according to the steps outlined in 36 CFR 800.3 through 36 CFR 800.7.

3. Please forward any identified issues or concerns to Mr. Ken Walker at the above address by November 8, 2006. In advance, we thank you for your assistance in this activity. If you have any specific questions relative to the proposal, we would like to hear from you. Please contact Mr. Walker at (757) 764-9339.

LARRY H. DRYDEN, P.E.
Chief, Planning Branch (A7ZP)

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Snake River Fish and Wildlife Office
1387 S. Vinnell Way, Room 368
Boise, Idaho 83709
Telephone (208) 378-5243
http://IdahoES.fws.gov

NOV 0 3 2006

Ken Walker
HQ ACC/A7ZP
129 Andrews Street, Suite 102
Langley AFB, VA 23665-2769

Subject: Proposed Beddown of Republic of Singapore Air Force F-15SG Aircraft at Mountain Home Air Force Base—Elmore and Owyhee Counties, Idaho—Technical Assistance
File #210.1000 2007-FA-0005

Dear Mr. Walker:

This correspondence is in response to your memorandum received by the US Fish and Wildlife Service (Service) on October 13, 2006, requesting the identification of issues regarding the proposed beddown of Republic of Singapore Air Force F-15SG aircraft at Mountain Home Air Force Base, Idaho. The Service requests that you consider the potential effects of this proposed action on any listed, proposed, or candidate species that may occur in the area. Of particular interest are potential effects of the proposed action on slickspot peppergrass (*Lepidium papilliferum*), a species proposed for listing as endangered under the Endangered Species Act (Act) of 1973, as amended. This species is known to occur on the Juniper Butte Range, which is identified in the 2004 Final Integrated Natural Resource Management Plan as part of the Mountain Home Training Range Complex. Your consultant's recent request for a current species list to be used in evaluating potential effects of the proposed action is currently being processed by our office.

The Service also encourages exploration of opportunities, compatible with your military mission, to improve habitat conditions for wildlife and plant species not protected under the Act. While having no legal status, consideration of other special status species and habitats, and proactive efforts to address any identified issues, may serve to enhance the ecological health of the ecosystem in general, and may prove beneficial for listed species as well. We request that potential effects of the proposed action on native sagebrush steppe vegetation, as well as on wildlife species of concern such as sage grouse (*Centrocercus urophasianus*), be considered in the development of your proposal.

TAKE PRIDE IN AMERICA

Thank you for your interest in threatened and endangered species conservation. Please contact Barb Chaney of my staff at (208) 378-5259 if you require additional information.

Sincerely,

for Jeffery L. Foss, Supervisor
Snake River Fish and Wildlife Office

cc: Mountain Home Air Force Base, ID (Binder)

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Snake River Fish and Wildlife Office
1387 S. Vinnell Way, Room 368
Boise, Idaho 83709
Telephone (208) 378-5243
http://IdahoES.fws.gov

NOV 0 2 2006

Cathy Doan
TEC Inc.
250 Bobwhite Court, Suite 200
Boise, Idaho 83706

Subject: Mountain Home Air Force Base Range Complex—Elmore & Owyhee Counties, Idaho—Species List
File #970.2100, 970.3800 2007-SL-0082

Dear Ms. Doan:

The Fish and Wildlife Service (Service) is providing you with a list of endangered, threatened, proposed, and/or candidate species, and proposed critical habitat which may occur in the area of the proposed environmental assessment project. You requested this list via e-mail on October 30, 2006. This list fulfills the requirements for a species list under section 7(c) of the Endangered Species Act of 1973 (Act), as amended. If the project decision has not been made within 180 days of this letter, regulations require that you request an updated list. Please refer to the species list (SL) number shown above in all correspondence and reports.

Section 7 of the Act requires Federal agencies to assure that their actions are not likely to jeopardize the continued existence of endangered or threatened species. Federal funding, permitting, or land use management decisions are considered to be Federal actions subject to section 7. If the proposed action may affect a listed species, consultation with the Service is required. Formal consultation must be initiated for any project that is likely to adversely affect a threatened or endangered species. If a project involves a major construction activity and may affect listed species, Federal agencies are required to prepare a Biological Assessment. If a proposed species is likely to be jeopardized or if proposed critical habitat will be adversely modified by a Federal action, regulations require a conference between the Federal agency and the Service. A Federal agency may designate, in writing, another non-Federal entity to represent them in consultation.

TAKE PRIDE IN AMERICA

If you have any questions about your responsibilities under section 7 of the Act, or require further information, please contact the Snake River Fish and Wildlife Office at (208) 378-5243. Thank you for your continued interest in endangered species conservation.

Sincerely,

for Jeffery L. Foss, Field Supervisor
Snake River Fish and Wildlife Office

November 2006

MOUNTAIN HOME AIR FORCE BASE RANGE COMPLEX – TEC, INC.
ELMORE AND OWYHEE COUNTIES, IDAHO
SPECIES LIST 2007-SL-0082

LISTED SPECIES	COMMENTS
Bruneau hot springsnail *(Pyrgulopsis bruneauensis)*	LE

PROPOSED SPECIES/CRITICAL HABITAT	
Slickspot peppergrass *(Lepidium papilliferum)*	PE

CANDIDATE SPECIES[1]
None

[1]Candidate species have no protection under the Act, but are included for your early planning consideration. Candidate species could be proposed or listed during the project planning period, and would then be covered under Section 7 of the Act. The Service advises an evaluation of potential effects on candidate species that may occur in the project area.

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James E. Risch
Governor of Idaho

Steve Guerber
Executive Director

Administration
2205 Old Penitentiary Road
Boise, Idaho 83712-8250
Office: (208) 334-2682
Fax: (208) 334-2774

Archaeological Survey of Idaho
210 Main Street
Boise, Idaho 83702-7264
Office: (208) 334-3847
Fax: (208) 334-2775

Historical Museum and Education Programs
610 North Julia Davis Drive
Boise, Idaho 83702-7695
Office: (208) 334-2120
Fax: (208) 334-4059

Historic Preservation Office
210 Main Street
Boise, Idaho 83702-7264
Office: (208) 334-3861
Fax: (208) 334-2775

Historic Sites Office
2445 Old Penitentiary Road
Boise, Idaho 83712-8254
Office: (208) 334-2844
Fax: (208) 334-3225

Public Archives and Research Library
2205 Old Penitentiary Road
Boise, Idaho 83712-8250

Public Archives
Office: (208) 334-2620
Fax: (208) 334-2626

Research Library
Office: (208) 334-3356
Fax: (208) 334-3198

Oral History
Office: (208) 334-3863
Fax: (208) 334-3198

November 2, 2006

Ken Walker
Department of the Air Force
Headquarters Air Combat Command
Langley Air Force Base, Virginia 23665

RE: Proposed Beddown of Republic of Singapore Air Force F 15SG Aircraft at Mountain Home Air Force Base, Idaho

Dear Mr. Walker:

Thank you for requesting our views on the proposed beddown of the Republic of Singapore's Air Force F15SG aircraft at Mountain Home Air Force Base (Base), Idaho.

Properties eligible for the National Register of Historic Places, including buildings, structures, and archaeological sites, have been recorded at the Base. At this point, we do not have enough information to determine whether the beddown and its associated activities with affect such properties. However, we expect the Air Force to keeps its Federal historic preservation responsibilities in mind in all project design. This includes not only avoiding adverse effects on historic properties, but also preserving and using historic properties to the maximum extent feasible.

We encourage you to work with the Base's Cultural Resources Manage, Sherri Matton-Bowden, to ensure that historic properties are appropriately addressed in the Environmental Assessment.

We appreciate your cooperation. If you have any questions, please feel free to contact me at 208-334-3847, ext. 107.

Sincerely,

Susan Pengilly Neitzel
Deputy SHPO and
Compliance Coordinator

KENNY C. GUINN
Governor

STATE OF NEVADA

ANDREW K. CLINGER
Director

DEPARTMENT OF ADMINISTRATION
209 E. Musser Street, Room 200
Carson City, Nevada 89701-4298
(775) 684-0222
Fax (775) 684-0260
http://www.budget.state.nv.us/

November 2, 2006

Ken Walker
US Air Force
Langley Air Force Base
129 Andrews St., Suite 102
Langley AFB, VA 23665-2969

Re: SAI NV # **E2007-107** Reference:

Project: **Mtn. Home AFB, ID for training by Singapore AF.**

Dear Ken Walker:

The State Clearinghouse has processed the proposal and has no comment. Your proposal is not in conflict with state plans, goals or objectives.

This constitutes the State Clearinghouse review of this proposal as per Executive Order 12372. If you have questions, please contact me at (775) 684-0209.

Sincerely,

for Gosia Sylwestrzak
Nevada State Clearinghouse

Enclosure

October 17, 2006

Mr. Larry Dryden
HQ ACC/A7ZP
129 Andrews St., Suite 102
Langley AFB, VA 23665-2769
RE: Proposed Beddown of Republic of Singapore Air Force (RSAF F-15SG at Mountain Home AFB.

Dear Mr. Dryden,

We have received a copy of an Air Force Scoping letter for "Proposed Beddown of Republic of Singapore (RSAF) F-158G aircraft at Mountain Home Air Force Base". It is necessary "to continue building our relationship and interoperability with the Singapore armed forces". The squadron would operate out of MHAFB for 5 to 20 years.

This is alarming.

Please explain why they can not train in or near Singapore.

Is the U. S. now hiring mercenary pilots or a mercenary Air force of sorts? Who will be flying these planes, and are they hired by the U. S.? Who builds these planes - an American Defense Contactor? A Singapore firm? How much does each plane cost?

How much in loans against the U. S. does the Singapore government hold?

Isn't Singapore a dictatorship of sorts? For example, if you go to Google, type in **Singapore dictatorship** - you will see that this is so. Why isn't the US promoting democracy there, as the President so often speaks about? Why are we letting planes of a dictatorship pollute our airspace, startle and stress out bighorn sheep and sage grouse, mar our clean desert skies with contrails and pollutants, etc.???

Is this some kind of quid pro quo - Americans get the annoyance, nuisance, and likely pollution, fires, ensuing weeds etc. - and the Singapore government doesn't cash in on potential debt, allowing its citizens keep their peace and quiet while reaping the benefits of big military?

Please explain all facets of the training, the airplanes, the flight activity, the noise, the pollutants, etc. - and all direct, indirect and cumulative impacts.

We are alarmed that the citizens of Idaho, Oregon and Nevada get new and added air and visual pollution, range fires
from flares, litter from chaff, noise, sonic booms, testing and use of devices of unknown kinds including with unknown effects on human health and well-being - to benefit the Singapore Air Force!

Are these planes being trained to spy on North Korea? China? WHY are they potentially coming here?

Attached to the letter is a map that shows MH Air Force Base

and "Associated Airspace". The Airspace is the Owyhee, Paradise and Paradise West MOAs - extending into Nevada and SE Oregon.

A few months ago, we also received, and I commented on, a proposal to use white phosphorus bomblets/rockets - on the military withdrawn lands at Saylor Creek in Owyhee County. We incorporate those comments by reference.

How is this proposal linked to that, or to other changes - such as airspace expansion proposals over the Jarbidge Wilderness or other portions of eastern Nevada - that are in the works.

Who else (other countries? -Britain, Canada) now uses for any purposes - or foreseeably may use - the airspace and facilities at issue here?

What pathogens, insects, bacteria, weed seeds or other exotic species may be imported in these planes?

An EIS must be prepared to assess all the direct, indirect and cumulative impacts of this proposal - to soils, vegetation, watersheds, air quality, rare and declining native species - ranging from pygmy rabbit to sage grouse to slickspot peppergrass, recreational and other important uses of the public lands.

We are alarmed that the language of the proposed Owyhee Initiative legislation would protect this foreign country or the Air Force from being sued if white phosphorus devices landed outside the range and killed or maimed someone or started major fires, or extreme noise levels affected wilderness values, or other impacts occurred. Is that indeed the case? Would Singapore pilots be immune under the OI? Would US pilots or the US Air Force?

You must consider a full range of alternatives - including reduction or elimination of other missions in order to significantly decrease the noise and effects of existing activity - which are worsening over time - and many alternatives dealing with alternative siting for the Singapore planes and their bed-down.

Katie Fite
Western Watersheds Project
PO Box 2863
Boise, ID 83701

Singapore's RSAF Decides to Fly Like An Eagle

Posted 07-Sep-2005 09:48

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Defense News Archives

"Splash Two...!"

(click to view full)

(Originally published Sept 7, 2005; last updated March 22, 2006)

On August 25, 2005, DID published **F-15E Strike Eagle Taking Off With Singapore Contract?** Well, the Strike Eagle has now left the tarmac. **This Ministry of Defence release** notes, simply: "...MINDEF is now in the process of seeking final clarifications and contract negotiation with Boeing." This 20-plane, $1+ billion order ($1.4-1.8 billion is likely) to replace Singapore's ancient A-4SU Skyhawks is good news for Boeing. Combined with the $3.6 billion, 40-plane South Korean F-15K, it **ensures continued production** of their 2-seat, multi-role Strike Eagle fighter. It's also good news for the manufacturers mentioned in Singapore's **associated weapons and services request**, which could be worth another $741 million if all options are exercised.

The F-15SG will be an advanced version of the U.S. Air Force's F-15E Strike Eagle, with minor customization to Singapore's specifications and the most up-to-date avionics available. According to Jane's Defense Weekly on February 23, 2006, the **AN/APG-63v3 AESA radar will be included**, and there are rumours that a number of **Israeli electronics and self-defense systems** will be part of the F-15SG as well. **Sniper XR** surveillance & targeting pods **will be added** to Singapore's previous US equipment list, and **the higher-thrust GE F110 engine** used in many F-16s will be used instead of Pratt & Whitney's standard F100 that

powers some F-16s and most F-15s.

With all of these fetaures, Singapore has reasonable grounds to argue that it will be flying the world's most advanced version of the F-15 Strike Eagle....

Rafale: mayday call?

The news is much less good for France's Rafale, however, in ways that go beyond this competition alone - and speak to the state and segmentation of the global fighter market.

Dassault's Rafale remains without a single export order to date, having lost out in Norway (F-35 or Eurofighter), the Netherlands (F-35 Joint Strike Fighter), and South Korea (**F-15K Strike Eagle**).

The streak remains unbroken in Singapore. A Dassault news release noted that their hopes: "...failed to materialize. There seem to be two main reasons for this decision:

- the dollar's current weakness is a definite handicap for the economic competitiveness of the French offer;
- America's power might once again bore [sic] out the old Chinese proverb: Bamboo always leans the way it's pushed the hardest"

Actually, if this contract bears out a proverb, it's more likely to be Charlie Brown's old adage that *"winning isn't everything, but losing isn't*

anything."

Thanks for the memories

Singapore's relationship with the USA includes complementary weapons and equipment already in stock for the F-15s, joint operations and **strategic concerns**, and even **Singaporean Ch-47 Chinook helicopters and pilots currently flying hurricane relief** missions inside the USA. This deepening relationship has been **consistently** noted by DID as a source of advantage for Boeing. Nevertheless, Singapore has bought major defense platforms from France before and continues to so.

The Rafale's problems run deeper.

The problem is positioning. The Rafale is finding itself squeezed on three fronts.

The problem, in one

(click to view full)

[1] Many nations do not have the funding or the need for an "omni-role fighter" aircraft in the $60+ million range, and are explicitly purchasing light fighters like Lockheed's F-16 (**Greece**, also **Turkey**, and many others), **Saab/BAE's JAS-39 Gripen** (Sweden, Czech Republic, Hungary, South Africa), and Dassault's own Mirage 2000 instead (Taiwan, UAE, **possibly India**) in the $20-30 million range - or buying used. For

instance, Thailand got Singapore's older F-16A aircraft when Singapore upgraded to a newer model of F-16. Richard Aboulafia, of the Teal Group, **has some harder stats on this.**

Singapore, with its long sea lanes and wide potential area of operation, had a different set of requirements, and an immediate need to replace their ancient A-4SU Skyhawks. To put that need in perspective, Sen. John McCain was flying an A-4 Skyhawk when he was shot down over North Vietnam.

F-35A JSF

[2] Among advanced militaries, the F-35 Joint Strike Fighter appears poised to become the next F-16. Decisions like MBDA's announcement that they would **adapt their Meteor long-range air-air missile for the F-35** reflect a growing acknowledgement of that reality.

The Joint Strike Fighter is an affordable 5th Generation aircraft, with a wide base of international participants (USA, Australia, Britain, Canada, Denmark, Israel, Italy, Netherlands, Norway, Turkey) and improved capabilities. As the program moves closer to completion, analysts expect its influence on procurement decisions will grow stronger and induce many countries to wait instead.

Sukhoi SU-37

[3] Meanwhile, both the Russian SU-27/30 family (Russia, China, India, Malaysia, Vietnam, et. al.), and the EADS Eurofighter (Austria, Britain, Italy, Germany, Spain) offer stiff competition and loyal customer bases in the realm of 4th generation aircraft. The F-15 Strike Eagle is also emerging as a strong export competitor in this realm (USA, Israel, Korea, Singapore), which is particularly bad news for Dassault given its compatibility with widely-used American munitions, targeting pods, communications systems, etc.

As DID has noted before, Singapore's quality military, **leading-edge doctrine**, and smart procurement decisions have made them an influential bellwether customer whose military decisions are seen as a meaningful endorsement in Asia and beyond. Had they selected Dassault's Rafale over Boeing, it could well have opened doors for that aircraft elsewhere. Instead, the Rafale's export mission just got tougher. **Dassault's bravado concerning global fighter trends** and opportunities notwithstanding.

Indeed, continued failure to secure export orders could have real blowback effects into the Rafale program for France.

The Rafale program was always dependent on some level of foreign orders to help finance its ongoing modernization and upgrade plans. If that option continues to fail, France's budget constraints could leave the Rafale falling steadily behind even its 4th Generation peers, in a vicious spiral that further crimps export opportunities.

Back when France was still part of the Eurofighter consortium, their rigid insistence on their own specifications and on deciding all work-sharing unilaterally forced a parting of the ways. While French requirements really were quite specific, the decision has thus far proven to be a very

expensive one.

Meanwhile, while DID fully expects F-15 Strike Eagles to fly over Singapore alongside its F-16s and locally upgraded F/RF-5s, it's important to note that the Strike Eagle contract has not yet been finalized. When and if it is, DID will report the details.

Feb 9/06 UPDATE: eDefense has some **bad news for the Rafale:** *"With a grand total of 294 aircraft (234 for the French Air Force and 60 for the French Navy) needed to meet current French requirements for the Rafale, and with no export hopes in view, orders for this potent multirole fighter-bomber will have to rely essentially on governmental support at a time when France's finances are burdened by a rising national debt, according to the French Ministry of Defense (MoD)."*

Additional Readings & Sources: News & Developments

- DID (April 24/06) - **Lockeed's Sniper, Tiger Eyes & IRST to Equip Singapore's F-15SGs**. It's official. DID has the details.
- Singapore MINDEF (February 2006) - **Battle-proven bird of prey – the F-15 Eagle. Covers the RSAF's newest fighter and its equipment.**
- Aviation International News (February 2006) - **RSAF's F-15s shop far and wide for warfighter excellence**. Includes some interesting political baclground, notes the possibility of Israeli equipment, and adds that the F-15SG will use **Lockheed's Sniper XR** as its targeting pod.
- DID (Jan 11/06) - **Singapore Chooses GE's F110 for its F-15 Strike Eagles**

- DID (Dec 14/05) - **Singapore Announces F-15SG Contract.** A subsequent update notes that the AN/APG-63v3 AESA radar will also be part of the deal, unlike the Koreans who **did not request AESA capability** for their F-15K.

- Singapore MINDEF (Sept 6/05) - **MINDEF Statement on Next Fighter Replacement Programme**

- Dassault Aviation (Sept 6/05) - **Rafale Edged Out in Singapore**

- Japan Today (Aug 25/05) - **Singapore says it is still evaluating U.S., French fighter jets**

- DID (Aug 25/05) - **F-15E Strike Eagle Taking Off With Singapore Contract?**

- Singapore Ministry of Defence (Aug 24/05) - **Former Commander of United States Pacific Command Receives Prestigious Military Award.** "The Meritorious Service Medal (Military) was awarded to Admiral (Retd) Fargo, who was Commander of the United States Pacific Command from May 2002 to February 2005, in recognition of his outstanding role in fostering closer ties between the United States Pacific Command and the Singapore Armed Forces..."

- DSCA Notification (Aug 23/05) - **Singapore - Weapons and Logistics/ Training Support for F-15 Aircraft**

- St Louis Post Dispatch (July 31/05) - **Boeing's F-15 Tries to Stay Aloft** (see also **here**). Good look at economic impacts, plus likely prospects for the F-15 and F-16 aircraft over the next decade.

- DID (July 20/05) - **F-16 Shoots Down Greece's $6B Eurofighter Order**. Light fighter option beats out multi-role aircraft, on a contract once considered near-certain for the Eurofighter. The door is still open in 2009, however.... unless Greece decides to match its rival Turkey and go with F-35s as its future.

- DID (June 13/05) - **Gripen Offsets Set - But Drooping Sales Leave Workers Gripin'**. Layoffs at Saab due to slow sales of the JAS-39 4th generation lightweight fighter.

- DID (May 27/05) - **Meteor Missile Will Make Changes to Accommodate F-35**

- DID (May 6/05) - **$1.1B to Upgrade Turkish F-16 Fleet**. Eurofighter option dead, as Turkey is an F-35 program participant. Light fighter option beats out multi-role aircraft now, while 5th generation replacement kills future prospects.

- DID (April 22/05) - **Singapore Drops Eurofighter from Critical Contract**

- Jane's Defense Weekly Report (April 21/05) - **Eurofighter Typhoon takes a nosedive in Singapore**

- Reuters News Report (April 21/05) - **Singapore drops Eurofighter from jet bid**

- DID (March 23/05) - **Turkey considering Eurofighters**

- DID (March 7/05) - **F-15K's First Flight Successful**

- F-16.NET (Dec. 13/04) - **Thailand to Receive Singapore F-16A/Bs**. See also this article on the Royal Thai Air Force,

whose **next major fighter purchase is likely to be... F-16s.**

Additional Readings & Sources: Background and Market Analysis

---

- Aviation Week & Space Technology (March 1/04) - **Fighter Makers Reassess Options.** Discusses Singapore's initial shortlist, adds predictions re: the world fighter market, and notes that Singapore represents the last chance for the two European aircraft to prove themselves through victory in an influential export market before the F-35 Joint Strike Fighter influences buyers (some good comments on the F-35 program, too). Analysis by the Teal Group.

- DID (June 16/05) - **Dassault Discusses Global Fighter Market to 2015**

- AerospaceWeb.org Aircraft Museum: **A-4 Skyhawk**

- **Boeing F-15 Official Site**

- **Rafale International Singapore Site**

- **Eurofighter Typhoon Official Site**

- Carlo Kopp, Air Power Australia (August 2000) - **Eurofighter Typhoon - Demon or Lemon?** His analysis and conclusions explain a great deal re: Singapore's decision, actually. An extremely informative, thorough analysis that directly compares the Eurofighter with the F-22, F-15, F/A-18, and Su-30 family in many dimensions. Avoids both unwarranted hype and excessive negativity; very fair, fact-based and excellent.

- Airforce-Technology.com - **Sukhoi SU-27/30 Family**
- **F-35 Joint Strike Fighter consortium, Official Site**
- DID (Aug. 25/05) - **Singapore Brig. Gen. Jimmy Khoo: 8 Reasons Why Network Centric Warfare is Irrelevant.** It's tongue-in-cheek, and smart. Brig. Gen. Khoo is a popular speaker at conferences related to military transformation. See why.
- The Fourth Rail (April 27/05) - **Of Pirates and Terrorists**. A growing concern around the Straits of Malacca, near Singapore.
- **The Joint Center for International and Security Studies** (Oct. 2002) - The Information Revolution in Military Affairs: **Prospects for Asia: Singapore and the Revolution in Military Affairs** [PDF document]
- RichardAboulafia.com - **December 2001 Newsletter**. Good, evidence-backed commentary re: fighter prices and exports.

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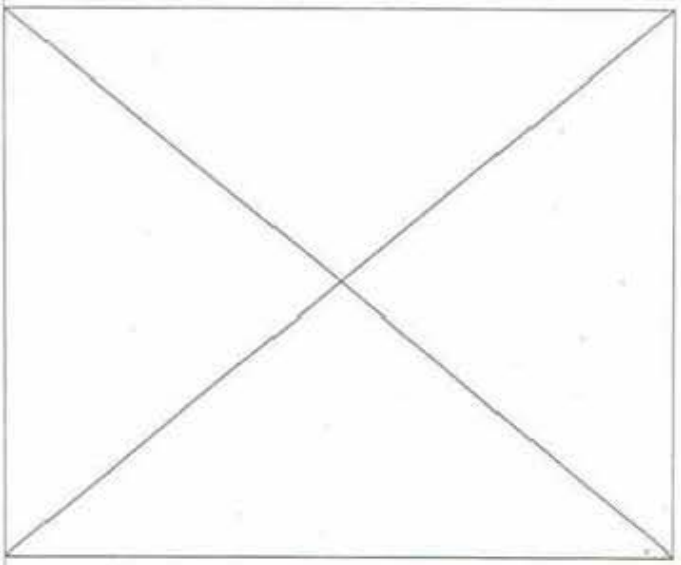

Today's Headlines

THE US NAVY'S FY 2007 NUCLEAR PROPULSION CONTRACTS

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PUBLIC NOTIFICATION

As part of the public process the Air Force published the following notice of intent to prepare this environmental assessment on October 17, 2006 in the *Twin Falls Times News*, and October 18, 2006, in the *Mountain Home News* and *Idaho Statesman*.

The US Air Force invites Public Comments
on a Proposal to Beddown Republic of Singapore Air Force (RSAF) aircraft at
Mountain Home Air Force Base, Idaho

The United States Air Force is preparing an Environmental Assessment (EA) to assess the potential environmental impacts of a proposal to beddown and operate 10 RSAF F-15SG aircraft at Mountain Home Air Force Base (AFB). The proposed action would allow the RSAF to operate a separate fighter squadron of F-15SG aircraft for 5 to 20 years, co-located with USAF F-15E aircraft at Mountain Home AFB. Modification of buildings and construction of new facilities within the boundaries of Mountain Home AFB and the addition of personnel would occur under this proposal. The Air Force has also identified an additional action alternative, under which the RSAF F-15SG squadron would beddown and operate 10 F-15SG aircraft. However, construction and building modifications would occur in different locations at Mountain Home AFB. Under the no-action alternative, the Air Force would not beddown the RSAF F-15SG squadron.

The Air Force requests your assistance in identifying potential environmental impacts of implementing this proposed action. The EA will identify and evaluate the potential impacts of the proposed action and alternatives and lead to either a Finding of No Significant Impact or a decision to prepare an Environmental Impact Statement.

Comments on this proposal are requested any time throughout the environmental impact analysis process and will be considered to the extent possible in the preparation of the EA. Comments may be mailed to Capt. Damien Pickart, 366th FW/PA, 366 Gunfighter Ave., Suite 314, Mountain Home AFB, ID 83648.

For additional questions or information, please contact:
Public Affairs Office, Mountain Home AFB, (208) 828-6800

NOTICE OF AVAILABILITY

As part of the public process the Air Force published the following notice of availability of the draft environmental assessment on December 11, 2006 in the *Idaho Statesman* and the *Twin Falls Times News*, and December 13, 2006, in the *Mountain Home News*.

Notice of Availability
The U.S. Air Force invites public comment on the Draft Environmental Assessment for Republic of Singapore F-15SG Aircraft Beddown at Mountain Home Air Force Base

The U.S. Air Force proposes to establish a foreign military training squadron within the 366th Fighter Wing at Mountain Home Air Force Base (AFB), Idaho, to support agreements between the U.S. government and one of its foreign allies and to train as a team to perform in a multinational force structure. Under the proposed action, the Republic of Singapore Air Force (RSAF) would beddown 10 operational F-15SG aircraft, personnel, and equipment beginning in 2009 to operate the squadron. The intent is for the squadron to operate at Mountain Home AFB for 5 to 20 years.

A copy of the Draft EA and Draft Finding of No Significant Impact are available for review at the following libraries beginning December 4, 2006.

Twin Falls Public Library	201 4th Avenue East, Twin Falls
Mountain Home Public Library	790 North 10th East, Mountain Home
Mountain Home AFB Library	Bldg 2427, 520 Phantom Ave., Mountain Home Base
Boise Public Library	715 S. Capitol Blvd., Boise
Bruneau District Library	32073 Ruth St., Bruneau

You may request a copy of the document from the Mountain Home AFB Public Affairs Office (208-828-6800), the HQ ACC/A7ZP (757-764-6156), or by requesting it from the address below. An electronic version of the EA is also available for public review at www.accplanning.org. Please provide any comments on the draft EA by January 3, 2007, and submit them to:

HQ ACC/A7ZP (Mr. Ken Walker)
129 Andrews St., Ste. 102
Langley AFB, VA 23665-2769

DRAFT ENVIRONMENTAL ASSESSMENT
DISTRIBUTION LIST

Republic of Singapore Air Force F-15SG Beddown, Mountain Home AFB
Draft Environmental Assessment
Distribution List

Mr. Steve Guerber
Idaho State Historical Society
2205 Old Penitentiary Road
Boise, ID 83712

Ms. Michael Stafford
Nevada State Clearinghouse Department of Administration
209 E Musser St., Room 200
Carson City, NV 89701

Mr. Ren Lohoefener
USFWS Northwest Regional Office
911 NE 11th Ave.
Portland, OR 97232

Mr. Howard Hedrick
Twin Falls District Manager
2536 Kimberly Road
Twin Falls, ID 83301

Mr. Jack Peterson
BLM State Office
1387 S. Vinnell Way
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Mr. Jeff Foss
Snake River Fish and Wildlife Service
1387 S. Vinnell Way, Room 368
Boise, ID 83709

Mr. Tracey Trent
IDFG Boise
600 Walnut St.
Boise, ID 83702

Mr. Steve Huffaker
Idaho Fish and Game
P.O. Box 25
Boise, ID 83707

Dr. Joan Cloonan
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706

Colonel William Ritchie
Office of the Governor
150 South 3rd Street East
Mountain Home, ID 83647

Ms. Connie Cruser
Elmore Co. Commission
150 South 4th East, Suite 3
Moutain Home, ID 83647

Ms. Mary Egusquiza
Elmore Co. Commission
P.O. Box 1315
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The Honorable James Risch
Governor, State of Idaho
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Boise, ID 83720

The Honorable Kenny Guinn
Governor, State of Nevada
Capitol Building
Carson City, NV 89701

The Honorable Ted Kulongoski
Governor, State of Oregon
160 State Capitol, 900 Court Street
Salem, OR 97301

Mr. Joe McNeal
Mayor, City of Mountain Home
P.O. Box 10
Mountain Home, ID 83647

Mountain Home City Council
160 South 3rd East
Mountain Home, ID 83647

Mr. Jim Desmond
Owhee County Commissioners
P.O. Box 128
Murphy, ID 83650

Mr. Larry Rose
Elmore Co. Commission
P.O. Box 880
Glenns Ferry, ID 83623

The Honorable Larry Craig
Office of Senator Craig
225 North 9th Street, Suite 530
Boise, ID 83702

The Honorable Mike Crapo
Office of Senator Crapo
251 East Front Street, Suite 205
Boise, ID 83702

The Honorable John Ensign
Office of Senator Ensign
333 Las Vegas Blvd. South, Suite 8203
Las Vegas, NV 89101

The Honorable Harry Reid
Office of Senator Reid
333 Las Vegas Blvd. South, Suite 8016
Las Vegas, NV 89101

The Honorable Gordon Smith
Office of Senator Smith
116 South Main Street, Suite 3
Pendleton, OR 97801

The Honorable Ron Wyden
Office of Senator Wyden
105 Fir Street, Suite 201
La Grande, OR 97850

Mr. John Carpenter
Nevada State Assembly
P.O. Box 190
Elko, NV 89803

Mr. R. Tom Butler
Oregon House of Representatives
900 Court St. NE, H-286
Salem, OR 97301

Mr. Pete Nielsen
Idaho House of Representatives
3955 S. 136 W.
Mountain Home, ID 83647

Mr. Richard Wills
Idaho House of Representatives
Box 602
Glenns Ferry, ID 83623

Mr. Tim Corder
Idaho Senate
357 SE Corder Dr
Mountain Home, ID 83647

Mr. Ted Ferrioli
Oregon Senate
900 Court St. NE, S-223
Salem, OR 97301

Mr. Dean Rhoads
Nevada Senate
Box 8
Tuscarora, NV 89834

The Honorable Jim Gibbons
U.S. House of Representatives
400 South Virginia St, Suite 502
Reno, NV 89501

The Honorable Butch Otter
U.S. House of Representatives
802 West Bannock, Suite 101
Boise, ID 83702

The Honorable Mike Simpson
U.S. House of Representatives
802 West Bannock, Suite 600
Boise, ID 83702

The Honorable Greg Walden
U.S. House of Representatives
131 NW Hawthorne, Suite 201
Bend, OR 97701

Mr. Craig Gehrke
The Wilderness Society
350 N. 9th St., Suite 302
Boise, ID 83702

Ms. Katie Fite
Western Watersheds Project
P.O. Box 1612
Boise, ID 83701

Mr. Kyle Prior
Tribal Chairman
Shoshone-Paiute Tribes
P.O. Box 219
Owyhee, NV 89832

Ms. Wanda Johnson
Acting Tribal Chairperson
Burns Paiute General Council
H.C. 71, 100 Pasigo St.
Burns, OR 97720

Ms. Karen Crutcher
Tribal Chairperson
Fort McDermitt Tribal Council
111 North Road
McDermitt, NV 89421

Mr. Fredrick Auk
Tribal Chairman
Shoshone-Bannock Tribes
P.O. Box 306
Fort Hall, ID 83203

Ms. Helen Snapp
Tribal Chairperson
Paiute-Shoshone Tribes
P.O. Box 457
McDermitt, NV 89421

Mr. Larry Honena
Executive Director
Northwestern Band, Shoshone
427 North Main Street, Suite 101
Pocatello, ID 83204

Mountain Home Chamber of Commerce
205 North 3rd East
Mountain Home, ID 83647

Mr. Tim McMurtrey
Mountain Home School District 193
P.O. Box 1390
Mountain Home, ID 83647

Twin Falls Public Library
201 4th Avenue East
Twin Falls, ID 83301

Mountain Home Public Library
790 North 10th East
Mountain Home, ID 83647

Mountain Home AFB Library
520 Phantom Ave.
Bldg. 2427
Mountain Home AFB, ID 83648

Boise Public Library
715 S. Capitol Blvd.
Boise, ID 83702

Bruneau District Library
32073 Ruth St.
Bruneau, ID 83604

PUBLIC AND AGENCY COMMENTS ON THE DRAFT EA

IDAHO STATE HISTORICAL SOCIETY
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Our mission: to educate through the identification, preservation, and interpretation of Idaho's cultural heritage.

www.idahohistory.net

James E. Risch
Governor of Idaho

Steve Guerber
Executive Director

Administration
2205 Old Penitentiary Road
Boise, Idaho 83712-8250
Office: (208) 334-2682
Fax: (208) 334-2774

Archaeological Survey of Idaho
210 Main Street
Boise, Idaho 83702-7264
Office: (208) 334-3847
Fax: (208) 334-2775

Historical Museum and Education Programs
610 North Julia Davis Drive
Boise, Idaho 83702-7695
Office: (208) 334-2120
Fax: (208) 334-4059

Historic Preservation Office
210 Main Street
Boise, Idaho 83702-7264
Office: (208) 334-3861
Fax: (208) 334-2775

Historic Sites Office
2445 Old Penitentiary Road
Boise, Idaho 83712-8254
Office: (208) 334-2844
Fax: (208) 334-3225

Public Archives and Research Library
2205 Old Penitentiary Road
Boise, Idaho 83712-8250

Public Archives
Office: (208) 334-2620
Fax: (208) 334-2626

Research Library
Office: (208) 334-3356
Fax: (208) 334-3198

Oral History
Office: (208) 334-3863
Fax: (208) 334-3198

December 28, 2006

Mr. Ken Walker
HQ ACC-A7ZP
129 Andrews Street, Ste. 102
Langley AFB, VA 23665-2769

RE: Republic of Singapore Air Force F-15SG Beddown Environmental Assessment, Mountain Home Air Force Base

Dear Mr. Walker:

Thank you for sending the Environmental Assessment for the Republic of Singapore Air Force F-15SG Beddown Environmental Assessment at Mountain Home Air Force Base, Idaho. We have not yet evaluated the historical significance of the properties described in Table 3.7-2; therefore, we cannot comment on project effects. We will work with the Base's Cultural Resource Manager, Ms. Sheri Mattoon Bowden, to evaluate these properties and assist the Air Force in completing its Section 106 Review of this undertaking.

We appreciate your cooperation. If you have any questions, please feel free to contact me at 208-334-3847, ext. 107.

Sincerely,

Susan Pengilly Neitzel
Deputy SHPO

The Idaho State Historical Society is an Equal Opportunity Employer.

KENNY C. GUINN
Governor

STATE OF NEVADA

ANDREW K. CLINGER
Director

DEPARTMENT OF ADMINISTRATION
209 E. Musser Street, Room 200
Carson City, Nevada 89701-4298
(775) 684-0222
Fax (775) 684-0260
http://www.budget.state.nv.us/

December 29, 2006

Mr. Ken Walker
US Air Force
Air Combat Command
HQ ACC/A7ZP
129 Andrews Street
Suite 102
Langley AFB, VA 23665-2769

Re: SAI NV # **E2007-167** Reference:

Project: **EA- Republic of Singapore Beddown at Mountain Home AFB**

Dear Mr. Ken Walker:

Enclosed are comments from the agencies listed below regarding the above referenced document. Please address these comments or concerns in your final decision.

Division of State Lands

The following agencies support the above referenced document as written:

State Historic Preservation Office

This constitutes the State Clearinghouse review of this proposal as per Executive Order 12372. If you have questions, please contact me at (775) 684-0209.

Sincerely,

for Gosia Sylwestrzak
Nevada State Clearinghouse

Enclosure

The Nevada Division of State Lands defers comments to those generated by Elko, White Pine and Lincoln Counties. There have been concerns expressed by those counties and the State regarding the potential adverse impacts of increased sorties (and possible withdrawals) in the State.

-Skip Canfield, AICP

-----Original Message-----
From: Clearinghouse [mailto:clearinghouse@budget.state.nv.us]
Sent: Thursday, December 14, 2006 10:15 AM
To: Skip Canfield
Subject: E2007-167 EA- Republic of Singapore Beddown at Mountain Home AFB - HQ ACC/A7ZP

NEVADA STATE CLEARINGHOUSE
Department of Administration, Budget and Planning Division
209 East Musser Street, Room 200, Carson City, Nevada 89701-4298
(775) 684-0209 Fax (775) 684-0260
DATE: December 14, 2006

Division of State Lands

Nevada SAI # E2007-167
Project: EA- Republic of Singapore Beddown at Mountain Home AFB

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.

http://budget.state.nv.us/clearinghouse/Notice/2007/E2007-167.pdf

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Friday, December 29, 2006.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference. Questions? Gosia Sylwestrzak, (775) 684-0209 or mailto:clearinghouse@budget.state.nv.us.

Note - Short Comment Period.

____No comment on this project ____Proposal supported as written

AGENCY COMMENTS:

Signature: Date:

Distribution:
Sandy Quilici, Department of Conservation & Natural Resources

City of Mountain Home

160 South 3rd East, PO Box 10, Mountain Home, ID 83647 (208)587-2104 Fax (208)587-2110

December 26, 2006

HQ ACC/A7ZP (Mr. Ken Walker)
129 Andrews St., Ste. 102
Langley AFB, VA 23665-2769

Re: Draft Environmental Assessment (EA) for Republic of Singapore Air Force F-15SG Beddown, Mountain Home AFB

Dear Mr. Walker,

Upon completing a review of the Draft EA for Republic of Singapore Air Force F-15SG Beddown at Mountain Home AFB Idaho, I can find no conflict with the City of Mountain Home Comprehensive Plan, Capital Improvement Plan, nor any other strategic or visionary planning document or statements on record.

The City of Mountain Home has historically supported the mission of the 366th Wing as evident by our dedicated parks, annual parades, and ceremonies honoring our armed forces and veterans organizations. We recognize the need to defend and promote world peace through freedom, democracy, and jointly trained armed forces.

The Mountain Home City Council publicly stated its support of the Beddown of the Republic of Singapore Air Force F-15SG aircraft by unanimously passing Resolution #6-06 on November 13, 2006. This resolution serves as a testimony of our commitment to the men and women who risk their lives in defense of that which we hold in honor and high esteem.

Thank you for affording this opportunity to Mountain Home Air Force Base and the City of Mountain Home and for allowing us to contribute to our National and world defense.

Sincerely,

Mark S. Russell, President
Mountain Home City Council

I concur with the Environmental Assessment conclusion that neither the "Proposed Action" or "Alternative A" would have NO significant impacts on the quality of the human or natural environment from their implementation.

I do make the following recommendations that would help to clarify the Draft EA and in some cases insure the factual and correct historical accounts not be diluted by generalizations.

Recommend the following corrections be considered for inclusion in the Final Environmental Assessments:

Page 1-5 line 4 Recommend that the addition of an F-15E squadron be added to the sentence to clarify all the BRAC actions.

... However, as discussed below, as result of action directed by the 2005 Base Realignment and Closure (BRAC) Commission the base will lose both F-15C and F-16 CJ **squadrons and gain a squadron of F-15Es.** The BRAC action essentially will be complete by the time RSAF beddown will occur. ...

Page 2-7 Section 2.22 Line 10 Recommend adding a reference to the sortie numbers evaluated in the Air Force in Idaho 1992 EIS.
(reference is the Enhanced training in Idaho EIS page N-8 paragraph 1 line 6 and also page 1-7 Figure 1.1-4 Sortie-Operations....)

... the RSAF F-15SG beddown would still be approximately 31 percent less than they were in 2001 (Air Force 2001) **and approximately 49% less than the 21,000 fully analyzed in 1992 Air Force in Idaho EIS. (Air Force 1998)**

Page 2-7 Section 2.22 Line 14 This sentence introduces baseline without any explanation of what the baseline is. *"Total airfield operations increase by 23 percent compared to baseline levels under the proposed action...."* Recommend adding an explanation or definition of "**baseline**" to this section 2.2.2 or earlier in the document. This could be accomplished by copying paragraph 2 on page 3-2 that explains rational for what the baseline is. A simpler option would be to add a sentence at the end of the paragraph.

... include the aircraft slated for realignment. **(Baseline condition for this EA reflects post-BRAC conditions at Mountain Home AFB.)**

Page 3-7 Section 3-2-1 line 7 Recommend that the agreement wording be entered into text for the historical record. See page 1-55 Enhanced Training in Idaho EIS.

Replace last sentence " By Agreement, the Air Force conducts no flights.... ....over the Duck Valley Reservation." with the following:

August 7, 1996, the Air Force agreed, absent compelling national security circumstance, military contingencies or hostilities to not fly below 10,000 feet AGL and the Air Force will voluntarily not fly below 15,000 feet AGL for training operations over the present boundaries of Duck Valley Reservation except during emergencies, such as aircraft mechanical problems or avoidance of weather. (Air Force 1998)

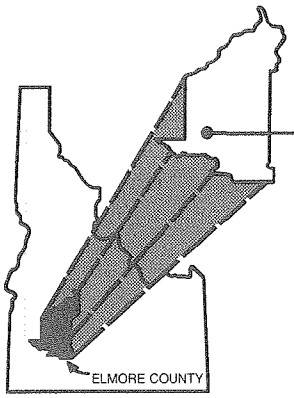
Military Affairs Committee
Mountain Home, ID
Chamber of Commerce

Received 12-20-06

MOUNTAIN HOME SCHOOL DISTRICT 193

P.O. Box 1390 470 North Third East Mountain Home, Idaho 83647-1390

(208) 587-2580
(208) 587-9896 FAX
www.mtnhomesd.org



December 20, 2006

Mr. Ken Walker
HQACC/A7ZP
129 Andrews Street, Suite 102
Langley, AFB, VA 23665-2769

Re: Proposed Beddown of Republic of Singapore Air Force (RSAF F-15SG) at Mountain Home Air Force Base

Dear Mr. Walker;

We recently received the draft of the Environmental Assessment for Republic of Singapore Air Force F-15SG Beddown, Mountain Home AFB. The current draft proposal of the assessment is unacceptable to District Administration and the Board of Trustees of School District #193 for the following reasons:

Stated under the first section titled, Finding of No Significant Impact; paragraph 3.0, Summary of Environmental Consequences; subparagraph, Socioeconomics, it states that, "*The Mountain Home School District would not receive impact aid for RSAF school age dependents, which could cause an adverse impact, but not a significant adverse to the economy as a whole.*" On page 3-82, "*Considering in 2005 MHSD 193 received $42,600 in impact aid for students whose active military parent lived and worked on the base, and assuming the amount of impact aide remained constant for the duration of the proposed beddown action, MHSD 193 could potentially lose $257,400 each year in impact aid. While the school district could absorb the student increase with no adverse impact, the loss of impact aid each year could be adverse.*"

The Environmental Assessment is incorrectly worded. The loss of Impact Aid funding **will** cause adverse impact to the District. In fiscal year 2005, the Mountain Home School District received $3,893 in Impact Aid per military "A" student. These payments were from Federal years 2005, 2004, and 2003. A detrimental financial impact to the District of $385,407, not the $257,400 as indicated in the draft document, is based on the 99 students anticipated to arrive in Mountain Home from the 179 RSAF personnel.

In addition to the federal component, there may be a state financial component to be considered. If a student is on a formal foreign exchange program and has a student visa, the attendance is included in the ADA (Average Daily Attendance) and reimbursed by the State of Idaho. If the

child is not in a structured program and is on a non-student visa, the state does not reimburse the district for any attendance and the district must bill out of state tuition. We are unclear how the Singapore children will be classified. If billing for out of state tuition is required, the current monthly tuition rates are $516.49 for elementary age children and $804.09 for secondary students. If the Singapore students are 70% elementary and 30% secondary, an average weighting would determine the potential revenue loss. The weighted monthly tuition is $602.76 per month per student. ($516.49 x 70% + $804.09 x 30%). Annually this equates to $5,424.84 per student based on a nine month school year. When combining federal and state revenue loss per student we calculate the annual student revenue loss to be $9,318 ($3,893 + $5,425). This equates to a total loss of $922,482, which is 4.4% of our 2007 budgeted revenue!

This is absolutely unsatisfactory to the Mountain Home School District. The Impact Aid program was formed to help make up the lost local tax base to school districts imposed upon by federal property. This program was designed to provide payments in lieu of taxes to school districts that have had large parcels of land taken off the tax roles after 1938 as a result of a federal action. The district requests that we receive the same amount of Impact Aid funding for any Singapore school aged student that our current military school age dependents who attend the Mountain Home Public Schools provide.

In lieu of the above mentioned concerns the question remains as to who is going to cover the cost to educate the Singapore students. The taxpayers of the state of Idaho, the community of Mountain Home, and the citizens of the United States should not have to foot the bill for the foreign students of Singapore to attend Idaho's public school system. The District supports the philosophy for military personnel of different nations to achieve a common high standard of training and proficiency and to forge a new team. We understand the benefits to both MHAFB and Singapore with the proposed beddown, but not providing any funding for the Singapore school age dependents is a travesty.

Respectfully,

Jim Alexander,
Chairman, Board of Trustees

Tim W. McMurtrey,
Superintendent

TM/smw

Cc: Senator Mike Crapo, United States Senate, Washington, D.C.
Senator Larry Craig, United States Senate, Washington, D.C.
Congressman Mike Simpson, U.S. House of Representatives, Washington, D.C.
Congressman-Elect Bill Sali, U.S. House of Representatives, Washington, D.C.
Governor James Risch, Boise, Idaho
Governor-Elect Butch Otter, Boise, Idaho
Public Affairs Office, Mountain Home AFB

Western Watersheds Project

Boise, Idaho Office
PO Box 2863
Boise, ID 83701
Tel: (208) 429-1679
Fax: (208) 342-8286
Email: Katie@WesternWatersheds.org
web site: www.WesternWatersheds.org

Working to protect and restore Western Watersheds

December 26, 2006

Mr. Ken Walker
HQ ACC/A7ZP
129 Andrews Street, Suite 102
Langley AFB, VA 23665-2729

RE: Republic of Singapore Air Force F-15 SG Beddown EA

Dear Mr. Walker,

Here are some quick comments of Western Watersheds Project and the Committee for the High Desert on the Republic of Singapore Air Force F-15 SG Beddown EA. We hope to submit additional comments.

By the length of the document alone, it is clear that you need to prepare an EIS. Plus, the EA has only skimmed the surface in analysis of impacts to the exceedingly fragile sagebrush biome that is threatened by alien weeds as the result of human disturbances such as will occur under the Singapore EA. There are gaping deficiencies in the EA analysis of impacts to biological resources (you only play lip service to serious concerns about impacts to important, special status and other native plant and animal species). We also believe there are serious deficiencies related to air quality, recreational uses of public lands, and human health.

The Air Force has failed to even notify a very large body of the public who may be concerned and impacted by this action. Such parties include the Committee for the High Desert, the various Sierra Club chapters in Idaho, Oregon and Nevada, the Oregon Natural Desert Association, the Sawtooth National Recreation Area, the Idaho Wildlife Federation, the Sawtooth National Forest, the Humboldt-Toiyabe National Forest, Oregon BLM, and many others. There are also many wildlife organizations that may be deeply concerned about impacts of noise and other human disturbance and displacement of native wildlife associated with EA actions, potential fires and other habitat alteration that this action would produce. You have even failed to include 3 of the 4 members of the "SIG – which was established as the result of a Settlement of litigation over the development of the Juniper Butte Bombing Range.

You have failed to include comments that we requested be incorporated by reference in our Scoping letter. These comments included many concerns related to what appears to be a linked proposal to use dangerous white phosphorus. The issues raised in this letter and the science related to wildlife, wild lands, slickspot peppergrass and other important issues, as well as human health and safety raised in that letter must be assessed by you in an EIS related to the Singapore Bed-down and other military changes underway. The outcome of fire caused by military training by Singapore poses a tremendous risk to native species and a burgeoning southern Idaho population that recreates on these public wild lands.

The EA references a "Draft EA" for the use of white phosphorus munitions. This has not been provided to us. We are alarmed that the present Singapore EA attempts to minimize the serious wild land fire, human health and wildlife hazard that these devices pose.

Attached and pasted below is scientific and other information you have neglected to even consider. These environmental concerns must be incorporated in an EIS analysis for the Singapore Bed-down its impacts.

We hope to submit additional comments on the EA, but ask that you withdraw it and start an EIS process with much broader public outreach and information provided. We also urge you to analyze a wide range of alternative actions, including a "hard look" at environmental effects of various alternatives related to alternative siting locations, and alternatives focused on avoidance of use of sensitive habitats and MOA areas by the Singaporese military.

And, in case you are not aware, there is now a new proposal to build a giant nuclear power plant near Bruneau – this raises the risks of horrific consequences of any flight mishap here by a foreign military. This is significant new information that must be addressed.

Sincerely,

Katie Fite
Biodiversity Director
Western Watersheds Project
PO Box 2863
Boise, ID 83701

CHD

Please incorporate all concerns raised here in your analysis.

June 7, 2006

Nathan Rowland

Western Watersheds Project

Boise, Idaho Office
PO Box 2863
Boise, ID 83701
Tel: (208) 429-1679
Fax: (208) 342-8286
Email: Katie@WesternWatersheds.org
web site: www.WesternWatersheds.org

Working to protect and restore Western Watersheds

December 28, 2006

Mr. Ken Walker
HQ ACC/A7ZP
129 Andrews Street, Suite 102
Langley AFB, VA 23665-2729

RE: Republic of Singapore Air Force F-15 SG Beddown EA

Dear Mr. Walker,

Here are comments of Western Watersheds Project, Idaho Wildlife Federation and the Committee for the High Desert on the Republic of Singapore Air Force F-15 SG Beddown EA.

The length of the EA, the complexity of the issues, the enormity of the environmental impacts including potential impacts to human health, and the controversial nature of many of the actions – such as use of incendiary flares or white phosphorus in the fragile arid wild lands of the sagebrush biome – all demonstrate the need for the Air Force to do its duty to the American public, and prepare an EIS for this and other actions that are underway or foreseeable in the region.

The EA has only skimmed the surface in analysis of the impacts. There are gaping deficiencies in the Air Force's "analysis" of impacts to biological resources. No substantive information or analysis is provided so that a reader can understand the current 2006 environmental setting. You only play lip service to serious concerns about impacts to important, sensitive and other wildlife species and rare plants), air quality, recreational uses, human health, and other concerns.

The Air Force appears to be putting this action a fast-track. It has failed to even notify a very large body of the public who may be concerned and impacted by this action. Such parties include the Idaho Wildlife Federation, Nevada Wildlife Federation, Committee for the High Desert, the Sierra Club in both Idaho and Oregon, the Oregon Natural Desert Association. Even federal agencies who manage the lands under the impact area of the EA, such as the Sawtooth National Recreation Area, the Sawtooth National Forest, the Humboldt-Toiyabe National Forest, Oregon BLM, and many others, have not been

notified. You have even failed to include in the mailing list three of the four members of the "SIG", the Settlement Implementation Group – that was established as the result of a Settlement of litigation over the development of the Juniper Butte Bombing Range.

There is growing public concern about impacts of noise and other human disturbance and displacement of native wildlife associated with air and ground-based actions that would occur and be increased under the Singapore EA. The great potential for increased wild land fires and other habitat alteration that this action would produce alone requires that you prepare an EIS.

WWP requested in our comments submitted in response to a Scoping letter here that you include comments submitted to the Air Force on the use of white phosphorus munitions in Owyhee County. The EA shows that you did not do this.

The Singapore EA references a "Draft EA" for the use of white phosphorus munitions, and outrageously minimizes concerns about the serious wild land fire, human health and wildlife exposure hazards that these devices pose if used in Owyhee County. Who all will be using the white phosphorus, and will it be used in association with any Singapore activities?

You have failed to include any analysis of a broad range of military airspace and associated changes that are underway in or near the impact area of this EIS. For example, there are changes in military airspace flight levels and areas in northern Nevada (Elko NDOW, pers. comm. to Fite 2006). There are also changes in military airspace activities and intensified and lowered flight levels proposed in or near the Class 1 airshed of the Jarbidge Wilderness.

We are also alarmed at the lack of any significant mitigation and monitoring under the Action alternatives.

This bed-down will result in significant changes above levels of use analyzed in the old Air Force Juniper Butte and other Bombing Range or Mountain Home AFB expansion/community-related EISs, as well as the various Air Force INRMPs and other documents.

The Singapore Bed-down/Bombing Draft FONSI at 1 lists:

- Addition of 10 operational F-15SG aircraft to the inventory;
- **Increased** airfield operations and sortie-operations in nearby Restricted Areas, **Military Operations Areas (MOAs),** and military training routes (MTRs);
- Basing of 179 RSAF and 128 support personnel;
- Construction, modification and demolition of facilities.

This will result in extensive new and increased on-the-ground and in-the-air disturbance and impacts across Jarbidge LEPA habits. Plus, lands north of the river will be subject to new development and recreation pressures with this expansion.

These aircraft and associated personnel will be conducting on-the-ground training use of the dozens of emitter sites and No Drop sites as well as the Juniper Butte Range itself in the middle of the largest (ever-less-intact) block of LEPA habitat.

All of these actions will have a host of deleterious impacts to sagebrush habitats and wildlife that re highly significant and must be analyzed in an EIS.

Slickspot Peppergrass Concerns Ignored

You have ignored any consideration of the very harmful potential impacts of the activities here to slickspot peppergrass *Lepidium papilliferum* (LEPA), a rare Idaho endemic species that is Proposed Endangered, and where political interference, including by the U. S. Air Force, has long unlawfully thwarted necessary ESA protection. The ground and air-based disturbance associated with the proposed action greatly heighten the risk of fire, weed invasion and spread, habitat fragmentation and further loss of habitat and extinction of populations of slickspot peppergrass.

The Air Force buries mention of this species in Appendix C. The EA never even considered specific adverse impacts and risk to the "Affected LEPA Environment" of the associated ranges, where the Juniper Butte Bombing Range, and many of the scattered emitter sites are located in the middle of the most important LEPA habitat remaining. Unfortunately, this habitat is undergoing very recent and rapid fragmentation and degradation including weed spread caused by post-1997 Air Force development of a Bombing Range, emitter and No Drop sites; development of new livestock facilities resulting from the Bombing Range deal with a politically connected rancher – both within the Juniper Butte Bombing Range itself as well as BLM lands in both Idaho and Nevada where pipelines and developments were imposed as part of the Air Force deal with a politically connected rancher; and increased livestock cattle stocking (and thus increased grazing and trampling levels) levels in association with the Juniper Butte Bombing Range. The resultant grazing and trampling degradation on Juniper Butte and in association with the new livestock facilities and development of remote Air Force facilities greatly heightens risks of cheatgrass, alien mustard, and other weed spread; degradation of native habitat components of the sagebrush "matrix" essential for LEPA pollinators (as well as sage grouse and a host of other native wildlife).

See Attached WWP various comments and letter of December 2006 on slickspot peppergrass. Please incorporate the ecological concerns into your analysis, and these documents into the record for this EA.

You have failed to consider, or greatly minimized, consideration of nearly all adverse impacts, or risks to the environment associated with this proposal.

Alternatives Deficiencies

The AF has failed to consider a reasonable range of alternatives. EA Purpose and Need states that the action is related to basing options. Please consider a broad range of alternative siting locations so that there can be an understanding of a broad range of potential effects on the environment between locations. As part of this, factor into it environmental considerations – and the vulnerability of the sagebrush biome that will be bear the brunt of the ecological degradation from this proposal. To irreversible damage from fire, weeds, and human disturbance of extremely sensitive species like sage grouse and California bighorn sheep.

There is only a minor difference between the two action alternatives –involving construction/demolition of facilities at MHAFB. There is no difference at all between the vast wild land areas affected and all the range of military activities that would occur between the two action alternatives. We urge you to analyze alternatives such as no use of flares or chaff in airspace over remaining important native sagebrush habitats in all, or portions of, the affected MOAS; no use of remote range facilities in LEPA habitats; no use of one of the three MOAs with the most sensitive species , etc. by the Singapore Air Force.

For example, the Air force could use a science-based analysis, in consultation with BLM, Fish and Wildlife, USGS and other agencies and conservation biologists (and while refraining from holding a political hammer over scientist's heads), and the SIG, and develop a reasonable range of alternatives and necessary mitigations here. You could this assembled expertise to readily identify critical habitats to avoid activities in, based on mapping readily available for viewing on the Internet at: http://www.blm.gov/rmp/id/jarbidge/maps-photos/index.html . Please see mapping of sage grouse habitat (includes the astonishing recent fire history including the extreme fire history in and near the Saylor Creek site) , existing vegetation, upland game habitat, and other mapping on this site.

This is an example of cooperation that could occur, so that a science-based strategy could be applied here - rather than imposition, based on very little public outreach and essentially no substantive environmental analysis, of a foreign dictatorship's long-term and harmful use of these fragile sagebrush wild lands.

Woeful Wildlife Deficiencies

The proposed action will have serious adverse effects to terrestrial wildlife. These include:

- Loss of breeding, foraging and cover habitats
- Increased animal displacement and loss
- Reduction in prey availability
- Reduction in overall biodiversity

- Loss of genetic diversity
- Reduction in regional carrying capacity
- Possible population declines

The end result of this process is incremental habitat loss and incremental extirpation of native species. Please see Connelly et al. 2004, Dobkin and Sauder 2004, Knick et al. 2003 to understand the significance and irreversible nature of the habitat alteration through fire, weed invasion and other disturbance that you will cause with the Singapore Bed-down. These effects must be openly and honestly analyzed in an EIS.

Concerns about military activities in the affected lands have are only heightened by recent wildfire events in northern Nevada and across the West that have seriously affected the native ranges for wildlife. These wildfires have resulted in decreased plant diversity and abundance, affecting overall carrying capacity of the habitats and the wildlife that depend on them, and incremental reduction in potential nesting and foraging habitats. There has been significant sagebrush die-off and habitat loss, including in Bruneau lands amid the Air Force's emitter sites, and across the West. Mining and oil and gas exploration and development have exploded across the sagebrush biome, further altering, fragmenting and reducing sagebrush species habitats and populations.

We stress that all of these changes have occurred since the Air Force prepared is old Juniper Butte Bombing Range with its environmental analysis now long-outdated.

The information in the mapping readily available at Internet at: http://www.blm.gov/rmp/id/jarbidge/maps-photos/index.html shows the large-scale habitat loss and fragmentation for sage grouse, migratory birds, pygmy rabbit, mule deer and many other important native wildlife species that currently exists across the Jarbidge region. This is the area where many of the air-based and land-based activities of the Singapore Air Force bed-down will occur.

Your action will lead to accelerated and increased rates of loss - and all direct, indirect and cumulative impacts to soils, vegetation, watersheds, water quality and quantity, microbiotic crusts, native vegetation communities, wildlife habitats and populations, recreational and scientific uses of these lands must be fully assessed in an EIS.

Information from new studies conducted in Wyoming related to the impacts of energy development on sage grouse and other sagebrush-dependent species must be fully incorporate in your analysis. Energy-development studies include study of the effects of roads, developments, noise, human activity, etc. and so are very relevant to the effects of the ongoing and increased military use and disturbance of these lands. See Holloran 2005, for example and other studies available on-line at:

http://www.voiceforthewild.org/SageGrouseStudies/index.html .Please incorporate all of this information into your decisionmaking process, analysis of effects, and development of appropriate mitigation.

Past Air Force Environmental Analyses and INRMPs Are Based on Biased, Poor and Slanted Science

Attached is also a WWP compilation of information that demonstrating the Air Force currently manages the Juniper Butte Bombing Range based on rangeland myths and unproven speculations by livestock industry consultants. The cumulative impacts of the new disturbance related to the Singapore or other uses on top of the woefully deficient management and management paradigms on Juniper Butte and neighboring BLM lands must be assessed.

Uncertainty with Triggers to Halt Flare Use

We are very concerned that the Air Force does not even provide specific environmental triggers/fire risk triggers would result in flares chaff, etc. would not be used. The EA appears to say that it is only under the most extreme circumstances that use of these incendiary devices may be curtailed.

The Air Force must detail the specific parameters that would curtail the use of these devices. You must also a assess a range of curtailment actions that would better protect from wild land fire and its irreversible effects to native vegetation and wildlife here.

Pollution Concerns

Unfortunately, the EA only skims the surface in assessing many serious concerns about air and other pollution related to the changed and increased activities here.

We are very concerned about the impacts of contrails not only in visual pollution, but also in the actual pollutants they contain, as well as their ability to alter weather and create "cloudy" type situations. Please explain how they may alter haze and cloudiness.

The full range of effects of contrails and the particular pollutants associated with the F-15 and all other planes used n the affected lands here, as well as the methane and other pollutants from livestock waste, automobile fumes, etc. must be assessed.

There is mercury as a contaminant discussed in the EA. You must assess the impacts of additional mercury from gold mining operations in Nevada, proposed coal-fired power plants in Nevada, and other contaminants that are affecting/will affect this region. How will they, and the Singapore and other planes and other uses here affect local and regional air quality? Where will pollutants fallout, and what waters will they contaminate? What are current mercury and other contaminant levels in and near the military facilities in Owyhee county, and Owyhee streams?

How do chaff particles interact with pollutants in affecting clouds or other atmospheric conditions?

What pollutants are in white phosphorus or other munitions that may also be released?

Pollutants in runoff, increased fire and disturbance and associated degradation of watersheds may significantly alter Jarbidge Bull trout, redband trout and other important aquatic species habitats here, as well as Bruenau hot springsnail habitats.

You have failed to provide any clear rationale for why the planes of a military dictatorship are being given carte blanche to pollute Idaho's air and use incendiary flares, polluting chaff, and conduct extensive and increased ground-based disturbance to native biota and public wild lands.

Ever-Shifting "Baseline" for Analysis

Throughout this EA, it is impossible to understand what "baseline" is. There appears to be an ever-shifting use of the term baseline.

Is it the average of the use that has occurred here in the past? Is it pre-1992? Is it 1997 to present"? Is it - to use a public lands grazing analogy – based on "paper" training predictions – or is it based on what as actually happened. Please provide a detailed year-by-year analysis of all the munitions, flares, chaff, sonic booms, etc. and their location so that the public can better understand the effects.

Changes in use and activity levels are presented in a very confusing way. Please in preparation of the necessary EIS include much more clear use and explanations of how the term "baseline" is used. Please also provide much more of the basic information – and stop drawing rosy conclusions. For example, provide the year by year use of the airspace – and where – by each plane type; the numbers of flares used, and where in each MOA, for each year in the analysis period, etc. Please also clarify what the analysis period is.

Then, once a clear baseline and unbiased presentation of information is available, please clearly explain how each component of the military activity will change. How will this be affected by type of aircraft? How will pilot error affect predictions?

Mitigation Is Absent

There is no mitigation provided. Reasonable mitigation includes the Air Force purchasing private lands or retiring public lands grazing permits to enhance habitats for sage grouse, pygmy rabbit, etc. that may e adversely impacted by noise, ground-based human disturbance, or flare or ground-crew caused fires and weed infestations.

If the Singapore Air Force can afford to spend billions of dollars to buy all of these very expensive planes from Boeing, they can afford to provide Idaho, Nevada and Oregon with sufficient mitigation for the noise, contrails, wildlife disturbance and habitat loss that will ensue.

We ask that a wide range of mitigations be provided. First, Singapore should place a significant sum (100 million dollars) in an account to be used for conservation purchases

of important sage grouse habitats across Idaho. This should also be available for use in retirement of public lands grazing permits at a reasonable reimbursement across the state.

Fifty million dollars should be established in a fund to restore native vegetation to the degraded alien grass seedings and exotic species monocultures in the Jarbidge BLM lands of Twin Falls and Owyhee Counties, as well as under the Oregon and Nevada lands of the MOAs to be used by Singapore. The focus is restoration of sage grouse and pygmy rabbit habitats.

Twenty million dollars should be applied to restoration and conservation of slickspot peppergrass habitats in Idaho. This may include land purchase, too.

An additional fund of 100 million dollars should be established so that any fire, pollution or public health problem caused by Singapore planes or ground-based activities can be paid for by the Singapore government/dictatorship, and not U. S. taxpayers. We face the alarming possibility that U. S. taxpayers will be spending many millions of dollars trying to rehab Singapore-caused fires, or that citizens may face accident or health problems related to these activities.

These Singapore mitigation monies should be managed by a joint BLM, USFWS and USGS Scientific Panel free of political pressure.

Livestock Grazing Impacts Ignored

You have failed to analyze the harmful impacts of public lands livestock grazing on habitats and populations of important and special status species that are affected by the military action. Please see Fleischner 1994, Belksy and Gelbard 2000, Connelly et al. 2004 to understand the many adverse impacts to the sagebrush ecosystem. All cumulative impacts of your action on top of grazing must be assessed. Please review information in Attachments related to livestock grazing impacts to the affected lands and airspace, as well.

Important Wild Land Values Ignored

You have failed to analyze a myriad of harmful impacts to ACECs and other important wild lands areas affected by this action. Moreover, several new BLM RMPs are in progress and will likely designate new ACECs and take other actions to protect wild lands that must be considered here.

How do the chemicals in the pollutants that will be generated in the air interact with the regional haze, smog, and other pollutant levels here? There are serious air quality concerns over much of the southern Idaho already, including in association with winter inversions, in blowing pollution from China and the explosion of cattle and other methane pollutants?

Global Warming Impacts

Please assess how the actions here may increase global warming gases or processes (including desertification). Please see new U N Report available at:

You can download the full report at:

http://www.virtualcentre.org/en/library/key_pub/longshad/A0701E00.pdf .

What range of alternative actions and mitigations will be employed to decrease or mitigate global warming effects of this action?

Linked Actions

What are the many various airspace changes that are underway in the region – including to Nevada in the south – that may be linked to this action, or that may impact the same important and special status species affected by the AF action. What changes is the military (including the National Guard contemplating or is foreseeable across this region)?

Some Miscellaneous Concerns

Please provide a full and detailed explanation of specifically how this aircraft differs from others, and how this will translate into differing effects on the environment.

The EA describes complicated military exercises under colorful names – will the RSAF be involved in these? If so, will they occur over the lands covered by this EA? If so, when? What will their environmental effects be? Noise, time of year disturbance to nesting birds, wintering big game, flammable cheatgrass concerns, etc.

The baseline seems to jump all over the place, and the EA always makes comparisons that minimize impacts. The only way to really understand how noise or any other environmental effects may change here is for the AF to provide a year-by-year comparison form the mid-90s forward, of all parameters and actions being analyzed here. Plus, a much broader consideration of noise effects must be presented.

ES-3 to ES-5 contains conclusions of "no", "negligible", adverse effects based on omission of analysis of a broad range of current ecological science (see Literature Attached to WWP and CHD December 26, 2006 comment letter, for example). An EIS is essential for you to analyze the real-world impacts to soils, vegetation, watersheds, waters, habitats and populations of important and special status species etc. of your proposed actions here.

The EA greatly minimizes the adverse impacts of noise to humans and wildlife. An increasing number of residents of SW Idaho are greatly annoyed by military plane noise – including in the IRs as planes swoop over and across increasingly populated areas. Currewnt military training noise is already horrendous and greatly disturbing in many

areas of Owyhee and Jarbidge wild lands. What components of the noise spectrum will differ with these new planes?

How will their speed affect the "startle effect" on birds, wildlife, humans?

There is no cumulative impacts discussion of the impacts of National Guard or other military uses in the lands or airspace here. If the National Guard is going to be using white phosphorus, how may that increase the number of flights, pollutants, etc.?

There is no analysis of the risk of mis-communication – over everything ranging from fire risk to road signage to emitter sites, and potential for adverse impacts.

There is a recent proposal to construct a nuclear power plant near Bruneau that has been made public in recent weeks. This raises serious concerns about the safety of military training, especially by a foreign dictatorship military, here.

The Air Force must detail the ecological and rangeland health conditions of the lands it is overflying and where wild land fire risk will be elevated under this proposal. What lands are in poor or fair conditions, and/or are "at risk" of cheatgrass invasion and spread if fire or other mishaps occur? Where are sensitive habitats such as sage grouse leks located, and how can this and all other military activities here be designed to minimize adverse impacts to leks? The existing INRMPs are woefully deficient.

We urge you to conduct an EIS, and consider a broad body of current science in its preparation. You should also extend the current EA comment period that falls over holidays, and President Ford's funeral when Post Offices are closed AND provide an e-mail address for comment submission.

Please incorporate all concerns in the Attached information and literature in this analysis.

Sincerely,

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Working to protect and restore Western Watersheds

December 28, 2006

Mr. Ken Walker
HQ ACC/A7ZP
129 Andrews Street, Suite 102
Langley AFB, VA 23665-2729

RE: Republic of Singapore Air Force F-15 SG Beddown EA

Dear Mr. Walker,

Here are additional comments of Western Watersheds Project, Idaho Wildlife Federation and the Committee for the High Desert on the Republic of Singapore Air Force F-15 SG Beddown EA.

We are submitting this analysis of Data Quality Act deficiencies in relation to science relied on BOTH by BLM and the U. S. Air Force in analyses, environmental documents, and implementation of activities in Owyhee County. Please apply these considerations to development of a sufficient Singapore, white phosphorus, and other analysis at the level of an EIS. Understanding of these issues is necessary to conduct a reasoned analysis of the Affected Environment, and the direct, indirect and cumulative impacts of the military activities you are proposing.

Also, please note that BLM's unlawful management changes of the Jarbidge lands based on the same fallacies of the Air Force as described below was later found to be unlawful by a federal court in Idaho.

Preparation of an EIS is essential here so the public and the Air Force can be sure that it relies on the Best Available Science.

DATA QUALITY SUBMISSION

Request for Correction of Information under the Data Quality Act:

Description of Information to Correct: Bureau of Land Management Jarbidge Field Office TNR EA Protest Responses

Explanation of Noncompliance:

- BLM fails to use best available science.
- BLM relies on questionable theories not supported by best available science, i.e. Burkhardt's theories. Serious questions have been raised about their validity. Peer reviewers have stated management decisions should not be based on them. Current science and best available science does not support them.
- BLM fails to address current interpretations.
- BLM's EA and Response lacks supporting documents. Sources are not in the TNR EA bibliography, and only in the Protest response.
- BLM's supporting documents are not on point.

Support: All the Information provided below, Annotated bibliography of relevant scientific references, agency Memos and e-mails.

BLM's Response does not meet the Quality, Utility and Objectivity guidelines. It is not accurate or reliable, as described below.

Effects of the Alleged Error: Questionable and unsubstantiated theories are being used to bias a decision towards large-scale increases in livestock AUMs across 1.7 million acres of public lands managed by the Jarbidge Field Office of BLM.

Recommendation and Justification: Prepare EIS, including peer review by ecologists with no ties to the livestock industry. Use best available science to meet the Quality, Utility and Objectivity standards.

Justification: Body of data, analyses and references presented below.

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BLM's Response to Protest Sept. 16, 2003 Final Decision for Wilda Lehmann at 22, and others, states:

"Response: Grazing by domestic livestock has occurred in the project area for over 100 years. Most of this grazing would have happened at what you describe as "the most harmful periods" of livestock grazing. When soils are saturated standing water would have been present throughout the project area. Livestock would have used these areas for water and impacts would have been far greater than today. In fact, evidence suggests these areas have been under continuous grazing since the Pleistocene (1.8 million to 11,000 years ago). Numerous eyewitness accounts attest to the abundance of bison in southwestern Wyoming and on the Snake River Plain and adjacent valleys of southeastern Idaho. Schroed [sic](1973), Agenbroad (1978), and VanVuren and Bray (1983) report a broad distribution of bison in eastern Washington, eastern Oregon and southwestern Idaho (Air Force, 2002). Bison would have made significant use of Lepa habitat during what you call "the most harmful time." This suggests that LEPA (slickspot

peppergrass) has evolved with hoof impacts from grazing. In fact, Burkhardt (2001) notes that "most annual species in the Cruciferae family, especially peppergrasses, are disturbance species and that no scientific evidence exists to suggest LEPA functions in a different role (Air Force, 2002)."

BLM's Response is nearly identical to assertions and statements made in Air Force 2002 at 2-5 and 2-6, and permeate/pervade that document.

US Air Force 2002 at 2-5 and 2-6 states:

"Grazing. Grazing (herbivory) is a natural biological process for removal and recycling of excess plant growth (biomass) (Burkhardt, personal communication, 2001). Rangelands, including the Snake River Plains where JBR is located, evolved as natural herbivory ecosystems (Burkhardt 1996). Ecosystems [sic] development is a continuous process of co-evolution among flora, fauna, biotic soils, and abiotic components. The current JBR landscape, including native vegetation, is partly a bi-product of the Pleistocene. The Pleistocene (1.8 [million! sic] to 11,000 years ago) was a period dominated by megafauna, such as bovids, equids, camels and other large herbivors [sic]. Bison (Bison spp), for example, survived the Pleistocene and large herds roamed the American prairies (Roe 1970). Hall and Kelson (1959); Hall (1981) report bison were documented at Agency Creek in Lemhi County and 20 miles west of the Raft River in Cassia County, Idaho; [sic] Barren Valley, east of Steens mountains [sic] and Izee, Oregon. Reynolds et al. (1982) show bison's prehistoric and historic ranges to encompass Owyhee County, including JBR. Meagher (1986) notes that by the late Illinoian/early Sangamon large steep [sic] bison occurred in much of unglaciated North America but seemed most common from Alberta to Texas along the east front of the Rocky Mountains and intermontane basins. Numerous eyewitness accounts attest to the abundance of bison in southwestern Wyoming and on the Snake River Plain and adjacent valleys of southeastern Idaho (Ogden 1910, Work 1913, Davis 1935, and Haines 1965). Schroed [sic](1973), Agenbroad (1978), and Van Vuren and Bray (1983) report a broad distribution of bison in eastern Washington, eastern Oregon, and southwestern Idaho. Therefore, grazing concluded [sic?] to evolve with the landscape found at JBR.

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The BLM Response states: "Grazing by domestic livestock has occurred in the project area for over 100 years. Most of this grazing would have happened at what you describe as "the most harmful periods" of livestock grazing".

Extensive livestock water developments, such as the Jim Bob pipeline (extends over 200 miles) are fairly recent developments in the JFO. Upland water developments have dramatically increased cattle grazing periods and numbers in previously dry areas. New water projects have proliferated. New fence projects that enclose cattle into small land areas have proliferated. Now, cattle are confined to small areas (pastures)for prolonged periods of time in areas formerly devoid of water sources, and watered from artificial

water sources in a landscape that was largely devoid of accessible permanent water sources.

Cattle numbers have increased with the issuance of TNR during the period from 1990 to the present, so stocking rates are higher now. In fact, various proposed decisions will increase stocking rates by very large numbers on JFO lands!

BLM Response to Protest relies on a limited, older, flawed and questionable set of data in its discussion of bison grazing, and claiming that the affected lands have "been under continuous grazing since the Pleistocene".

BLM Relies on Interpretations in Non-Published, "Gray Lit." documents.

The US Air Force document cited by BLM as a source for its references is a management plan/EA, and itself may be subject to many of the same data quality problems as BLM's Response.

BLM's TNR EA Fails to Include Literature Cited by BLM in Its NEPA Analysis.

BLM's TNR EA Bibliography contains no mention of the literature references (Schroed 1973, Agenbroad 1978, Van Vuren and Bray 1983, Air Force 2002) that it provides in support of this response by BLM to WWP's Protest, so there is no evidence that BLM relied on those sources in preparation of the EA. Likewise, the Final Decision/Response to Protest contains no Literature Cited.

WWP has traced the references by examining the references in the Lit. Cited section of the US Air Force EA.

BLM Failed to Consider Information in Its Protest response in Its NEPA Analysis.

In addition, the statements made in BLM's Protest response are not found in the TNR EA.

Also, there is no reference to these articles in the EA literature, as discussed above.

BLM's Geographic Location Information Is Not Relevant.

The BLM Response states: "Numerous eyewitness accounts attest to the abundance of bison in southwestern Wyoming and on the Snake River Plain and adjacent valleys of southeastern Idaho". The Air Force reference cited by BLM states: "Numerous eyewitness accounts attest to the abundance of bison in southwestern Wyoming and on the Snake River Plain and adjacent valleys of southeastern Idaho (Ogden 1910, Work 1913, Davis 1935, and Haines 1965)".

The lands of the JFO are not located in southeastern Idaho. They are in located in southwestern Idaho. Butler and others discuss ecological differences between those geographic areas and the geographic area of the Jarbidge Field Office.

Most of the land where TNR conversion is proposed is not in the Snake River Plain. The area of the Snake River Plain where, by any stretch of the imagination, there could be considered to be "numerous" accounts of bison is in the upper Snake River Plain in eastern Idaho, and not in the JFO lands in southwestern Idaho.

Although Bison May Have Had a "Broad" Distribution, This Does Not Indicate That They Were Abundant

The BLM states: "Schroed [sic](1973), Agenbroad (1978), and Van Vuren and Bray (1983) report a broad distribution of bison in eastern Washington, eastern Oregon, and southwestern Idaho. Bison would have made significant use of Lepa habitat during what you call 'the most harmful time'.

BLM Relies on Old Literature, and Fails to Consider New, Current or Revised Interpretations that Are Generally Accepted in the Scientific Literature. "Broad" Distribution Does Not Mean That Bison Were Abundant. Best Available Science Shows That They Were Not.

BLM's Response relies on literature by Schroed (1973), Agenbroad (1978), and Van Vuren and Bray (1983) reporting a broad distribution of bison in eastern Washington, eastern Oregon and southwestern Idaho (Air Force 2002).

Literature citations in BLM's Response based on the Air Force are from older articles. Since the time of those citations, new alternative or revised assessments and accepted theory have been presented and published in the current literature (see Van Vuren 1987, Plew 1987, Miller et. al.1994). The new evidence and current science/interpretations/theories are not considered by BLM.

Agenbroad (1978): "Buffalo Jump Complexes in Owyhee County, Idaho". Tebiwa. Miscellaneous papers of the Idaho State Museum of Natural History no. 1.
This was first reported in Tebiwa, and then again published in alternative form in the *Great Plains Anthropologist* in 1987.

Agenbroad claimed to have investigated two buffalo jumps in Owyhee County, which he noted were: "the first reported jumps in southwest Idaho", and that his finding of the jumps: "gives added insight into bison procurement west of the Continental Divide".

References to the Agenbroad buffalo jumps are carried forward in other literature. Some sources that cite Agenbroad do not reflect Plew's new information (below) that no bison bones have been identified in association with the purported jumps, but instead domestic sheep bones have been identified, and other bones identified only as bovid (see Plew 1987).

Dr. Mark Plew, in "A Reassessment of the Five Fingers and "Y" Buffalo Jumps, Southwest Idaho". Plains Anthropologist 32 (117): 317-321.

Bone materials found by Agenbroad at what were claimed to be "buffalo jumps" in Owyhee County were re-examined. The bones were found to include unidentifiable bovidae (likely young domestic cattle), and domestic sheep. Plew states: "A review of the archaeological, ethnographic and faunal evidence questions whether these are buffalo jumps. The faunal remains purported to be bison (Miller 1984) are the remains of domestic sheep and probable cattle". Plew concluded that instead of being bison jumps, the sites likely served as communal artiodactyl hunting facilities.

BLMs Protest Response Cites Literature that is Not Relevant to the Context Where It Is Applied by BLM

The article by Van Vuren and Bray (1983) that is cited by BLM in its Response to Protests, by the Air Force 2002, and by Burkhardt (1996) which is relied on by Air Force (2002) is not related to the occurrence of Bison in the JFO, which is the context where BLM's Protest response relies on it. Instead, this article, entitled "Diets of bison and cattle on a seeded range in southern Utah" analyzes dietary overlap between cattle and bison in a crested wheatgrass seeding in present-day Utah. There is no reference in this article to bison distribution in southern Idaho, nor is there any Literature Cited in VanVuren and Bray that appears to be related to bison use of LEPA habitat. In addition, this study took place in an unnatural setting and artificial setting, as crested wheatgrass is an alien grass of limited palatability to many ungulates.

For discussion of Van Vuren (1987), a more recent work by the senior author cited by BLM and AF 2002, see Annotated Bibliography below. This reference states that bison there was an "extraordinary abundance" of bison on the Great Plains, "although bison apparently were widely distributed throughout much of the Pacific Northwest, they were abundant only in southwestern Wyoming and southeastern Idaho. Low density of bison over most of the range west of the Divide stands in marked contrast to the availability of steppe habitat ...".

BLM's Protest Response Relies on Assertions Made in the Air Force EA, based on Theories of Burkhardt. Burkhardt's Theories Have Been Strongly Challenged by Other Scientists

See paragraphs (Air Force and BLM) above.

Many assertions and assumptions related to livestock grazing, vegetation and ecological processes that are made in the Air Force EA are based on two articles written by range scientist Dr. Wayne Burkhardt for ICBEMP, and subsequently reprinted in uncorrected form as a University of Idaho Station Bulletin in 1996. No editorial changes, correction of factual errors, inclusion of alternative interpretations, inclusion of best available science and other changes or clarifications based on the comments of ICBEMP reviewers

Dr. Charles Kay and Dr. Elizabeth Painter, and relevant scientific literature, as included in Dr. Painter's review, were made in the 1996 Bulletin. This is despite the fact that many of Dr. Burkhardt's theories were challenged by Drs. Painter and Kay, as described below, during the ICBEMP process.

Air Force (2002) repeatedly cites Burkhardt (1996). See Air Force EA at 1-6, 2-3, 2-5.

Air Force (2002) also repeatedly cites Burkhardt personal communications in its 2002 EA. See Air Force EA at 2-3, 2-7, 3-19, 4-9.

Dr. Burkhardt is a range scientist, and not an ecologist, archaeologist, paleontologist, or faunal expert. His views related to plant communities and ecosystem processes in sagebrush steppe have been critiqued by Drs. Painter and Kay (see below). Burkhardt's theories pervade the Air Force EA upon which BLM relies. The Air Force EA is strongly colored with Burkhardt's largely unsubstantiated theories, inaccuracies and scientific flaws.

ICBEMP Reviews of Burkhardt's Work Debunk Burkhardt's Theories Relied on by BLM.

The Burkhardt papers were prepared for ICBEMP, but when they were sent out for review, they were strongly criticized by Reviewers Dr. Charles Kay and Dr. Elizabeth Painter.

Dr. Painter's Review

At the request of ICBEMP, Dr. Elizabeth Painter reviewed two papers written by Burkhardt. "Herbivory in the Intermountain West: An Overview of evolutionary history, historic cultural impacts, and lessons from the past", and "Paleoecological relationships of prehistoric *Equus* in the Intermountain West: An Overview with implications for management of wild horses and burro".

This Review includes scientific evidence that is important for understanding the conjecture, biases and unsubstantiated assumptions of BLM's Protest Response. BLM's Protest Response relies implicitly and explicitly on Burkhardt's theories.

Dr. Painter's review states that best available science provides evidence that:

- Large-bodied herbivores were probably not important selective forces in the Intermountain Region.
- Alien domestic livestock (horses and cattle) cannot be "replacements" for extinct Pleistocene megafauna.
- Domestic livestock introductions in the Intermountain region have produced significant biological impacts.
- Characterization of Pleistocene herbivory cannot provide a workable model for management of domestic livestock.

Dr. Painter found that Burkhardt's papers presented biased, inadequate information, lacked appropriate literature citations, ignored or overlooked much important and relevant lit – such as work by the monographer of North American bison (McDonald 1981), which explains how N Am Pleistocene bison are different from extant Holocene bison.

Dr. Painter generally found that Burkhardt's strategies were speculative, totally inappropriate considering the lack of referenced support, and that substantial literature that discussed negative impacts of domestic livestock was greatly underdiscussed or trivialized (see ICBEMP 1995 Review Draft).

Painter noted that Burkhardt used as support for his ideas on continuous bison occupation the Agenbroad bison jump [on the Owyhee River – sic], but that Plew (1987) proposed a different and more probable explanation. Butler (1978) reported a 3000 year mid-holocene gap in bison distribution.

The best evidence is that bison evolved *in situ* in the Plains, and periodically migrated westward across the Snake River Plain. "Strong evidence is lacking for the author's contention that bison were abundant and wide spread".

Only one locality (Malheur Lake) in eastern Washington and Oregon and southwestern Idaho had evidence of more than a few bison individuals or of bison being locally common (Van Vuren 1987). Plew (1987) stated that, with one exception, archeological evidence of Bison is restricted to the Snake River Plain, and there were few historical reports. [Note: Plew and Sundell 2000 (below) provide recent analysis that revises distribution, but not abundance].

"After extinction of the Pleistocene mega-fauna, all species of ungulates were relatively scarce and patchily distributed in the Intermountain Region" Painter citing (Mack and Thompson 1982, Mead et al. 1991, Plew 1987, Van Vuren 1987, Van Vuren and Bray 1985, Van Vuren and Deitz 1993, Young 1994).

There were no empty niches that domestic livestock filled. There is no evidence that when the Pleistocene megafauna became extinct, the vegetation remained the same. Present day flora have undergone evolutionary and genetic changes. Due to these evolutionary and genetic changes, "present day taxa [of native flora] will reflect the more recent environment". Evidence suggests there is no reason to assume that any adaptations by plant taxa during the Pleistocene would be necessarily maintained in modern populations. Studies of Great Plains grass species with different grazing histories indicate interpopulational genetic differences in less than 50 yrs." (ICBEMP Review Draft 1995, summarizing Painter).

Dr. Painter stresses the many negative impacts to plants of herbivory – there are no direct benefits, no evidence that herbivory increases plant fitness, and that plants have evolved secondary compounds that protect them from predation.

Livestock are alien taxa, and are functionally different from Pleistocene mega-fauna. Intermountain environmental conditions are different. Livestock are not a functional replacement for bison, and are not surrogate herbivores. The inference that there is a mutualistic function between plants and large herbivores is contested through many studies. (ICBEMP Review Draft 1995, summarizing Painter). Domestic livestock are very different from North American native ungulates in behavior and diet. The most common herbivores in sage-steppe may have been jackrabbits.

There is no evidence for "grazing herds" in the Intermountain region, and no evidence for so-called benefits of "herd hoof action".

Painter warns against making management decisions based on myths. "Use of scientifically unsubstantiated opinions as a basis for management can leave agencies and their personnel vulnerable to accusations of management by myth" (ICBEMP Review Draft 1995).

Dr. Charles Kay's Review

At the request of ICBEMP, Dr. Charles Kay wrote a review letter to Dr. Sherm Karl of ICBEMP on the same documents reviewed by Dr. Painter, a Review of Herbivory in the IM West and Paleoecological relationships of prehistoric *Equus*.

Dr. Kay summarized his work on a book on the aboriginal overkill hypothesis. Studies favor limitation of ungulates by predators, not forage. The megafauna was limited by predation.

Dr. Kay noted Burkhardt's "unsubstantiated assumptions". Kay "does not agree that "Pleistocene herbivory provides a potential model for functional livestock grazing" as claimed by Burkhardt. Dr. Kay concludes his review: **"I certainly would not base any management decisions on these two reports or the author's assumptions"**.

Best Available Science/A Broad Body of Scientific Literature, Much of It Peer-Reviewed, Counters BLM's Assumptions That Bison Were A Driving Ecological Force in JFO lands and/or LEPA Habitats

Following is an Annotated Bibliography that summarizes relevant portions of some of this scientific literature.

Butler, B.R. 1978. A guide to understanding Idaho archaeology (Third edition): the Upper Snake and Salmon River country. Idaho Museum of Natural History. Pocatello, ID.

Butler describes climate changes over time, and bison and cultural remains in eastern Idaho.

Figure 10 depicts the distribution of the Modern sagebrush-steppe and the western limit of bison in 1805-1840. This figure shows the western limit of the bison lies east of JFO lands.

Fleischner, T.L. 1994. Ecological costs of livestock grazing in western North America. Conservation Biology 8 (3): 629-644. Fleischner reviews literature describing the dramatic ecological costs of livestock grazing in the West, including loss of biodiversity, lowering of population densities, disruption of ecosystem functions and changes in physical characteristics of aquatic and terrestrial habitats. Fleischner states:

"The presettlement abundance of bison on the Great Plains in legendary. West of the Rocky Mountains, however, bison were rare or absent in Holocene times. The species was present in the northern Rockies region, marginally present along the northern and western perimeter of the Great Basin ... DELETE PRECEDING? The native steppe vegetation of much of the Intermountain West, characterized by caespitose bunchgrasses and a prominent microbiotic crust , reflects the absence of large-hooved, congregating mammals. These steppe ecosystems have been particularly susceptible to the introduction of domestic livestock; microbiotic crusts ... are easily damaged by trampling. In contrast, the slightly wetter Great Plains grasssland, characterized by rhizomatous grasses and a lack of microbiotic crusts, were well-adapted to withstand herbivory ".

Mack, R.N. and J.M. Thompson. 1982. Evolution in steppe with few large, hooved mammals. Am. Nat. 1982. Vol. 119, pp.757-773.

Mack and Thompson examine the different structure of steppe communities on either side of the Rocky Mountains to understand differences in mammal-selected traits, and how interactions with mammalian grazers influence grassland community structure.

The Intermountain West has only a few, localized rhizomatous grasses. Rhizomatous grasses, which characterize Plains systems, have characteristics better adapted to grazing, whereas Intermountain grasses do not. The Intermountain ecosystem has a lack of prior adaptation to grazing by domestic livestock.

Livestock permanently and swiftly altered IM native community. Large ungulates, even in low density cause rapid, permanent loss of cryptogams through trampling.

Difference in distribution of annual precip. Quaternary events enhanced differences between biota, especially large herbivores. 40 million animals in Plains vs. a regional decline West of Rockies to virtual extinction since 2500 B.P. (Schroedl 1973), based on prehistoric records. DELETE.

Historic records substantiate bison rarity, and limited numbers of bison, elk, deer.

The distribution of ecological associates of large mammals indicates communities West of the Rockies have lacked herds of large herbivores for a long period of time. For example, West of the Rockies, dung beetles are absent in the Agropyron Province.

Weather events of the Intermountain West, particularly precipitation patterns, shaped the evolution of grasses. Caespitose (bunch or tussock) grasses of the Intermountain West are susceptible to grazing, due to elevated meristems, early growing, high ratio of flowering to vegetative culms and tiller breakage well below the level grasped by ungulates. They are also susceptible to trampling damage, as are microbiotic crusts that also characterize the Intermountain West. Grasses (morphology, ecology and physiology) created a physiognomy influencing cryptogams. Grass tussocks grow in a matrix dominated by other species, (microbiotic crusts).

Grazing by livestock can impact survival of grasses and crusts. Grass plants may die if clipped in late spring. Eurasian weeds move into areas of disturbance.

Miller, S. personal communication to Fite. 2003. Bison bones appear in a variety of sites, but they are not present in amounts that would indicate the presence of large herds.

Miller, R., T.J. Svecjar and N.E. West. 1994. Implications of livestock grazing in the Intermountain sagebrush region: plant composition. *In* M. Vavra, W.A. Laycock and R.D. Pieper. Ecological implications of livestock herbivory. Society for Range Management. Denver, CO.

Vegetation in the Intermountain region has been in a state of flux for the past 10,000 years. Overgrazing has caused dramatic changes.

The Intermountain West was characterized by low herbivore populations. "In the Intermountain Sagebrush Region, environmental conditions and hunting pressure by Indians appeared to keep large herbivore populations low. Analysis of bison remains found at Bison at Malheur Lake, show that it was a small and inbred herd.

Grazing impacts by large herbivores in the sagebrush steppe was [sic] probably light. New species of herbivores [domestic livestock] altered the process of herbivory at the species, community, and landscape levels.

Peters, E. F. and S.C. Bunting. 1994. Fire conditions and occurrence pre-and postoccurrence of annual grasses on the Snake River Plain. *In* ???

Peters and Bunting discuss the occurrence/scarcity of bison West of the Rocky Mountains. "Van Vuren (1987) has suggested that the distribution of bison was limited by low overall forage conditions". There were frequent observations of bison in the upper Snake River Plain, but, "the only location farther West where they were consistently found was in the Raft River Valley".

Fire was not common on the lower Snake River Plain compared to the upper Snake River Plain, due to low amounts of fine fuel on the lower Plain. Describes changed fire-free intervals associated with cheatgrass, which provides abundant fine fuel.

The upper SRP and adjacent valleys were distinctly different from the lower Plain in characteristics other than Bison. More grass was reported for the upper Plain, and these lands are higher in elevation and receive greater precipitation, and support mountain big sagebrush.

This contrasts with the lower elevation, drier, Wyoming big sagebrush communities of the lower Snake River Plain.

Note: Nearly all of the lands where BLM is converting TNR use to permanent use are Wyoming big sagebrush sites.

Plew, M. 1987. A Reassessment of the Five Fingers and "Y" Buffalo Jumps, Southwest Idaho. Plains Anthropologist 32 (117): 317-321.

Bone materials found by Agenbroad at "buffalo jumps" in Owyhee County were re-examined. The bones were found to include unidentifiable bovidae (likely young domestic cattle), and domestic sheep.

Plew states: "A review of the archaeological, ethnographic and faunal evidence questions whether these are buffalo jumps. The faunal remains purported to be bison (Miller 1984) are the remains of domestic sheep and probable cattle". Plew concluded: Instead of being bison jumps, the sites likely served as communal artiodactyl hunting facilities and not bison jumps".

Plew also notes the lack of ethnographic evidence of Bison in the area, citing Steward (1938).

Plew, M. and T. Sundell. 2000. The archaeological occurrence of bison on the Snake River Plain. North American Archaeologist 21(2):119-237, 2000. 119-237.

Review demonstrates a diverse geographic and temporal distribution of bison on the Snake River Plain, with bison common in a variety of settings. "**The diversity of settings within which bison occur archaeologically suggests that small herds of probably only a few animals were encountered** consistently as hunter-gatherers moved seasonally from one elevational context to another".

"We interpret the record as indicating that bison contributed to the diet but were relatively less important than other species represented in the dietary breadth".

Plew and Sundell include a chart of Archaic sites containing bison that includes more sites in the "Late" period. This may be a sampling artifact, as more "Late" period sites have been investigated (Plew, pers. comm. to Fite).

Plew, personal communication to Fite. 2003.

Bison appear in the archaeological record as early as 12,000 years ago. Bison were present in the Late Archaic (last 2000 years) in a variety of settings. They were not a significant food resource, as people did not rely on them. They were likely scattered and dispersed, more like woodland bison in Alberta, and not aggregated in large herds.

Vale. T.R. 1975. Presettlement vegetation in the sagebrush-grass area of the Intermountain West. Journal of Range Management 28(1): 32-36.

Review of early journals found that the pristine vegetation of the Intermountain region was visually dominated by shrubs. Stands of grass were confined to wet valley bottoms, moist canyons, and mountain slopes.

Van Vuren, D.V. 1987. Bison West of the Rocky Mountains: An alternative explanation. Northwest Science, 61 (2): 65-69.

Van Vuren describes an "extraordinary abundance" of bison on the Great Plains and discusses abundance West of the Continental Divide. Van Vuren states: "although bison apparently were widely distributed throughout much of the Pacific Northwest, they were abundant only in southwestern Wyoming and southeastern Idaho. Low density of bison over most of the range west of the Divide stands in marked contrast to availability of steppe habitat ...".

Bison skulls have been recovered from 44 sites in the Pacific Northwest yet only 1 locality yielded evidence of more than a few individuals. This was Malheur Lake, where bison "may have been locally common". The one area where many bison skulls were found (Malheur Lake) was the result of a mass death in mud or ice. Further, there is evidence that these animals were an isolated, inbred population (see also Plew 1987).

Most of the 44 sites were in areas characterized by steppe vegetation which produces an appreciable biomass of graminoids, the principle forage of bison.

Wuerthner, G and M. Matteson, eds. 2002. Welfare Ranching: the subsidized destruction of the American West. Foundation for Deep Ecology. Sausalito, CA.

Wuerthner and Matteson provide an overview of literature citations that suggest the evolutionary, historical, behavioral and physiological evidence shows that that bison are very unlike cattle.

Vegetation changed during Pleistocene.

Cattle have traits of woodland-dwelling animals: lethal fighting apparatus, small groups, linear or modified-linear hierarchy, territorial fidelity,

They are less mobile than bison, and through domestication possess traits that maximize weight gain (domestication). In comparison, bison move frequently, and shift habitat use. In the Henry Mountains, bison rarely stayed in one location more than 3 days).

Bison selection of habitat is different from cattle. Bison stay at water for a shorter time, and have a greater preference for dry forage. They spend less time in swales or depressions (where soil moisture is higher). They select rougher, less digestible forage, resulting in better distribution across the seasons.

Bison have a thick hide with higher insulative value as adaptation to harsher weather, and seasonal food limitations.

Near-constant movement of bison herds resulted in a shifting mosaic of grazing pressure.

Cattle are less efficient water users, and prefer moister forage.

Most of grazing lands of West historically did not support large herds of bison, including most of sagebrush-steppe. West of Plains, even where bison were found, numbers were small, and distribution was patchy.

Some theories for limitations on bison distribution are discussed: Mack and Thompson – grass phenology is linked to moisture patterns; Van Vuren – food; Daubenmire – protein deficiencies of native bunchgrasses, and native veg is not adapted to grazing.

The authors conclude that there are substantial differences in behavior, habitat use, and habitat selection between bison and cattle.

Young, J.A. 1992. History and use of semiarid plant communities – changes in vegetation. *In* S.B. Monsen and S.G. Kitchen, eds. Proceedings – ecology and management of annual rangelands. Pages 5-8. USDA Intermountain Research Station. INT-GTR-313.

Young discusses the sudden introduction of large herbivores [domestic livestock] to the sagebrush (Artemisia)/bunchgrass ranges of the Intermountain area, and the dramatic ecological changes that occurred. The biological vacuum created by overutilization of understory species was filled by an alien invader, cheatgrass.

Current vegetation of the Intermountain area originated during Pleistocene. In most of the area, large native herbivores withdrew their natural distribution from the bulk of the landscapes, except for periodic pulses of Bison across the Snake River Plain to eastern Oregon. Concentrations of large herbivores were sparse under post-Pleistocene conditions.

Young discusses Burkhardt's "strong disagreement", and that Burkhardt considered herbivores to have been abundant in the Intermountain area at the time of contact. Young counters this with the classic study of the American bison by Hornaday (1887), journals of contact time travelers (Ogden) in Cline (1963) that "**strongly disputes this point**".

Young also disputes Burkhardt's claim that Great Basin vegetation has been stable since the Tertiary. Young cites Axelrod's classic study of mid-latitude deserts and other work that supports vegetation change, counter to Burkhardt's ideas.

Young, J.A., R.A. Evans, P.T. Tueller. 1976. Great Basin plant communities. Pristine and grazed. *In* R. Elston, ed. Nevada Archaeological Survey Research Paper No. 6. Holocene environmental change in the Great Basin. Reno, NV.

The authors discuss the remarkable changes in the environment during the past century that were caused by livestock grazing. Stand renewal changed with livestock – a series of changes, some subtle and some dramatic.

"Under pristine conditions, the native ruminants were facultative browsers, and population numbers appear to have been limited".

****

Thus, a broad body of scientific literature, as cited above, does not support the theory that bison grazing, or grazing by any large ungulates following the Pleistocene extinctions, was a driving ecological force or that bison herds were abundant in JFO.

BLM Claim that Bison Would Have Made Significant Use of the Affected Lands is Unsubstantiated.

Lack of Surface Water

Surface water is lacking in large areas of the JFO. An examination of USGS topo maps finds scarcely any natural perennial surface water over most of the land area. The primary perennial water sources over much of the JFO are waters in deep canyons. Ponds shown shown on maps are man-made. Ephemeral waters are present for only a limited time.

The primary distribution of LEPA in the JFO lies between Clover Creek (East Fork Bruneau) and the West Fork Jarbidge-Bruneau Rivers.

Topographical barriers

Significant topographical barriers limit any ready bison access to permanent water. Large canyons restrict movement of herds to water. Canyons include the Snake River Canyon, the Bruneau-Jarbidge canyon system. Canyons act as natural barriers to bison movement in many places. (Haines 1967, 1970 in Agenbroad).

Green-up Follows Period Claimed by BLM to Have Maximum Surface Water

Green-up of native vegetation has not yet occurred in most of the period claimed by BLM to have maximum surface water (Feb-March), especially occupied LEPA habitat. The "green-up" of native vegetation, in all lands except the lowest elevation lands near the

Snake River/larger native bunchgrasses, occurs after the period claimed by BLM to have maximally saturated soils, and when BLM believes most surface water might be present.

Perhaps BLM is under the illusion that the transitory green up of cheatgrass, an aggressive, exotic species that its management practices have fostered throughout most of the JFO, was present during Pleistocene and post-Pleistocene epoch. This is not the case. Cheatgrass was introduced to western North America in the late 19th century.

Bison Are Not A Surrogate for Cattle. Impacts are Different.

BLM's Protest Response claims "Bison would have made significant use of Lepa habitat during what you call 'the most harmful time'. This evidence suggests that LEPA (slickspot peppergrass) has evolved with hoof impacts from grazing".

As described in the literature above (Mack and Thompson 1982, Fleischner 1994, Wuerthner and Matteson, eds. 2002), and ICBEMP Reviewers Painter and Kay, bison are not a surrogate for cattle.

Cattle Numbers and Prolonged Periods of Use Vastly Exceed Those Wildly Imaginable for Bison

Provide some details of Proposed Actions in Hallelujah, Lepaland???? TODD – DO we want to do this here?

Agency E-mails, and the LEPA Administrative Record Contradict BLM's Protest Response and BLM's Reliance on Burkhardt's Theories

Agency scientists, using best available science, and knowledge of the sagebrush steppe lands of the JFO, do not believe that bison were a significant force in sagebrush steppe habitats in southern Idaho.

LEPA Is A Disturbance-Related Species

The BLM continues: "In fact, Burkhardt (2001) notes that "most annual species within the Cruciferae family, especially peppergrasses, are disturbance species with and that no scientific evidence exists to suggest that LEPA functions in a different role".

This has been thoroughly refuted by USFWS and all reputable biologists with on-the-ground experience in LEPA habitats of southwestern Idaho.

Summary of Agency Records

11/15/02. FWS Heslin Memo to files.

"The Service continues to disagree with the Air Force that large ungulate grazing by bison was a significant evolutionary force in Wyoming sagebrush steppe habitats of

southwestern Idaho". Grasses that evolved with large numbers of herbivores are small in stature, have a large proportion of basal meristems, have minimum support tissue, high shoot density and rapid leaf turnover. "Throughout most of the sagebrush steppe of southwestern Idaho, bison herds were probably small and isolated (Miller et. al 1994)".

11/13/02 BLM Palmgren e-mail to FWS Heslin.

"Bison jumps are not going to answer their concerns ... bison numbers in the northern great basin did not come close to the populations on the plains ... there are relatively few (known) archeological sites in this [sic] SW Idaho with remains of bison contained in them".

11/21/02. BLM Geertson e-mail to FWS Heslin.

"Bison jumps are well outside the known range of *Lepidium papilliferum* by at least 20 miles. Current vegetation is low sage, mountain big sage, or mountain mahogany."

12/10/02 FWS Memo to files re: Inside Desert in the JFO, "Documentation of Verbal Input from Steve Popovich regarding slickspot peppergrass".

Popovich provides "a detailed overview and history of the area".

"The entire Three Creek Well area, as well as much of the Inside Desert, was originally grazed relatively lightly by sheep as water in the area was limited. High cliffs and the few natural water sources in the vicinity of the Inside Desert also made watering of livestock a challenge" ... "this lack of water in the Inside Desert area resulted in a different grazing history than on the Snake River Plain, where water was more available so higher livestock numbers heavily grazed the area around Boise and the majority of the Snake River Plain".

Numerous livestock facilities (fences pipelines, water sources) were constructed in the Inside Desert 60s to 70s to the present. Thus, "cattle are relatively new to the Inside Desert in contrast to the rest of the Snake River Plain"

5/28/03. FWS Heslin e-mail to FWS Wood, "Additions to Final Rule".

FWS discusses herbivory in pristine sagebrush steppe, where the primary grazers were birds, insects, and small mammals such as jackrabbits. "Grazing impacts by large mammals such as bison, elk, mule deer and antelope were probably light, and populations likely cycled".

Introduction of domestic sheep and cattle altered the process of herbivory at the species, community and landscape level. Livestock population cycles are not cyclical, like native herbivores. Livestock grazing is characterized by year after year season long grazing, and heavy grazing near water.

Grasses and forbs in sage steppe lack specialized adaptations to grazing, an indication that sagebrush steppe evolved without grazing by herds of herbivores. Sage-steppe vegetation is adapted to cold wet springs and hot dry summers, rather than as a response to herbivory..

In the absence of grazing, plant characteristics which allow a species to be competitive in its environment may preclude morphological, physiological, and biochemical mechanisms that make it grazing tolerant (FWS cites Milchunas 1988). Tussock (caespitose) growth form of grasses retards water vapor transfer in summer and increases soil heat flux in early spring, accelerating rise of soil temperature (citing Mack and Thompson 1982).

FWS states that the morphology of the native vegetation of Wyoming sagebrush steppe habitat does not indicate that this system evolved with herds of large hoofed ungulates.

Other documents in the LEPA record include:

5/25/03. Memo re: Grazing Permits and Forage allocations, RCI EA". Roger Rosentreter to Eddie Guernero [sic].

"Historically > 50 years ago before artificial water, pipelines and water hauling, the slickspot areas lacked surface waters and probably received little or no grazing in late spring, summer and fall".

5/19/03. E-mail of Karl to Rosentreter. "I don't agree with Burkhardt's published ideas that livestock (cattle mostly) are surrogate megafauna in the Great Basin Pleistocene megafauna. I don't agree that megafauna were all over the place ... so because they were all over the place, that it's OK to graze the Great Basin with cattle. Cites Grayson and Miller.

7/9/03 e-mail of Rosentreter to FWS Heslin and Werdon. "Barb and I were visiting with John Byer [sic], a former range conservationist in the Jarbidge, and he informed us that there are over 2,000 miles of underground buried water pipelines. For Lepidium pappilliferum [sic] (Lepa) this means that livestock can now grazes [sic] thousands of square miles that previously lacked water".

BLM assumes, with no data provided, that "most of the grazing" would have occurred in spring. As the affected lands span large parts of 1.7 million acres (if potential, suitable and occupied LEPA habitats are considered), evidence must be provided for this. BLM seems to be relying on the Burkhardt "follow the green-up" theory.

BLM's own Technical Bulletin (Anderson 1991) documents the harmful impacts of grazing during the critical growing period for native bunchgrasses.

BLM further states: "All this evidence suggests impacts may be necessary for the proliferation of LEPA and not harmful".

EA at 1-6 describes cheatgrass as an "eminently pre-adapted annual grass"

Daubenmire (1985) proposed heavy snowfall in the IM region caused bison mortality, but Van Vuren points out that livestock and bison are not similar (ecologically).

BLM's Protest Response claims a "broad distribution" of bison, yet a broad distribution has nothing to do with abundance.

Thank you in advance for consideration of these very important issues, and this evidence of the tremendous shortcomings in management that the lands affected by the Singapore and white phosphorus proposals have been affected by.

If you have any questions, or need any clarification, Please feel free to contact us at 208-429-1679.

Sincerely,

Katie Fite
Western Watersheds Project
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Boise, ID 83701

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Working to protect and restore Western Watersheds

December 29, 2006

Mr. Ken Walker
HQ ACC/A7ZP
129 Andrews Street, Suite 102
Langley AFB, VA 23665-2729

RE: Republic of Singapore Air Force F-15 SG Beddown EA

Dear Mr. Walker,

Here are more comments of Western Watersheds Project, Idaho Wildlife Federation and the Committee for the High Desert on the Republic of Singapore Air Force F-15 SG Beddown EA.

Attached are copies of two legal filings in relation to litigation over the extremely degraded condition of many areas of the Jarbidge landscape, and the threats that ongoing activities such as chronic grazing impacts pose here. The Declaration of Ms. Haak shows serious sage grouse concerns already existing here. Please incorporate this information into your analysis of the Singapore impacts, especially the cumulative impacts analysis.

This also means that very strong protection and conservative management and oversight of military activities on these lands that might affect remaining relatively intact sagebrush habitats is essential.

Here is something that you may not be aware of, but we in Idaho still are: The first really big fire in the Jarbidge was started by military training at Saylor Creek in the late 1970s. That fire, with continued chronic grazing impacts on top of fire disturbance, resulted in tremendous ecological changes.

Thank you,

Katie Fite
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Russ Heughins
Idaho Wildlife Federation
921 South Orchard
Boise, ID 83705

Steve Jakubowics
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From: DAVID WHITACRE [mailto:Lampropeltis_4@msn.com]
Sent: Wednesday, December 27, 2006 10:06 AM
To: 366 FW/PA Public Affairs
Subject: White phosphorus rockets--my comments regarding

Mr. Nathan Rowland
Deputy Base Civil Engineer
1030 Liberator Street
Mountain Home AFB, Idaho 83648

Dear Mr. Rowland,

Though I don't have a lot of details, I understand that there is a proposal to use (or for the Singapore Airforce to use!) white phosphorus rockets of some sort over some of the training ranges in southern Idaho and perhaps adjacent portions of Nevada and Oregon.

I doubt that I really need to point out to you or anyone else how problematic this could be for the plant and animal communities of this area, given the chance that these rockets might, even occasionally, cause range fires.

As I am sure you are well aware, fire, while it is a good thing for forest ecosystems such as Yellowstone, is not a good thing for trying to recover the much-reduced stands of Great Basin Sagebrush that occur in these training areas. As I'm sure you know, what was once described as a

sea of sagebrush has now been reduced to a very small percentage of its original extent, and one of the main factors causing its continued decline (and lack of recovery) is frequent burning, generally by human-caused fires, or by lightning-caused fires whose spread is very much facilitated by the exotic annual Cheat Grass that now is so prevalent in this region. A more ideal fire-promoting agent than Cheat Grass could scarcely be envisioned.

I am sure you are also aware that certain endangered or near-endangered species such as Sage Grouse and Pygmy Rabbit and some endangered plants occur in these training areas, and fires and continued sagebrush decline will only speed the further decline of these species, leading to eventual Federal Endangered listings, which will hamper the activities of the National Guard and the U.S. Air Force (not to mention the Singapore Airforce!). Thus, it is in the interest of all parties to not allow the further degradation of the sagebrush ecosystem--it would be far better to head off further degradation and begin some serious ecosystem recovery--in order to have a more harmonious future, not to mention the welfare of the plants and animals themselves.

I urge you to have some serious second thoughts about use of white phosphorus or any other ordinance, equipment or techniques that could be reasonably expected to increase the frequency of range fires in these areas.

Parenthetically, I'll add how mystified I am that the Singapore Airforce is being invited to come train here. I sure wish I had a chance to vote on such questionable decisions on the part of whoever it is that gets to make them.

Thank you for the chance to comment on this proposed activity, and Happy New Year to you and yours.

Sincerely,

David Whitacre, Ph.D.

December 27, 2006

Mr. Ken Walker
HQ ACC/A7ZP
129 Andrews St., Suite 102
Langley AFB, VA. 23665-2729

Dear Mr. Walker,

I am writing regarding the proposed bed-down of the Republic of Singapore Airforce's F-15s at Mountain Home Airforce Base.

I know little about this proposed arrangement, and would have heard nothing about it, if not for a friend who watches closely any and all activities which affect Idaho's high desert wildlands.

I must admit that it frustrates me a great deal that, as a citizen, I have no direct voice in such decisions. Who actually makes such decisions?

I have not seen the Environmental Assessment, so have not read it. Please consider my comments, however, as those of a professional ecologist who has some familarity with the regions concerned.

First of all, in any cost-benefit analysis, I would want to know what is the supposed benefit to the U.S. of having this occur? Second, regarding other alternatives, what are the alternative scenarios whereby the Singapore Airforce might obtain the necessary training? It would seem that the conditions of Idaho's high desert would be very different from the conditions in which the Singapore Airforce would normally be operating. I can't help thinking that for those pilots to train in the region where they normally operate would make more sense than for them to train here in Idaho.

At any rate, I would simply point out that any increase of military use of Idaho's air space will have some degree of negative impact for quality of life in southern Idaho, for humans and for the wild creatures and native ecosystems there. I would urge you to consider alternatives that would minimize or avoid such negative impacts.

Sincerely,

David Whitacre

Western Watersheds Project

Boise, Idaho Office
PO Box 2863
Boise, ID 83701
Tel: (208) 429-1679
Fax: (208) 342-8286
Email: Katie@WesternWatersheds.org
web site: www.WesternWatersheds.org

Working to protect and restore Western Watersheds

January 23, 2007

Mr. Ken Walker
HQ ACC/A7ZP
129 Andrews Street, Suite 102
Langley AFB, VA 23665-2729

RE: Republic of Singapore Air Force F-15 SG Beddown EA

Here is additional information and uncertainty that we have encountered in further review of the Singapore Bed-down EA.

There is no real discussion of how the various training and flight requirements of these new airplanes and the technology including real or mock weaponry that they employ, or other bed-downs or training activities that may occur. Please provide a detailed accounting of foreseeable additional adjustments in flight patterns, noise levels, startle effect, flights over populated areas, WSAs, ACECs sage grouse leks, bighorn sheep habitats, or other important and special areas. For example, if these are a new model of plane, they must have new or different effects – ranging from sound frequencies during flight and maneuvers to exhaust pollutants to use of lasers, flares, or other devices..

We hope the Air Force is aware that there is a tremendous amount of new housing development, growth and other activity that is likely to occur in southern Idaho in the areas affected by this activity. The maps in the EA are curiously deficient in showing just where and how much of the flight activity – especially that of aircraft returning from the long swoop to the North. How might this affect current, or future residents?

How might this activity affect the burgeoning kayaking, hiking, and wildlife-associated outdoor recreation activities in southern Idaho – how much property value will be lost to private land owners who are overflown – either under the 10 plane scenario or very foreseeable expansions. The areas to be overflown are certain to undergo further land development - and conflicts will increases greatly during the 5 to 10 years of this action.

How might this action lower land values for property owners, quality of life, and affect the health for landowners here?

How much activity will occur at night, vs. the day, and where will night time sound levels be the highest? Where will daytime levels be highest?

The Air Force must provide a detailed study, analysis and accounting of all the past Air Force-caused fires during on-the ground or in-the-air activities in these MOAs and/or in the use of the Owyhee County ranges. Please be sure to provide specific information

How much do you spend annually in treating weeds on fire-disturbed or other lands in association with the remote ranges and other facilities? Who paid for the rehab costs in association with planting, rehab or other efforts on fires on Air Force or BLM lands that have been caused by the Air Force? What have the costs been, per fire?

We understand that the first place in Owyhee County to become infested with the alien invasive species rush skeletonweed, was on Saylor Creek in fire-disturbed lands. We recall the Air Force using large planes to spray herbicide (Binder, pers. comm. at SIG meeting several years ago). Please provide a detailed accounting of this invasion, and current extent of this or other weed infestations. Unfortunately, skeletonweed was not controlled, and now spread onto surrounding BLM lands (Fite, pers, obs). Thus, the Air Force introduced a weed that is now causing serious new threats to public wild lands and wildlife. It is essential that the Air Force consider the cumulative impacts of its disturbance on top of the other serious environmental concerns related to grazing and fire here, on important and sensitive species and their habitat. How do active or inert ingredients or contaminants in herbicides used in wake of military disturbance inter-react with contaminants or pollutants from the planes or training activities or bombs or bomblets?

Please provide a detailed analysis of how the various frequencies and noise levels of the F-15, and any and all other planes, helicopters or motorized or mechanical equipment will affect these wild lands.

We are very concerned that USFWS did not tell you that you needed to consider impacts on the Jarbidge bull trout and its habitats. These fragile watersheds underlie the MOAs you will be flying over.

What has become of the Red Flag, composite Wing, mass aircraft training activities that dated from the previous EIS? Will these planes be engaged in similar activities (large numbers of aircraft of different types), and if so, what will be the noise levels, impacts – including pollution, stress and likelihood of wild land fire - effects of such combined uses?

Will there be aerial refueling? If so, what are the risks of contamination – of Bruneau snail habitat, Jarbidge bull trout habitat, redband trout habitats, scarce high desert springs and seeps, etc. How might spilled fuel contaminate springs, intermittent or ephemeral drainages, or streams?

We are very concerned that you may be using outdated, or heavily biased noise modeling that relies overwhelmingly on "averaging" of noise to mask impacts. The noise metrics - like L-max, SEL, Lds, etc. must be expanded to include new methodology. We ask that you have the noise information peer-reviewed by an outside panel with no connection to the military, and a report that is able to be understood by average citizens be prepared. prepared. We are particularly alarmed at the use of a certain noise levels (such as 65 db) that may applied as thresholds. You are dealing with remote wild land country in many areas, and these noise levels are greatly excessive. Plus, you must fully consider the impacts of the entire range of frequencies, and variation between plane type or maneuvers in frequencies emitted. My ears experience a dull ache for a long period after being subjected to low level flight noise. This is something that simply is not captured in your discussion or metric application, as nearly as I can decipher in the confusing EIS discussion.

Please also be sure to let us know if you need further information on any of the links, scientific references especially in relation to arid lands ecosystems, or other information in our previous comments on this matter.

We are very concerned that the information on the ambient and other air quality effects does not take into account the impacts of pollutants – such as heavy metals or particularly harmful materials that may be present in small but harmful amounts.

What materials may be released in fires from flares, bombs, bomblets, drones, white phosphorus, or ground-based activities related to this or foreseeable actins here? I just read a study showing that forest fires in the West are now releasing mercury into the air – and much of the mercury comes from Nevada mines. How much mercury, or other toxic material will result from training uses? How will these materials add to other contaminants here? What will be the toxic brew released in fires?

What contaminants would occur at crash sites?

While it is nice that the AF mentions "weapon footprints" – you do not reveal their boundaries – or the consequences of those that do, on occasion, fall outside the area. This includes consequences for watersheds, wildlife, wild lands.

Please provide a detailed account of any radioactive material, including low-level radioactive material or contamination that may be related to these activities. For example, Tables list A-10s. These planes use Depleted Uranium. Is there any foreseeable use of that material here? Do plans flying over the airspace ever carry "real" "live" bombs, DU, whatever? If so, what are the chances of a mishap or accidental firing of the real weapon, DU, or contamination of the aircraft with DU or other harmful material that could contaminate wild land areas?

What all laws, clearances, ad regulations govern flying over a broad land area that includes several states?

Please provide a detailed accounting of any use of lasers that may occur here. Where, what safeguards, potential of harm.

What materials are in fire retardants, and how may they interact with pollutants from this trainingactivity?

WWP has a special interest in pollutants, contaminants, use of lasers, noise that may impair hearing, etc. We are engaged as a result of a Settlement Agreement with BLM and livestock interests, in active monitoring on-the-ground monitoring in Jarbidge lands. Thus, WWP's staff and its members who recreate here may suffer harm to their health if the full effects are not revealed, and necessary safeguards provided.

Also, we note that the Bush Administration continues to promote "Divine Strake" or any other foreseeable – to the concern of residents across the West. What potential contaminants from Divine Strake (nuclear, other harmful materials) may be deposited in the areas under the MOAs, and how might any Air Force disturbance such as traing-related fire, affect release of any harmful substances?

Sincerely,

Katie Fite
Biodiversity Director
Western Watersheds Project
PO Box 2863
Boise, ID 83701

Attachment: Intoon Nuclear Plant to potentially be overflown, near range fires, ex.

SNAKE RIVER ALLIANCE

English (United States)

25 January 2007
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Welcome About Us Our Work News Community Resources Get Involved Contact Us

Search

Welcome

Idaho's clean energy advocate and nuclear watchdog

Membership

Join Today!

Protect Idaho today by joining the Snake River Alliance. We are Idaho's nuclear watchdog working to make sure Idaho is protected from past and present nuclear activities at the Idaho National Laboratory. Your membership will make a difference. Click here for more information, or the link below to join now!

DONATE NOW Network for Good

Youth Involvement

THINK OUTSIDE THE BOMB

From August 15-21, 2005, young adults from all regions of the United States, as well as representatives from Kazakhstan and the Marshall Islands gathered in Santa Barbara, California for the first-of-its-kind "Think Outside the Bomb" National Youth Conference on Nuclear Issues. Inspired by the need for a new generation of leaders working toward a nuclear-free world, the participants agreed to establish the Think Outside the Bomb National Youth Network. This diverse network is comprised of individuals and organizations that communicate, interact, support, collect and disseminate resources through the internet and other channels. We invite you to join us!

Ploughshares

PLOUGHSHARES FUND

The Ploughshares Fund is a public grantmaking foundation that supports initiatives to prevent the spread and use of nuclear, biological and chemical weapons and other weapons of war, and to prevent conflicts that could lead to the use of weapons of mass destruction. Ploughshares supports the Snake River Alliance and we ask that you consider supporting Ploughshares. Click here for more information.

Support the Alliance

Commercial nuclear reactor in Idaho

"Fly by night" nuclear: Idaho in the crosshairs

Company announces intent to build commercial nuclear reactor near Bruneau, Idaho

Without telling the residents, county officials, or any state agency, Alternate Energy Holdings (AEHI) announced on December 1, 2006, its intent to construct and operate a 1,500-megawatt light water nuclear reactor near Bruneau, Idaho. The company maintains that the bulk of the power will be sold on the energy market, primarily to Western states, with a small amount going to pump irrigation water in the Bruneau area. According to AEHI, a "binding agreement" is expected in early 2007 and plant construction will begin in 2008. The AEHI reactor would be the first commercial nuclear reactor in Idaho.

A new nuclear reactor could put pressure on Idaho farmers and ranchers and other water right holders who are already struggling. All reactors must have substantial water available to create steam to power the turbines and to continuously cool the fuel rods in the reactor core to prevent meltdown. The exact amount of water used depends on the reactor design, but the amounts are massive. For instance, the Vogtle reactor power plant in Georgia withdraws about 64 million gallons of water a day from the Savannah River.

This proposal also shows exactly why Idaho needs a siting authority. If you think the Sempra plant showed a need for a siting authority, a nuclear plant is an even better case. An Idaho Legislative Committee is currently developing a draft energy plan to update the plan created in 1980. The current draft of the state energy plan does not include a siting authority. The plan simply says various state agencies should come together and be available to the county when it's considering a big generation project. Without a siting authority, once a proposal is granted water permits the final decision still comes down to the county commissioners. A county could choose to reject such a proposal, but the larger process is what is in question.

Idaho doesn't need nuclear. Idaho has several times over the amount of renewable energy in Idaho than we consume, and this is what we should develop (see Idaho Energy Atlas).

What can you do?

- Encourage the committee working on the state energy plan to put a siting authority back in the plan
- Educate yourself, read the news reports, and send us your email so we can keep you posted
- Tell your family, friends, and neighbors this proposal exists and to plug in to the issue
- Stay tuned, it's unclear how "real" this proposal is, and what kind of support it has, so as we learn more we'll share that information with, including any urgent actions, such as contacting officials, etc.

Resources
"What we know" information sheet on Bruneau proposal
News reports on the Bruneau reactor proposal
More info on nuclear power (cost, security, safety, waste, proliferation, climate change)
Alternate Energy Holdings company website
AEHI announcement to construct, own, and operate nuclear reactor in Idaho
Snake River Alliance news release, December 6, 2006

Idaho Power Public Meetings

TELL IDAHO POWER TO SAY NO TO NUKES AND COAL!

Idaho Public Utilities Commission is taking public comment on Idaho Power's plan

Every two years Idaho utilities are required to update a long-range plan called the Integrated Resource Plan. The IRP identifies how much electricity the utilities think they will need and where that electricity will come from. Idaho Power has

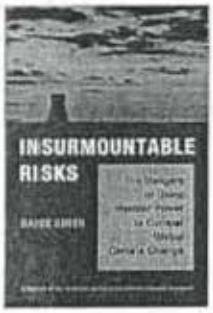
Hearing announcement

Divine Strake Informational Meeting

There will be a meeting on the proposed "Divine Strake" 700-ton bomb test.
Sunday, January 28,
12-2:30pm
Grove Hotel
245 S Capitol Blvd
Evergreen and Cedar Rooms,
2nd floor
Boise, Idaho

We will post information as it becomes available. Contact us if you have questions.

Book Release



Insurmountable Risks: The dangers of using nuclear power to combat global climate change

Building more nuclear power plants is a hazard-filled strategy for reducing global warming, according a new book, *Insurmountable Risks: The Dangers of Using Nuclear Power to Combat Global Climate Change*, produced by the non-profit Institute for Energy and Environmental Research (IEER), documents accident, proliferation and contamination threats associated with reviving the nuclear industry as part of efforts to reduce greenhouse gas emissions. The book also details economically competitive alternative fuel sources which can address U.S. and world electricity needs. Click here for more information from IEER and to purchase *Insurmountable Risks*.

Report

New report shows France can phase out nuclear power and achieve reductions in carbon emissions

A new report, Low-Carbon Not without Nukes in France, examines the feasibility of phasing out nuclear power in France while reducing carbon dioxide emissions by about 40 percent in the next few decades. France is considered as exemplary by advocates of nuclear power, which provides almost 80 percent of French electricity generation, because the use of that energy source has been crucial to its relatively low greenhouse gas emissions. The Institute for Energy and Environmental Research (IEER) report is the first to detail technologies and policies that could meet the same lifestyle and economic choices as a high-nuclear, high carbon emissions future without nuclear energy and significantly reduced carbon dioxide emissions. Click here for the full report.

Announcement

INL "Incident" Reports Now Available!

Summaries of "incidents" at the Idaho National Laboratory are now available on the Alliance's website. Thanks to public pressure from the Alliance and other groups in Idaho and Wyoming, the Department of Energy is making available bi-weekly summaries of incidents at the Site. These reports will help the public watchdog nuclear activities that could pose a risk to communities downwind and downstream. To read these reports, click here.

PUBLIC NOTIFICATION

As part of the public process the Air Force published the following notice of availability of the final environmental assessment on March 14, 2007 in the *Idaho Statesman*, the *Twin Falls Times News*, and the *Mountain Home News*.

Notice of Finding of No Significant Impact for
Republic of Singapore F-15SG Aircraft Beddown at Mountain Home Air Force Base

The U.S. Air Force completed the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) to establish a foreign military training squadron within the 366th Fighter Wing at Mountain Home Air Force Base (AFB), Idaho, to support agreements between the U.S. government and one of its foreign allies and to train as a team to perform in a multinational force structure. Under the proposed action, the Republic of Singapore Air Force (RSAF) would beddown 10 operational F-15SG aircraft, personnel, and equipment beginning in 2009 to operate the squadron. The intent is for the squadron to operate at Mountain Home AFB for 5 to 20 years.

A copy of the Final EA and Finding of No Significant Impact are available for review at the following libraries beginning March 14, 2006.

Twin Falls Public Library	201 4th Avenue East, Twin Falls
Mountain Home Public Library	790 North 10th East, Mountain Home
Mountain Home AFB Library	Bldg 2427, 520 Phantom Ave., Mountain Home Base
Boise Public Library	715 S. Capitol Blvd., Boise
Bruneau District Library	32073 Ruth St., Bruneau

You may request a copy of the document from the Mountain Home AFB Public Affairs Office (208-828-6800), the HQ ACC/A7ZP (757-764-6156), or by requesting it from the address below. An electronic version of the EA is also available for public review at www.accplanning.org.

HQ ACC/A7ZP (Mr. Don Calder)
129 Andrews St., Ste. 102
Langley AFB, VA 23665-2769

FINAL ENVIRONMENTAL ASSESSMENT
DISTRIBUTION LIST

Republic of Singapore Air Force F-15SG Beddown, Mountain Home AFB
Final Environmental Assessment
Distribution List

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2205 Old Penitentiary Road
Boise, ID 83712

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Mountain Home City Council
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Mountain Home, ID 83647

Mr. Jim Desmond
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Mr. Larry Rose
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The Honorable Mike Crapo
Office of Senator Crapo
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The Honorable Ron Wyden
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Boise, ID 83702

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Bend, OR 97701

Mr. Craig Gehrke
The Wilderness Society
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Ms. Katie Fite
Western Watersheds Project
P.O. Box 1612
Boise, ID 83701

Mr. Kyle Prior
Tribal Chairman
Shoshone-Paiute Tribes
P.O. Box 219
Owyhee, NV 89832

Ms. Wanda Johnson
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Burns Paiute General Council
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Burns, OR 97720

Ms. Karen Crutcher
Tribal Chairperson
Fort McDermitt Tribal Council
111 North Road
McDermitt, NV 89421

Mr. Fredrick Auk
Tribal Chairman
Shoshone-Bannock Tribes
P.O. Box 306
Fort Hall, ID 83203

Ms. Helen Snapp
Tribal Chairperson
Paiute-Shoshone Tribes
P.O. Box 457
McDermitt, NV 89421

Mr. Larry Honena
Executive Director
Northwestern Band, Shoshone
427 North Main Street, Suite 101
Pocatello, ID 83204

Mountain Home Chamber of Commerce
205 North 3rd East
Mountain Home, ID 83647

Mr. Tim McMurtrey
Mountain Home School District 193
P.O. Box 1390
Mountain Home, ID 83647

Twin Falls Public Library
201 4th Avenue East
Twin Falls, ID 83301

Mountain Home Public Library
790 North 10th East
Mountain Home, ID 83647

Mountain Home AFB Library
520 Phantom Ave.
Bldg. 2427
Mountain Home AFB, ID 83648

Boise Public Library
715 S. Capitol Blvd.
Boise, ID 83702

Bruneau District Library
32073 Ruth St.
Bruneau, ID 83604

SHPO CONCURRENCE LETTER

From: Don Watts [mailto:Don.Watts@ishs.idaho.gov]
Sent: Thursday, February 15, 2007 4:04 PM
To: Mattoon-Bowden Sheri L Civ 366 CES/CEV
Cc: Suzi Neitzel
Subject: Environmental Assessment, historic structures; RSAF F-15 SG Beddown

Feb 15, 2007

TO: Sheri Mattoon-Bowden

FR: Don Watts

RE: Singapore Beddown; Section 106/110 evaluations.

Thank you for the opportunity to review and comment on the determinations of eligibility for various buildings related to the above project. This email is to confirm that we concur with your conclusions on Table 3.7-2 of the Environmental Assessment that Buildings 272, 273, 1327, 1339, 1345, 1364, 1365, 1795, 3016, and 3023 do not meet the eligibility criteria for listing in the National Register of Historic Places. The buildings are either significantly less than 50 years old, or have been altered too much over the years to meet integrity requirements.

If you have any questions, please contact either me or Suzi Neitzel at 208-334-3861.

Sincerely,

Don Watts
Historic Preservation Planner
Idaho State Historic Preservation Office