
FORMER FORT ORD, MONTEREY, CALIFORNIA

FINAL
RANGES 43–48
PRESCRIBED BURN PLAN

October 2002

Prepared for:



**U.S. Army Corps of Engineers,
Sacramento District**

Prepared by:

The logo for FIRE STOP, consisting of the words "FIRE STOP" in large, bold, white, sans-serif capital letters. The text is centered on a rectangular background that is split horizontally into a red top half and a black bottom half.

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RANGES 43-48 PRESCRIBED BURN PLAN

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TABLE OF CONTENTS

	List of Attachments	vi
	Acronym List	vii
	Preface	ix
1.0	Personnel & Burn Organization	1
2.0	Project Area & Unit Description.....	3
	2.1 Size of Area.....	3
	2.2 Topographic Features.....	3
	2.3 Fuel Characteristics	3
	2.4 Vegetation	4
	2.5 Fuel Arrangement.....	4
	2.6 Fuel Continuity.....	4
	2.7 Describe Vegetation Under 12’ Tall	4
	2.8 Describe Vegetation Over 12’ Tall	4
3.0	Resource Management Goals & Objectives.....	5
4.0	Range of Acceptable Results Expressed in Quantifiable Terms.....	7
5.0	Protection of Sensitive Features	9
6.0	Project Financing.....	11
	6.1 Source of Funding	11
7.0	Burn Prescription.....	12
	7.1 Prescription Foundation	12
	7.2 Defining the Appropriate Conditions.....	13
	7.3 Applying the Prescription.....	15
8.0	Weather Collection.....	17

9.0	Smoke Management Plan.....	19
9.1	SMP Project Description.....	19
9.2	Smoke Sensitive Areas, Weather and Smoke Behavior Observation and Public Notification Procedures	22
9.3	Meteorological Conditions, Contingency Actions, Vegetation Clearance Alternatives Considered.....	26
10.0	Firing Procedures	29
10.1	Ignition Method.....	29
10.2	Provisions for Test Fire & Recording Results	29
10.3	Helitorch Operation.....	29
10.4	Helibase.....	32
10.5	Helitorch Equipment	34
10.6	Helitorch Operations Checklist	35
10.7	Burn Boss Responsibilities Checklist	35
10.8	Burn Day Monitoring Form	38
11.0	Holding Procedures	41
11.1	Controlling Spot Fires	41
11.2	Equipment Needs	41
11.3	Video/Camera.....	41
11.4	Water (Sources).....	41
11.5	Line Construction.....	42
11.6	Preparatory Activities.....	43
11.7	Pretreatment	43
12.0	Mop Up and Patrol Procedures	44
13.0	Firefighter and Public Safety and Special Conditions	46
13.1	Scope of Work.....	46
13.2	Organizational Chart and Responsible Parties	48
13.3	Hazards.....	53
13.4	Safety Meetings.....	53
13.5	Compliance Program.....	55
13.6	Hazardous Materials.....	56
13.7	Site Control Plan	56
13.8	Weather Monitoring	57
13.9	Smoke Monitoring.....	57
13.10	Escape and Spot Fires	58
13.11	Communication Plan.....	58
13.12	Notification Plan	58
13.13	Escape Routes and Safety Zones.....	60

13.14	Medical and Emergency Locations and Phone Numbers.....	60
13.15	Air Operations Safety.....	62
13.16	JHAs.....	68
14.0	Public Information Pre-Burn Information/Coordination	76
14.1	Prior to Burn.....	76
14.2	During Burn.....	76
15.0	Escaped Fire Contingency.....	77
16.0	Risk Assessment.....	79
16.1	Public Safety	79
16.2	Burn Personnel Safety.....	79
16.3	Public Lands and Structures.....	80
16.4	Private Property.....	80
17.0	Post Burn Summary and Documentation	81
17.1	Meteorological	81
17.2	Photographic Images	81
17.3	Field Logs.....	81
17.4	Post Burn Evaluation.....	81
17.5	Future	82
18.0	Burn Day Go/No Go Checklist	83
18.1	Burning Operations	83
18.2	Helicopter and Fixed Wing Operations.....	83
18.3	Smoke Management.....	84
18.4	General	84
19.0	Technical Review.....	86
20.0	NWCG Complexity Rating.....	87
	References	89
	Attachments A through U	

LIST OF ATTACHMENTS

- A Area Map
- B Ranges 43-48 Location
- C Area Map All Data
- D Detail Map
- E Ranges 43-48
- F Ranges 43-48 Topography 1:24,000
- G Ranges 43-48 Topography 1:12,000
- H Ranges 43-48 Vegetation Clearance Priority
- I Ranges 43-48 Vegetation Type
- J Ranges 43-48 Fuel Breaks Defensible Polygons and Sections
- K Ranges 43-48 Fire Warning Signs
- L Ranges 43-48 Topography 1:12,000 Ignition Patterns
- M Ranges 43-48 Prescribe Burn Smoke Sensitive Areas
- N Ranges 43-48 Overview Smoke Travel Projections
- O Ranges 43-48 Individual Prescribed Fire Qualifications Documentation
- P Behave Plus
- Q Comparison of Biomass and Emissions
- R MSDS Safety Information
- S Medical Evacuation/Hospital Plan
- T Escape Potential
- U Responses to Comments on the Draft Prescribed Burn Plan of Ranges 43–48

ACRONYMS LIST

AGL	Above Ground Level
ARAR	Applicable or Relevant and Appropriate
AIS/AAS	Air Ignition Specialist/Air Attack Specialist
APM	Aviation Project Manager
BLM	Bureau of Land Management
BB	Burn Boss
BP	Burn Plan
BTU	British Thermal Unit
CARB	California Air Resources Board
CCR	California Code of Regulations
CDF	California Department of Forestry
CFR	Code of Federal Regulations
ch/hr	Chains Per Hour
CMC	Central Maritime Chaparral
DENR	Directorate of Environmental and Natural Resources
DOT	Department of Transportation
DTSC	Department of Toxic Substance Control
EERA	Emergency Equipment Rental Agreement
FBA	Fire Behavior Analyst
FSM	Forest Service Manual
FT.	Feet
FWM	Fire Weather Meteorologist
GIS	Geographical Information System
GPS	Global Positioning System
HEMG-A	Helicopter Base Manager - Airport
HEMG-I	Helicopter Base Manager - Ignition
HGS	Holding Group Supervisor
HMP	Habitat Management Plan
HSP	Health and Safety Plan
IHOG	Interagency Helicopter Operations Guide
I/R	Infrared
IC	Incident Commander
JHA	Job Hazard Analysis
ICS	Incident Command System
LC	Liquid Concentrate
LCES	Lookouts, Communications, Escape Routes, Safety Zones
LSC	Logistics Section Chief
MBUAPCD	Monterey Bay Unified Air Pollution Control District
M.P.H.	Miles Per Hour
MRA	U.S. Army's Multiple Range Area
MSDS	Material Safety Data Sheets
NOTAM	Notice to Airmen
NWCG	National Wildfire Coordinating Group

OAK	Oakland
OAS	Office of Aircraft Services, Department of the Interior
OE	Ordnance and Explosives
OMC	Ord Military Community
OSC	Operations Section Chief
P ₁	Probability of Ignition
PIO	Public Information Officer
PM	Project Manager
PPE	Personnel Protection Equipment
PSC	Planning Section Chief
RAWS	Remote Automated Weather Station
ROP	Regional Occupational Program
RXB1	Prescribe Burn Boss I
SEAT	Single Engine Attack Tanker
SLR	Salinas Rural Fire
SMP	Smoke Management Plan
SO	Safety Officer
SOP	Standard Operating Procedures
SQ.FT.	Square Feet
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USGS	United States Geological Survey
UXO	Unexploded Ordnance
VBG	Vandenburg

PREFACE

The Army, as the lead agency, has determined that an Interim Action is appropriate to protect human health from the imminent threat posed by ordnance and explosives (OE) at three Interim Action sites (Ranges 43-48, Range 30A, and Site OE-16) while an ongoing comprehensive study of OE cleanup needs at former Fort Ord is conducted under the basewide OE Remedial Investigation/Feasibility Study (basewide OE RI/FS). Interim Action remedial activities were evaluated in three parts: vegetation clearance, OE remedial action, and OE detonation, as described in the Interim Action OE RI/FS (Harding ESE, 2002).

The Army's Proposed Plan (Army, 2002) identified prescribed burning as the preferred alternative to clear vegetation, subsurface OE removal as the preferred OE remedial action alternative, and detonation with engineering controls as the preferred OE detonation alternative for the three Interim Action sites. The public comment period for the Proposed Plan ended on 13 May 2002. The final selection of vegetation clearance method, OE remedial action and OE detonation method to be used at the Interim Action sites will be made in the Interim Action Record of Decision (Interim Action ROD). The Interim Action ROD was completed in September 2002.

The Army has developed the Site-Specific Interim Action Remedial Design/Remedial Action Work Plan (Interim Action RD/RAWP) for Ranges 43-48, because it has the highest priority of the three Interim Action sites. The Ranges 43-48 Interim Action RD/RAWP consists of four separately prepared plans. Each of the following four plans details task-specific inter-related work activities for implementing the Interim Action remedial activities.

- (1) Ranges 43–48 Prescribed Burn Plan (Fire Stop, 2002)
- (2) Voluntary Relocation Plan (Creighton & Creighton, Inc., 2002)
- (3) Prescribed Burn Air Sampling and Analysis Plan (Harding ESE, 2002a)
- (4) Ranges 43-48 Site-Specific Work Plan (Parsons, 2002)

1. Ranges 43-48 Prescribed Burn Plan (Fire Stop, 2002)

This Burn Plan describes the objectives of the prescribed burn; the burn area; the range of environmental conditions under which the burn will be conducted; the manpower and equipment resources required to ignite, manage, and contain the fire; a smoke management plan; and establishment of communication procedures for the fire crew and to the public and other affected agencies. Procedures for conducting the burn within the window of environmental conditions established in the burn prescription are discussed in this Burn Plan.

2. Voluntary Relocation Plan (Creighton & Creighton, Inc, 2002)

This Voluntary Relocation Plan describes the Army's actions that will be implemented for those Monterey County residents who wish to temporarily relocate if the Army uses prescribed burns to clear vegetation in preparation of OE cleanup. This plan describes the roles and responsibilities of the various Army organizations and contractors, and local government and community organizations, prior to, during, and after prescribed burns. It also describes the responsibilities of those people who wish to relocate.

3. Prescribed Burn Air Sampling and Analysis Plan, Ranges 43-48 (Harding ESE, 2002a)

This Prescribed Burn Air Sampling and Analysis Plan outlines procedures for the collection and analysis of air samples during a prescribed burn. The primary purpose of collecting and analyzing air samples during a prescribed burn is to confirm or refine the conclusions of the Technical Memorandum, Air Emissions from Incidental Ordnance Detonation During a Prescribed Burn on Ranges 43 through 48, Former Fort Ord, California (Harding ESE, 2001) that ground-level concentrations of ordnance-related air pollutants downwind of the prescribed burn will be well below human health-protective regulatory screening levels. While the air monitoring program is focused on detection and quantification of ordnance-related emissions, data from the air monitoring program will also be used to assess the adequacy of the burn prescription and to assess downwind concentrations of selected vegetation-related emissions.

4. Ranges 43-48 Site-Specific Work Plan (Parsons, 2002)

This Site-Specific Work Plan describes the procedures, methods and resources that Parsons and its subcontractors will use while performing subsurface OE removal and OE detonation with engineering controls. Subsurface OE removal consists of identification (visual search and operation of OE detection equipment) and remediation (combined with follow-on detonation) of any OE found/detected on the ground surface and in the subsurface to depths determined in this plan. OE detonation with engineering controls consists of applying additional detonating charges to single or consolidated OE items, and applying engineering controls (covering the OE with tamped dirt, sandbags, contained water, or other materials) prior to detonation to reduce the blast and any associated fragmentation, emissions, or noise.

An appendix to this Site-Specific Work Plan addresses site preparation activities to be performed prior to a prescribed burn to reduce smoke emissions during the prescribed burn and ensure the prescribed burn is contained within the site boundaries. Site preparation activities includes removing tires and structures; cutting down or prepping (with foam) utility poles; clearing brush and pruning/removing trees; and installing a sprinkler system and/or spraying foam around the site's perimeter. Fire prevention work will also be performed near the Fitch Park Housing area; this work includes the clearing of 35 acres of vegetation to widen the area's surrounding fuel break by an additional 150 feet.

1.0 PERSONNEL & BURN ORGANIZATION

Fire Stop is a professional fire suppression and prescribed burning company. Founded in 1989, we manage our personnel and equipment to meet the objectives of our customers. Fire Stop's organization is structured for fire fighting and prescribed burning utilizing the Incident Command System. We manage and conduct the instruction of a 540-hour fire control technician course along with National Wildfire Coordinating Group (NWCG) certified Wildland Fire courses approved by California Department of Forestry (CDF) and United States Forest Service (USFS) in a training program through Central Sierra Regional Occupational Program (ROP) in Placerville. Fire Stop has been conducting ROP training since 1995 with an advisory committee of 9 members from USFS, CDF, Bureau of Land Management (BLM), County Fire and the private fire sector.

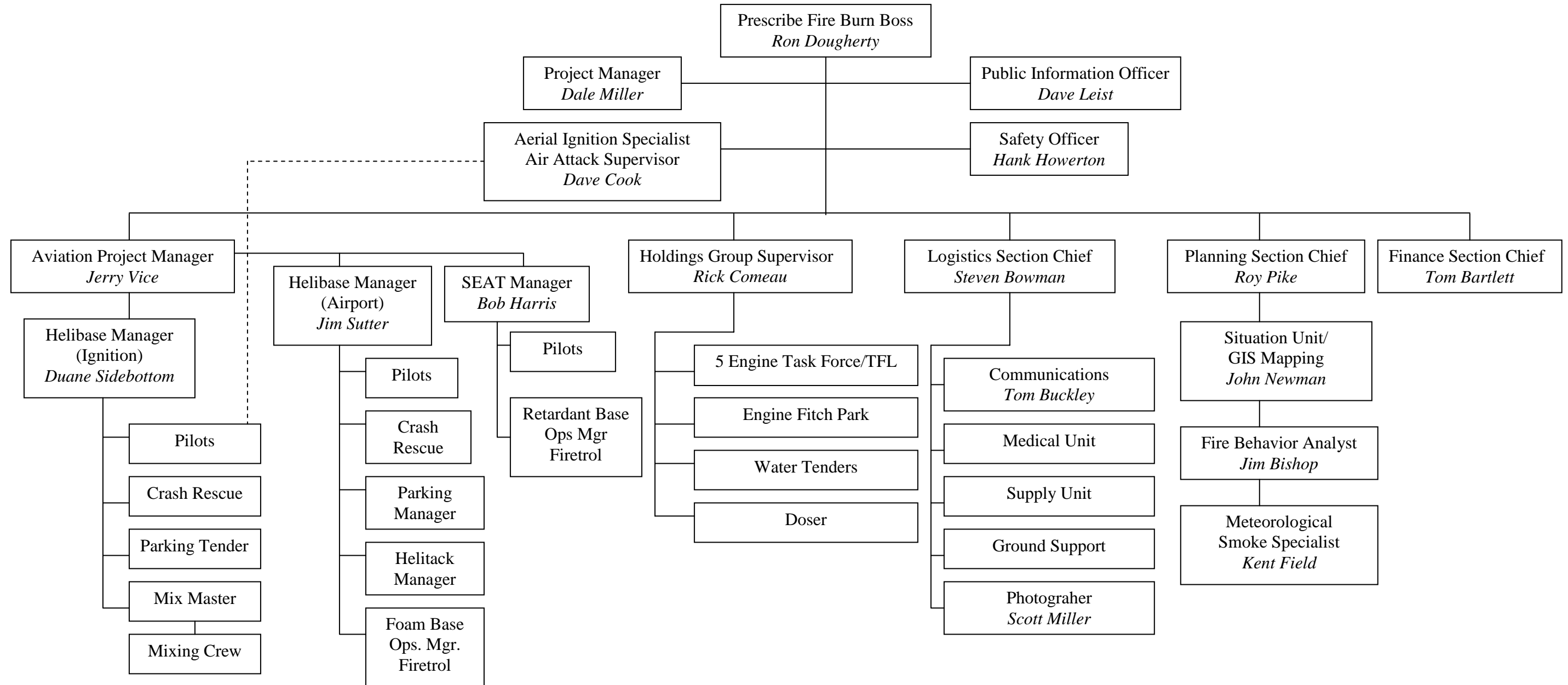
Fire Stop has performed ground and helicopter aerial ignition prescribed burns for over a decade. Fire Stop has conducted hazardous waste clean-up projects for the United States Army Corps of Engineers (USACE), including firing range clean-up projects. Fire Stop has developed a unique water delivery system that includes a mobile skid mounted helicopter dip tank.

Fire Stop has successfully completed a wide variety of hazardous fire fighting operations requiring HAZWOPER (29 CFR 1910.120 Regulations) for its personnel. These have included underground landfill fires, underground process plant fires, sawdust fires and tire fires. Fire Stop is suited to perform this project as we have successfully completed over 100 prescribed fires without an escape.

Fire Stop has considerable experience in dealing in all sorts of conditions, including the urban wildlife interface. Fire Stop has even conducted some of the first burns in over 25 years in the Lake Tahoe Basin, where expensive homes are immediately adjacent to the burn units. Our Incident Commander/Burn Boss has numerous years of experience in conducting controlled burns in maritime chaparral areas and has conducted classes for the USFS in performing such burns both domestically and overseas. Our personnel with the rating of Burn Boss I have a combined experience of over 225 years of fighting fire and prescribed burning. Our meteorologist has been performing air pollution related work for over 17 years and fire weather meteorology for over 11 years. This combination provides the ability to be sensitive to the smoke related issues and the necessary weather for supporting a fire.

All of our personnel have numerous years of prescribed fire experience and national wildfire suppressions. Attachment O provides the qualifications for the Incident Commander/Burn Boss and the Aerial Ignition Specialist/Air Attack Supervisor.

PERSONNEL & BURN ORGANIZATION



2.0 PROJECT AREA & UNIT DESCRIPTION

The project is on the former Fort Ord Multi Range Area that contains unexploded ordnance covered by maritime chaparral. (See Attachments A through H)

2.1 Size of Area

UNIT	Ranges 43–48
LAT/LONG	36° - 37' ; 121° - 47'
SIZE ACRES	500 (approximately)

2.2 Topographic Features

Elevation Top (feet)	550
Elevation Bottom (feet)	370
Slope (%)	0-30%
Aspect	All

2.4 Vegetation Type – It is mainly central maritime chaparral.

As shown in Attachment I, approximately 29 acres are comprised of grasslands, approximately 516 acres are comprised of maritime chaparral and approximately 10 acres are comprised of bare ground. By age class the total acreage is as follows:

3 year	approximately 56 acres
5 year	approximately 69 acres
10 year	approximately 41 acres
15 year	approximately 79 acres
20 year	approximately 135 acres
25 year	approximately 123 acres
30 year	approximately 13 acres

2.5 Fuel Arrangement – Fuels are heavy and dense. The average height is 4 to 5 feet. Because of vegetation’s thickness, penetration by foot is difficult. However, scattered open areas of grass exist most likely due to former military training.

2.6 Fuel Continuity – The fuel continuity is uniform. However, due to former military training, there are various broken and open areas primarily covered with grass. Open areas are mainly in the Type 2 fuel model.

2.7 Describe Vegetation Under 12’ Tall – All chaparral in the project area is under 12’. Live to dead ratio is approximately 80 to 85% live to 15 to 20% dead.

2.8 Describe Vegetation Over 12’ Tall – The vegetation over 12’ tall is comprised of scattered oak; however, the small quantity of this vegetation will not affect the fire behavior or the general spread rate.

3.0 RESOURCE MANAGEMENT GOALS & OBJECTIVES

Goals and objectives need to be clearly defined for a successful burn. The following goals and objectives have been identified for this project.

Goal 1: Contain the burn within the established primary containment lines that are located around the perimeter of Ranges 43 –48 burn unit.

Objectives:

- Suppress spot fires immediately by utilizing Infra-Red technology to identify spot fires that may be caused by unexpected wind changes and/or an incidental detonation of unexploded ordnance.
- Ensure adequate resources on site for immediate aerial suppression.
- Pretreat perimeter of burn unit with foam and/or retardant.

Goal 2: Minimize smoke impacts

Objectives:

- Strictly follow burn prescription to avoid direct smoke plume contact with smoke sensitive areas.
- Minimize impacts to human health by offering temporary voluntary relocation to Monterey County residents who request to be temporarily relocated during the duration of the prescribed burn.
- Provide a contact to address smoke complaints and educate the public on the need to use prescribed fires.

Goal 3: Clear vegetation to facilitate a safe ordnance and explosives (OE) remedial action for Ranges 43–48

Objective:

- Reduce canopy by 50 - 90% immediate post-burn to allow an unobscured view of the ground for OE remedial action workers. (Section 4.0 discusses the range of acceptable results.)

Goal 4: Minimize damage to natural resources and rare, threatened and endangered species

Objectives:

- Avoid areas containing Habitat Management Plan plant and wildlife species and maritime chaparral during placement of all access roads, staging areas and other associated facilities.
- Use existing roads whenever possible and minimize use of vehicles off roads to greatest extent practicable.
- Minimize impacts to the black legless lizard and plant species by conducting prescribed burns between July 1 and February 1.

Goal 5: Complete prescribed burn operations with no injuries to fire personnel or the surrounding communities

Objectives:

- Insure fire personnel receive adequate safety briefs as well as personal protection equipment (PPE)
- Provide adequate site security to insure that there is no unintentional entry by unauthorized personnel into the safety exclusion zone around the burn unit
- Provide adequate onsite resources to contain the prescribed burn
- Minimize impacts to human health by implementing a voluntary relocation plan for Monterey County residents who request to be relocated during the duration of the prescribed burn.

4.0 RANGE OF ACCEPTABLE RESULTS EXPRESSED IN QUANTIFIABLE TERMS

The primary goal is to utilize the fire to clear vegetation to facilitate safe removal of ordnance and explosives.

4.1 To safely remove the ordnance, the foliage needs to be removed from the maritime chaparral to a degree that will reasonably allow the ground to be seen. This means that, in general, the vegetation must be scorched to reduce its foliage to less than 5 ft above the ground. The clearance of vegetation is particularly important depending on the density of OE in the area. The priority of where vegetation clearance operations need to be performed is separated into three types of areas: critical, required, and desired. These areas are displayed in Attachment H and described as follows:

- In “critical areas”, those with known high densities of OE, ninety percent (90%) or more of this foliage is required to be burnt below 5 feet above the ground in the areas delineated on the map showing Burn Priority. In “critical areas”, no unburned areas over 1 acre in size will be acceptable.
- In “required areas”, those of known lower densities of OE, fifty percent (50%) or more of this foliage is required to be burnt below 5 feet above the ground. In “required areas”, no unburned areas over 2 acres in size will be acceptable.
- “Desired areas” have low densities of OE and vegetation may be cleared by other methods, if burning is not accomplished. Fire will be dropped in a routine manner following the normal established pattern that we are using to put fire into the unit, but does not involve going back for individual shrubs or patches of ground where the fire does not carry because of insufficient or too green a fuel to support fires. Therefore, there will be no criteria set in “desired areas” for what is an unacceptable amount unburned vegetation.

4.2 Areas of grass will have fire dropped in a normal pattern. However, no additional effort to get the fire to carry will be expended.

4.3 Specific burn criteria for some small areas may be established in a pre-burn site inspection with Fire Stop and Parsons’ personnel. These will be denoted by Global Positioning System (GPS) coordinates and additional flagging on the ground. Pre-loading of fuel in specific areas

may be required to assure burning. Pre-loading of fuel may involve placing alumagel prior to ignition at specific locations to assist in burning out particularly difficult to burn areas. This work may be performed completely via air.

- 4.4** Further criteria may be established or existing criteria modified by mutual agreement following test burn. Any modification will be agreed to in writing by Fire Stop, Parsons, BRAC/DENR and USACE prior to burning.
- 4.5** With the OE amounts and arrangements not known the exact extent of spot fires introduced to surrounding areas can not be predicted. However, suppression of all spots should be initiated within three (3) minutes of detection by visual or Infrared (I/R) methods.
- 4.6** No special action is required to reintroduce into the area fire dependent species, since the ranges 43-48 are surrounded by these species.

5.0 PROTECTION OF SENSITIVE FEATURES

5.1 Rare, Threatened and Endangered Species. The habitat in the burn unit consists mainly of Central Maritime Chaparral (CMC). Central Maritime Chaparral contains numerous listed, proposed or candidates for listing as threatened and endangered under the state and federal Endangered Species Acts. The following table presents a list of rare, threatened or endangered species present in the burn unit. These special status species were identified in the Installation-Wide Multispecies Habitat Management Plan (HMP) for Former Fort Ord, California (HMP) (USACE, 1997).

Species name	Listing Status
Sand gilia <i>Gilia tenuiflora ssp. arenaria</i>	Federally Endangered
Monterey spineflower <i>Chorizanthe pungens var. pungens</i>	Federally Threatened
Seaside birdsbeak <i>Cordylanthus rigidus var. littoralis</i>	California Endangered
Sandmat manzanita <i>Arctostaphylos pumila</i>	Species of concern
Monterey ceanothus <i>Ceanothus rigidus spp. rigidus</i>	Species of concern
Eastwood's ericameria <i>Ericameria fasciculata</i>	Species of concern
Coast wallflower <i>Erysimum ammophilum</i>	Species of concern
California black legless lizard <i>Anniella pulchra nigra</i>	Species of concern

The HMP was developed to protect threatened and endangered plant species during cleanup activities conducted as part of base closure activities at Fort Ord in accordance with the Endangered Species Act. Mitigation measures identified in the HMP which will be implemented during the planning and operational phases include:

- Conducting prescribed burns between July 1 and February 1 to minimize impacts to the black legless lizard and plant species;
- Avoiding areas containing HMP plant and wildlife species and maritime chaparral during placement of all access roads, staging areas and other associated facilities;
- Utilizing existing roads whenever possible and minimizing use of vehicles off road to the greatest extent practicable; and
- Implementing an environmental training program for all field personnel to educate personnel about HMP plant and wildlife species that could be encountered in the burn unit, pertinent state and federal laws relating to the conservation of these species, guidelines that personnel must follow to reduce or avoid impacts to HMP species and the appropriate contacts to report unforeseen impacts.

- 5.2** Archeological Resources. Based on a survey conducted in December 1993 of historic-period archeological sites, there are no archeological resources within the burn unit.
- 5.3** Environmental Protection. No mechanical equipment or vehicles will be utilized inside the burn area other than on existing roads that have already been established and then only with a Parsons' unexploded ordnance (UXO) escort. Dozers would only be used as a line of defense in areas without any ordnance and as directed by the Ord Military Community (OMC) Fire Chief. The dozers are a contingent resource. Fire Stop will discuss with the Parsons' biologist the areas where usage of mechanical equipment would have the least intrusive impact on the environment.
- 5.4** All personnel will attend an environmental training program implemented by the Army's Directorate of Environmental and Natural Resources (DENR).

6.0 PROJECT FINANCING

The project will be financed by the U.S. Department of Army.

6.1 Source of Funding – The source of the funding is the Department of Army, Base Realignment and Closure Funding Ordnance and Explosives Budget.

7.0 BURN PRESCRIPTION

The fundamental purpose of the prescription is to define conditions that will produce a fire intensity (a measure of the rate of energy release by the flaming front) that removes the fuel and yet remains controllable. The prescription simply describes a window-of-opportunity—further considerations and operational judgments may limit what is attempted within that window. This prescription was developed for the oldest and most flammable portions of the on-site fuels (the 30-year-old brush stands on the southwest side), to ensure that the greatest control problems had been addressed. Much of the burn site has fuels that will burn less intensely.

7.1 Prescription foundation - The development of the burn prescription rests on the experimentally-based guidelines, applicable to chaparral fuels throughout California, put forth in the publication “Burning by Prescription in Chaparral” (Lisle Green, Pacific SW Range and Experiment Station, 1981). The ranges of “prescription elements” utilized for this burn are associated with “medium” to “high” intensity prescribed burns. However, most portions of this burn, lacking mature brush stands and high dead-fuel loadings, will not burn at “high” intensity.

The prescription elements adopted for this burn vary slightly, on the safe side, from those published. Given the potential to enhance the burn intensity with the aerial firing operation, the allowed values of live fuel moisture (FM) and relative humidity (RH) at the low-intensity end of the prescription are taken to be a few percentage points higher. Our driest expected manzanita live fuel moisture was taken to be 60%, which produces a more conservative prescription at the high-intensity end than we would get using the 45% live FM allowed in the publication. An additional consideration was the experience-based judgement of local fire professionals that flame lengths of 25 to 35 feet would be expected, and would be controllable, during a burn in these fuels.

Prescription-element ranges:

Live fuel moisture (FM): 60% to 80%

10-hour FM: 3% to 8%

Temperature: 60° to 95°F

Relative humidity (RH): 15% to 35%

Midflame wind speed (MFWS): 5 to 12 mph

The prescription elements listed above combine to provide limiting values, which span fire intensities from the lowest adequate intensity to the highest controllable intensity. In the most fundamental sense, it is the range of fire intensities encompassed by these elements that is the

burn prescription. The wettest fuels, coolest temperatures, highest RH, and lightest winds correspond to the lowest prescribed intensity; the driest fuels, warmest temperatures, lowest RH, and strongest winds correspond to the highest prescribed intensity.

However, there are other combinations of those prescription elements that will produce appropriate fire intensities. For example, higher fuel moisture, with lower temperatures and RH, would allow higher wind speeds (up to 15 mph in our case) for the same fire intensity that would result from drier fuels and lower wind speed (the 12 miles/hr listed above). There is a set of conditions (fuel moisture—which reflects the temperature and RH—and wind speed) that corresponds to the lowest allowed fire intensity, and another set that corresponds to the highest allowed fire intensity. How do we define those sets of appropriate combinations?

7.2 Defining the appropriate conditions – The Fire Behavior Prediction System (FBPS; using the BehavePlus application) is used to define the combinations of conditions that correspond to those low/high prescribed fire intensities. Flame length (FL) is used here as a direct measure of fire intensity, because it is a relevant and readily gauged measure on the fireline.

FBPS fuel model 4 was utilized, because it fits the on-site mature brush stands shown in Photograph 1.



Photograph 1—Brush fuels typical of 30-year-old stands on the southwest side of the burn area. The ruler is held at the 6-ft mark.

However, realistic results from Model 4 are best obtained from calibrated (adjusted) outputs. Based on observed rate-of-spread (ROS) in model-4 fuels, the raw ROS Behave outputs are multiplied by a calibration factor of 0.56X. The corresponding raw flame-lengths (FL) are multiplied by a calibration factor of 0.75X, and these calibrated FL values are used in constructing the prescription.

To find the lower and upper flame-lengths, FL was predicted for the mildest combination of the above prescription elements (using live FM = 75%), and for the most severe combination (using live FM = 60%). The lower predicted FL (15.6 feet) corresponds to sets of conditions that will produce a just-adequate burn intensity. The upper predicted FL (31.4 feet) corresponds to the maximum burn intensity that is readily maintained under control—note that the predicted FL falls in the 25-35 foot range that is judged acceptable by local fire professionals. Therefore, any combination of conditions (including live FMs as low as 45%) that would yield a FL between 15.6 and 31.4 ft would be in prescription.

Any set of conditions not exactly addressed by Table 1, or situations very close to the limits of the prescription, can be evaluated by running Behave for those specific conditions. Multiply the raw FL prediction by 0.75X: **if the calibrated FL is between 15.6 and 31.4 ft, it is in prescription.** And a supplemental application table (for the same basic prescription), analogous to Table 2 below, can be developed as the live FM values become better known later in the season.

It is important to understand that the predicted FL does not need to be a perfect prediction. It simply serves as a parameter that identifies sets of conditions that correspond to the fire intensities that are encompassed by the basic prescription elements. The basis for the prescription is the experience-based information embodied in the prescription elements, delimiting acceptable fire intensities. The expression of the prescription is in the Behave outputs that define appropriate combinations of conditions to fit the prescribed intensities.

Shown in the Table 1 are the FLs (calibrated) that define the limiting condition-sets of the prescription. The FLs are for a headfire. FLs for flanking and backing fires would be less than 25% of the headfire FLs. In the younger and shorter brush stands within the burn area the FLs would be considerably less than tabled FL values, probably only a few feet in the sparser stands.

Table 1— Predicted FLs with 70% Live FM and Varying MFWS^a
(Based on FBPS Fuel Model 4)

FM (%)		MFWS ^b (mph)							
1-hr	10-hr	4	5	6	12	13	14	15	16
6	3	14.8	17.0	19.0	29.6	31.1	32.6	34.1	35.6
7	5	14.3	16.4	18.4	28.6	30.1	31.6	33.0	34.4
8	7	14.0	16.0	17.9	27.8	29.2	30.7	32.1	33.4
9	8	13.6	15.6	17.5	27.2	28.6	30.0	31.4	32.7

^aFLs shown are .75X of raw output FL and measured in feet; in-prescription FLs are shaded in gray;
^bMFWS between 6–12 MPH are in prescription.

Table 2—Predicted FLs with 60% Live FM and Varying MFWS^a
(Based on FBPS Fuel Model 4)

FM (%)		MFWS ^b (mph)							
1-hr	10-hr	4	5	6	12	13	14	15	16
6	3	15.8	18.0	20.2	31.4	33.0	34.6	36.2	37.7
7	5	15.2	17.4	19.5	30.3	31.9	33.4	35.0	36.4
8	7	14.8	17.0	19.0	29.4	31.0	32.5	34.0	35.4
9	8	13.4	16.5	18.5	28.7	30.2	31.7	33.2	34.6

^aFLs shown are .75X of raw output FL and measured in feet; in-prescription FLs are shaded in gray;
^bMFWS between 6–12 MPH are in prescription.

7.3 Applying the prescription - For each 1-hr FM shown in Tables 1 and 2, there is a corresponding range of wind speeds that are in prescription. 1-hour FM is not measured directly, but is determined by temperature and RH (which are observed directly). Tables 3 and 4 show the allowed range of 20-ft wind speeds for a given temperature and relative humidity (and therefore for a given 1-hr FM). To know if current conditions are within the prescription, obtain the prescribed wind-speed range from the appropriate portion of Tables 3 and 4—if the wind speeds are within that range, the conditions are in prescription. If temperature, RH, or wind speed are outside of those expressed in the table, you are not in prescription. Wind speeds in Tables 3 and 4 are average 20-ft speeds as measured by the on-site RAWS—the MFWS values from Tables 1 and 2 have been adjusted to the 20-ft level (the lower FLs are calculated as 1.2 x MFWS, and the higher FLs are calculated as equal to MFWS).

Table 3—Allowable 20-ft Wind Speeds with 70% Live FM

Temperature (F)	Relative Humidity (%)			
	15–19	20–24	25–29	30–35
60°–69°	6–13 mph	6–14 mph	6–15 mph	6–15 mph
70°–95°	6–13 mph	6–13 mph	6–14 mph	6–15 mph

Table 4—Allowable 20-ft Wind Speeds with 60% Live FM

Temperature (F)	Relative Humidity (%)			
	15–19	20–24	25–29	30–35
60°–69°	6–12 mph	6–13 mph	6–13 mph	6–13 mph
70°–95°	5–12 mph	6–12 mph	6–13 mph	6–13 mph

8.0 WEATHER COLLECTION

Weather collection and analysis of data on site are currently being performed by our Fire Weather Meteorologist and will be performed throughout the ignition and mop up phases of the project.

- 8.1** Data will be collected within the burn site from Remote Automated Weather Station (RAWS) FO1 at range 46 (36°37'37" latitude and 121°47'53" longitude and elevation 460') and RAWS FO2 at range 43 (36°37'37" latitude and 121°47'11" longitude and elevation 490'). (See Attachment E). Website addresses:

RAWS FO1: http://raws.boi.noaa.gov/obs2/CA_FORT_ORD_1.html

RAWS FO2: http://raws.boi.noaa.gov/obs2/CA_FORT_ORD_2.html

- 8.2** The data collected will be compared and analyzed in conjunction with other hourly meteorological data from RAWS Fort Ord (Wildcat Ridge), Marina Profiler (surface and lower atmosphere), Monterey Airport, and Salinas Airport.
- 8.3** This data will be used in conjunction with the North American surface analysis, 500 mb analysis, 700 mb analysis, 850 mb analysis, Vandenburg (VBG), and Oakland (OAK) soundings, visible infrared and water vapor satellite images, along with a variety of pressure tendency, temperature trends, moisture trend analysis for the eastern Pacific and western U.S. in forming a fire weather forecast. The observational data is the basis for the forecast, i.e., what is happening now and how the weather has been changing.
- 8.4** The models (MM5, AVN, ETA, MRF, RUC) are used to help in determining what may happen. These models may or may not be handling the current synoptic pattern correctly, but analysis of the observational data and day-to-day progression of the models is the best indicator as to how a model is performing. The models give a gross, large-scale representation of what may happen at different points in the atmosphere. This result will then be interpreted into micro-scale weather appropriate for making a fire weather forecast.

- 8.5** Forecast discussions will be made 3 to 5 days in advance of the burn and daily as the burn day approaches. The discussions will be made with the fire weather forecasters at the National Weather Service, San Joaquin Valley at Hanford, California, and the duty meteorologist at the California Air Resources Board (CARB).

Prior to burning, the Fire Stop's Fire Weather Meteorologist will be in daily contact with the Forest Service Fire Weather Meteorologist in Hanford, California. The meteorologists will discuss the synoptic and local scale weather patterns that will influence the burn and its smoke.

- 8.6** Meteorological assistance will also be obtained from the Meteorological Section of the CARB. The CARB meteorologists will give a 72-hour weather trend/outlook forecast, 3 days prior to the burn. At 48-hours prior to burning the CARB meteorologists will give another outlook forecast. At 24 and 12 hours prior to burning the CARB meteorologists and MBUAPCD will give a "go" or "no-go" recommendation. The project meteorologist will communicate and discuss weather patterns and air dispersion issues with the CARB, MBUAPCD, and the NWS 5 to 7 days prior to burning, and daily thereafter.

9.0 SMOKE MANAGEMENT PLAN FOR A PRESCRIBED BURN AT RANGES 43–48, FORMER FORT ORD, CALIFORNIA

9.1. Smoke Management Plan (SMP) Project Description

9.1.1 Project Name: Prescribed Burn for Ranges 43-48, Former Fort Ord, California **Project Location/Description: Report at least one of the following location descriptions:**

9.1.8 Lat/Long (See Attachment E)

9.1.2. Land Owner Name: Department of Army, with Colonel Kevin M. Rice, Installation Commander **Lat 36 (deg.) 37 (min) 30 (sec)**
Long 121 (deg.) 47 (min) 30 (sec)

9.1.3 Address: Street: 1759 Louis Road, Suite 230A **9.1.9 Project Elevation (msl feet)**
City: Monterey (See Attachment G)
State: CA ZIP: 93944 Top 550 Bottom 370

9.1.4 Field Contact:
James Willison, Directorate of Environmental & Natural Resources (831) 242-7924

9.1.5 24 - hour Phone/Pager: (831) 242-5119

9.1.6 Project Location (Counties):
Monterey County

9.1.7 Nearest Towns: Seaside, Del Rey Oaks, Monterey, Marina, Ord Military Community, Salinas, Spreckels

9.1.11 Anticipated Time of Year for Burn (Month/Year): between October and December 2002

9.1.12 Is the Primary Purpose of the Burn for Fire Hazard Reduction? No

9.1.13 Burn Type (Check one): Forest Management: Range Improvement
 Wildland Vegetation Management Natural Ignition Other:
Prescribed burning is being used as the method of site preparation in support of an ordnance and explosives remedial action undertaken pursuant to the Interim Action ROD..

- 9.1.14** Vegetation Type (Percentage): Brush 93% (approx. 516 acres); Grass 5% (approx. 29 acres); Timber Litter 0%; Timber Slash 0%; Other (Describe): Bare ground 2% (approx. 10 acres).
- 9.1.15** Vegetation Condition: Machine Pile Burn Hand Pile Burn
 Understory Landing Pile Burn Broadcast
- 9.1.16** Project Area: approx. 500 (acres)
- 9.1.17** Number of Piles: NA
- 9.1.18** Average Pile Size: NA
- 9.1.19** Total Project Fuel Loading: 7,222 (tons vegetation)
- 9.1.20** Particulate Matter Emissions: 73 (tons PM10)
- 9.1.21** Emission Factor Table Used or EPA-Approved Calculation Method: PM10 calculations can be found in Table 2 of the *Technical Memorandum Air Emissions from Incidental Ordnance Detonation During a Prescribed Burn on Ranges 43-48, Former Fort Ord California, November 9, 2001, Harding ESE*.
- 9.1.22** Preferred Ignition Hours for the Fire: 7 a.m. to 3 p.m.
- 9.1.23** Expected Burn Duration (ignition to end of smoke generation):
Total Time: 1 to 2 days (hours or days)
- 9.1.24** Fuel Drying Time and Conditions Prior to Ignition: Live and dead fuel moisture at the driest conditions possible, Live fuel moisture \leq 90% and dead fuel (10-hour fuel stick) \leq 10%.
- 9.1.25** Limitations on Pile Size, Pile Number, and/or Acreage Limitations to Minimize Smoke (complete as appropriate): The Ranges 43–48 site will be burned in a manner that minimizes smoke, by using fire behavior techniques and optimum weather conditions to maximize fuel consumption and spread while minimizing smoke over the duration of the burn. Also, the Army has a relocation plan to address smoke sensitive people living in the down wind area.

Army will ensure that conditions of the SMP are met on the day of the burn. DENR will notify the MBUAPCD contact listed below no less than 24 hours prior to ignition.

9.1.26 Air District Name: MBUAPCD

9.1.27 Address: 24580 Silver Cloud Court
Monterey, California

9.1.28 Contact: Doug Quetin

9.1.29 Telephone: (831) 647-9411
Monday-Friday

9.1.30 Fax: (831) 647 – 8501

The Army will identify public smoke complaints in the post-burn evaluation. Information to be included: location of smoke impact, short description of smoke behavior including wind direction and speed, visibility and public safety impacts if available

Because this burn could have impacts on smoke sensitive areas, Section 9.2 contains information about Smoke Sensitive Areas, weather and smoke behavior observations and public notification procedures. Because this burn is greater than 100 acres, Section 9.3 contains additional information about meteorological conditions for ignition, contingency actions, other vegetation clearance alternatives considered.

Although the proposed prescribed burn is being conducted primarily for vegetation clearance to provide safe access for workers to conduct remediation of unexploded ordnance, the habitat will also benefit. The Army developed an Installation-Wide Multispecies Habitat Management Plan (HMP) that identifies mitigation measures to be implemented during the cleanup of unexploded ordnance. The mitigation measures were developed in close coordination with the U.S. Fish and Wildlife Service, California Department of Fish and Game as well as other natural resources agencies. The mitigation measures to be followed for this project are as follows:

- The prescribed burn will be conducted between July 1 and February 1 to minimize impacts to the black legless lizard and plant species;
- The Army and its contractors will avoid areas containing HMP plant and wildlife species and maritime chaparral during placement of all access roads, staging areas and other associated facilities;
- The Army and its contractors will use existing roads whenever possible and minimize use of vehicles off road to the greatest extent practicable;
- The Army will implement an environmental training program for all field personnel to educate them about HMP plant and wildlife species that could be encountered in the project area, pertinent state and federal laws relating to the conservation of these species, guidelines that personnel must follow to reduce or avoid impacts to HMP species and the appropriate contacts to report unforeseen impacts.

9.2 SMOKE SENSITIVE AREAS, WEATHER AND SMOKE BEHAVIOR OBSERVATION AND PUBLIC NOTIFICATION PROCEDURES

9.2.1 Title 17, Section 80160(p) response—Describe locations of Smoke Sensitive Areas (SSAs) and distances from burn site (miles) - (Also the attached Map, Attachment M shows SSAs).

The principal smoke sensitive areas are cities, schools, Monterey Peninsula Airport, Mazda Raceway, Laguna Seca, Highway 68, and the Salinas valley (as far south as King City) within the vicinity of the burn unit.

9.2.2 The attached map, Attachment N provides smoke travel projections for:
 Day Night Topographical considerations.

9.2.4 Has prescribed burning historically occurred in this area? Yes No
 Don't Know

9.2.5 If yes, were there impacts to smoke sensitive areas? Yes No
 Don't Know

9.2.6 If yes, please describe impacts: Four of the past burns in 1998 in the vicinity did impact the local community at locations to the southeast and to the east. Monterey Bay Unified Air Pollution Control District did receive inquiries/complaints.

9.2.7 The Army will use the frequency and method of contact described below:

The Army will be in weekly contact with MBUAPCD. When the weather forecast indicates favorable burn conditions, the Army will be in daily contact with MBUAPCD.

The Army will monitor the burn project for meteorological conditions and smoke behavior before, during, and after the burn using the following techniques and timing:

9.2.8 Weather Observation (Wind Direction, Wind Speed, and Temperature):

<u>Method</u>	<u>Details</u>
<input type="checkbox"/> Belt Weather Kit	Location <input type="checkbox"/> Beginning <input type="checkbox"/> Interval <input type="checkbox"/> Ending <input type="checkbox"/>
<input checked="" type="checkbox"/> RAWS	Location <u>Fort Ord, FO1, FO2</u> Beginning <u>prior to</u> Interval <u>hourly</u> Ending <u>extinction</u>
<input type="checkbox"/> Aircraft	Location <input type="checkbox"/> Beginning <input type="checkbox"/> Interval <input type="checkbox"/> Ending <input type="checkbox"/>
<input type="checkbox"/> Other	Location <input type="checkbox"/> Beginning <input type="checkbox"/> Interval <input type="checkbox"/> Ending <input type="checkbox"/>

Additional Requirements: Marina profiler (surface and aloft), Monterey Airport, and Salinas Airport. These will be hourly observations monitored prior to Go/No-Go decision and continue until end of smoke generation.

9.2.9 Smoke Behavior Observations:

<u>Method</u>	<u>Details</u>
<input checked="" type="checkbox"/> Visual**	Location: <u>at cardinal compass points around burn site.</u> Beginning <u>prior-to</u> Interval <u>continuous</u> Ending <u>extinction</u>
<input checked="" type="checkbox"/> Test Fire	Location <u>Test burn site</u> Beginning <u>prior-to</u> Interval <u>continuous</u> Ending <u>extinction</u>
<input type="checkbox"/> Balloon	Location _____ Beginning <u>Interval</u> Ending _____
<input checked="" type="checkbox"/> Aircraft	Location <u>above burn and surrounding areas</u> Beginning <u>prior-to</u> Interval <u>continuous</u> Ending <u>extinction</u>

**Observations made through the eyes of designated individuals.

PM Monitoring Inst Location (see comments below)
Beginning _____ Interval _____ Ending _____

Additional Requirements: A comprehensive air monitoring program is planned for this prescribed burn. While the final details of the monitoring program have yet to be worked out through consultation with the United States Environmental Protection Agency (USEPA) Region IX and California Environmental Protection Agency (Cal/EPA), Department of Toxic Substance Control (DTSC), the basic elements of the program include the following:

- fixed and mobile upwind/downwind monitoring locations
- monitoring at smoke-sensitive receptors
- combination of real-time and laboratory-based monitoring methods
- analysis will include particulate matter, volatile, and semi-volatile pollutant species.

9.2.9a The following procedures will be used to notify and educate the public about this burn project. Television Radio Newspaper Posters/flyers
 Telephone calls Other (Explained in A.11b below)

9.2.10b The specifics of the notification procedure(s) checked above are as follows:

During General Burn Season (September - January)

The Army’s Public Affairs Office will conduct a press release to the following media to notify the community of the general burn season and information on reimbursement for voluntary temporary location: Monterey County Herald, Salinas Californian, Monterey County Post, Coast Weekly, California State University Monterey Bay Otter Realm, Naval Post Graduate School Campus News, Presidio of Monterey Community News, Santa Cruz Sentinel, KCBA (Fox), KION (CBS), KSBW (NBC) and KSMS (Spanish), KBOQ-radio, KWAV-radio, KSPB-radio, KTOM-radio, KDON-radio, KSMS-radio, KAZU-radio, KOCN-radio

The Army will publish a notice in the following newspapers to notify the community of the general burn season and information on reimbursement for

voluntary temporary relocation: Monterey County Herald, Californian, Monterey County Post, Coast Weekly and El Sol (Spanish);

Community Bulletin #4 will also contain information about the general burn season and information on reimbursement for voluntary temporary relocation and will be mailed to approximately 45,000 residents and also to a special interest mailing list (community members that have specifically asked to receive information on the Fort Ord cleanup program of approximately 900 residents);

The Army will publish weekly notification in the newspapers (Monterey County Herald, Californian, Monterey Country Post, Coast Weekly, El Sol) that burns may occur during that particular week and to call 1-800-852-9969 for updates and reimbursement information;

The Army will update the website, www.fortordcleanup.com, with information as information is published in newspapers.

The Army and its contractors will be monitoring the weather to determine when the appropriate burn conditions are observed. At that time the Army's plan is to initiate the burn notifications identified in this plan and the Voluntary Relocation Plan. The notification process will provide the initial notification (approximately 3-7 days before the burn) that a burn is possible but the final determination will occur on the day of the burn. Residents will then be responsible for calling the burn hotline to get further updates on the status of the burn.

24-Hours Prior to and on the Day of the Burn Event

Telephone notification of downwind schools, CDF, Salinas Rural Fire (SLR), Monterey County Office of Emergency Services, Fort Ord Reuse Authority, city mayors, Red Cross, Local Hospitals (Community Hospital of Monterey Peninsula, Natividad Medical Center, Salinas Valley Memorial Hospital), BLM, and Monterey Bay Unified Air Pollution Control District, and the San Joaquin Valley Unified Air Pollution Control District.

Voluntary Temporary Relocation Reimbursement Program

The Army has offered to reimburse residents who wish to move out of the immediate area temporarily during a prescribed burn. Individuals needing information on this program can call 1-800-852-9699 and speak to an Army staff member.

A workshop will be held prior to the burn event to help residents who choose to temporarily relocate complete the necessary forms.

9.2.11 The Army will place appropriate signage at or near burn sites to identify the burn project to the public as noted on the attached map (Attachment K)

9.2.12 Adjacent Air Districts and neighboring state Air Districts which may potentially be impacted by smoke travel or which have previously been impacted by smoke from similar burn projects are listed below.

9.2.12a Air District Name: (not applicable - adjacent Air Districts are not expected to be impacted.)

Contact: _____

Address: _____

24-hour Telephone: _____

Fax: _____

9.2.12b Air District Name: _____

Contact: _____

Address: _____

24-hour Telephone: _____

Fax: _____

9.2.12c Neighboring State Air District

Name: _____

Contact: _____

Address: _____

24-hour Telephone: _____

Fax: _____

9.3 METEOROLOGICAL CONDITIONS, CONTINGENCY ACTIONS, VEGETATION CLEARANCE ALTERNATIVES CONSIDERED

9.3.1 Meteorological Conditions for Ignition

Source of Meteorological Information: RAWS FO1, RAWS FO2, and RAWS Fort Ord, Marina Profiler (surface and aloft), Monterey Airport, and Salinas Airport.

Surface Wind Direction:

Ideal: East Acceptable Range: 040 to 140 (degrees)

Surface Wind Speed:

Ideal: 0-5 mph Maximum: 15 mph Minimum: 0 mph (mph)

Transport Wind Direction:

Ideal: Any. The goal is loft the smoke where it can disperse

Relative Humidity:

Ideal: 20-40% Maximum: 60% Minimum: 10% (%)

Target Mixing Height Parameters: >1,000ft

Acceptable Temperature Range: 55-85F (degrees)

Other Considerations to Assure Acceptable Smoke Dispersion:

Neutral to unstable atmosphere structure.

- 9.3.2** Describe contingency actions/methods/procedures the Army will take in the event that serious smoke impacts begin to occur or meteorological conditions deviate from those specified in this SMP (for example: stop ignitions, initiate mop-up, conduct fire suppression - describe in detail):

If smoke impact conditions are present or meteorological conditions deviate from prescription, the fire ignition may be halted at the discretion of the OMC Fire Chief. Chaparral is a quick-burning fuel, once ignition is halted the resulting smoke will be quickly minimized. If project smoke continues to be a problem, further mop-up procedures will be undertaken. Interior boundary lines can be used as lines of defense to halt burning and bring fire activity and smoke under control. Once ignition is halted, it will not be restarted until smoke impacts are mitigated.

- 9.3.2a** Describe any applicable interior unit contingency cutoff lines (refer to map# Attachment E): N/A

- 9.3.3** An evaluation of alternatives to burning is described below:

This prescribed burn is being conducted for site preparation for an ordnance and explosives cleanup action under Comprehensive Environmental Response, Compensation and Liability Act. Alternatives were evaluated in the document *Final Interim Action Ordnance and Explosives Remedial Investigation/Feasibility Study for Ranges 43-48, Range 30A, Site OE-16, Former Fort Ord, California, March 7, 2002.*

9.3.4 Alternatives Considered:

The Army evaluated the use of herbicides, mechanical, remotely-operated mechanical and manual methods, animal grazing, and prescribed burning for vegetation clearance. This evaluation can be found in the document *Final Interim Action Ordnance and Explosives Remedial Investigation/Feasibility Study for Ranges 43-48, Range 30A, Site OE-16, Former Fort Ord, California, March 7, 2002.*

9.3.5 Alternatives Rejected and Reasons for Rejection:

All vegetation clearance alternatives were rejected because the area proposed for prescribed burning contains ordnance and explosives that are fused and highly sensitive and vegetation clearance workers would be directly exposed to these items while conducting vegetation clearance and could be seriously injured or killed by accidental detonation of ordnance and explosives. Additional reasons were ineffectiveness at vegetation clearance, logistical difficulties, and excessive environmental impact.

9.3.6 Alternatives Used, and Tons of Vegetative Material Treated With Each Alternative:

Not applicable. See 9.3.5

9.3.7 Particulate Reduction for Each Alternative Used (tons):

Not applicable. See 9.3.5

9.3.8 Total Particulate Reductions from Alternatives Used:

Not applicable. See 9.3.5

9.3.9 Because this project is greater than 250 acres or smoke impacts may occur, the Army will complete a Post Burn Evaluation. The preliminary draft of the Post-Burn Evaluation will be submitted 45 days following project completion. An Army representative will log all complaints (using the complaint reporting form on the following page) regarding smoke impact. Coordination procedures between the Army and the MBUAPCD are being developed.

9.3.10 Because this burn is greater than 250 acres, Sections 9.2.8 and 9.2.9 describe the planned site monitoring actions.

PRESCRIBED BURN

COMPLAINT REPORTING FORM

A. PLEASE COMPLETE THE FOLLOWING INFORMATION

RECEIVED Date:	Time:
RECEIVED By:	
COMPLAINANT Name:	
COMPLAINANT Address (include city, zip):	
Nature of Complaint (Please provide as much detail as possible):	
Additional Comments/Response to Complaint:	
After form is completed, forward to DENR	

10.0 FIRING PROCEDURES

Firing of the burn site will take place by aerial ignition using helicopters.

- 10.1 Ignition Method** - Helitorch will be the ignition device. A total of three burn ships will be available. Initially two ships will be used to establish an adequate buffer zone. Under an established flow the two ships will be in a somewhat north/south direction depending upon actual wind direction for the most likely pattern in an east wind event (see Attachment L). Wind velocity will govern our ability to enact large a scale firing pattern. In the event the wind direction is different, we will adjust our firing patterns to accomplish the same goal. This burn buffer initially set at the burn edge will extend no less than 50'. More may be required if weather conditions require. The Aerial Ignition Specialist/Air Attack Supervisor (AIS/AAS) will be in a separate command helicopter with total control over all burn ships once they are inbound to the burn area. Once the buffer is complete interior access will be ignited with the purpose of drawing the fire toward the center of the unit. As needed three suppression ships will be available to the AIS/AAS, as well as two Single Engine Air Tankers (SEATs) at the Marina Municipal Airport to mitigate fire activity within the burn site. As firing proceeds, burn ships not needed in the primary firing can be used to pick up incomplete burn areas. Minimum altitude for each burn ship will be 200' above ground level (AGL) when over the burn site. The helicopters will operate with approximately a 100' line to the helitorch. The operation will be conducted in accordance with the framework established in the Interagency Aerial Ignition Guide.
- 10.2 Provisions for Test Fire & Recording Results** – A test fire is the precursor to the burn and will be conducted on the same day prior to ignition of the full burn. It will be used to determine if burn objectives will be accomplished prior to lighting the complete burn unit. The test burn location will be selected on the day of burn. Its exact location will depend on weather and representative fuel loading conditions. If firing cannot meet all objectives, burn will be delayed to when the conditions will be more favorable. The Burn Boss will make determination by using on site observations. Recorded observations (**See 10.8 - Burn Day Monitoring Form**) will include: weather, fuel consumption rate, flame lengths, smoke column height, transport dispersal. A test is a key ingredient in the final Go-No-Go decision.
- 10.3 Helitorch Operation** - The Helitorch Operation that will be used was developed using alumagel/gasoline mix. Because of the height and speed it is flown and the excellent ignition capabilities, it is a useful tool for fuels reduction.

For an efficient helitorch operation, the following organization shall be used.

10.3.1 Burn Boss

- a. Qualifications: The Burn Boss must meet all requirements contained in Forest Service Manual 5140 for the position of Burn Boss I. The Burn Boss has or can demonstrate the ability for:
 - Weather interpretation;
 - Fire behavior (S-490 or equivalent);
 - Managing people;
 - Conducting briefings; and
 - Communication skills.
- b. Position Responsibilities: The Burn Boss manages the overall firing plan; performs the initial briefing from the burn plan, covering the assignment of each subordinate and pilot; instructs all pilots as to the plan, firing sequence, and keeps all pilots informed of safety procedures throughout entire project; and recons all proposed sites with pilots prior to ignition. (See Section 10.7)

10.3.2 Aerial Ignition Specialist/Air Attack Supervisor (AIS/AAS)

- a. Qualifications: The AIS/AAS must have knowledge of helicopter operations and knowledge of helitorch operations.
- b. Position Responsibilities: The AIS/AAS instructs all pilots as to the plan, firing sequence, and keeps the pilots informed of safety procedures throughout entire project; and recons all proposed sites with pilots prior to ignition.

10.3.3 Aviation Project Manager (APM)

- a. Qualifications: The APM must be a qualified Helicopter Manager (HEMG)
- b. Position Responsibilities: The duties of the APM are to assist the project planner with the planning of the aviation part of the project and oversee the aviation operations during the execution of the project; insure that the Notice to Airmen (NOTAM) has been submitted; and insure that the communications plan is fully functioning.

10.3.4 Pilots

- a. Qualifications: For position requirement reference Forest Service Manual 5700. The Pilot will show evidence of sling operations in areas of uneven, broken and moderate to steep terrain. Pilot shall possess a valid card from Office of Aircraft Services (OAS) or USFS; Qualification Record with endorsement for Helicopter Operations.
- b. Position Responsibilities: The Pilot shall ignite per lighting plan, under the direction of Burn Boss or AIS/AAS. Pilot in command is responsible for all matters related to aircraft operation and safety.

10.3.5 Helicopter Base Manager – Airport (HEMG-A)

- a. Qualifications: The HEMG-A is a Qualified Airport HEMG
- b. Position Responsibilities: The HEMG-A supervises the helicopters and verifies the qualifications of both the ship and the pilot; Insures that crash/rescue equipment and crew are ready.

10.3.6 Helicopter Base Manager - Ignition (HEMG-I)

- a. Qualifications: HEMG-I meets the requirements of Interim Helitorch Operational Direction and is trained by a qualified Helitorch Instructor in the use of the helitorch.
- b. Position Responsibilities: The Helitorch Manager provides technical assistance to the AIS/AAS, supervises the Helicopter Operations according to Policies and Procedures. He will identify safety requirements to APM and AIS/AAS at operations briefings and monitor over all helitorch operations, providing information as to aerial safety procedures to be used by the AIS/AAS. He will ensure static bonding has been completed prior to mixing. Flight following will be returned to APM at the end of each workday to cover from project to designated airport.

10.4 Helibase

10.4.1 Requirements - The helibase for ignition will be on site and need to be large enough to handle the helicopters, lighting equipment and fuel trucks. The APM can assist the Burn Boss with making decisions and should approve the base prior to committing to it. A preliminary helibase location for ignition is shown on Attachments C and D. The actual location will be selected by the APM, AIS/AAS, and the Burn Boss along with the OE Specialist and the OMC Fire Chief, prior to mobilization for burning.

10.4.2 Helicopter Support Personnel - Use of the helitorch requires a complete, qualified Helitorch organization. The Burn Boss must identify these resources in advance and make sure they have a commitment of these people as the time approaches for the burn to take place. In addition to the APM and HEMG-I discussed above, the following positions are required to be filled by qualified and carded personnel.

10.4.2.1 Mix Master

- a. Qualifications: The Mix Master will have received the training as specified in Forest Service Manual 5712.6 or approved training equivalent by a qualified Helicopter Foreman, and updated training in the use and care of approved Helitorch and met the requirements of Interim Helitorch Operations. Helitorch use has been included on the persons qualifications and approved by the Qualified Helibase Manager.
- b. Position Responsibilities: The Mix Master plans mixing operations, determines job size and equipment necessary, supervises crews as assigned, briefs assigned helibase fire protection personnel, maintains materials use records, provides fire protection, rescue and evacuation in case of an accident.

10.4.2.2 Parking Tender

- a. Qualifications: As a minimum the Parking Tender has received the training as specified in Forest Service Manual 5712.6 or equivalent training from a Qualified Helicopter Foreman and meet the Interim Helitorch Operational Direction.
- b. Position Responsibilities: The Parking Tender works directly for the HEMG-I, has control of all activity on landing pad; monitors personnel movement (including mixing crew), ground vehicle traffic, helicopter movement; assists the Pilot as needed when the helicopter is departing, approaching or on the landing pad. The Parking Tender shall be equipped with a radio with headset, boom or equivalent mike, and remote key switch channeled to a frequency for the pilot and AIS/AAS only. The Parking Tender is responsible for the maintenance of the parking area, i.e. dust abatement, etc. He understands his responsibilities as assigned with Crash / Rescue and assists Mix Master in mixing operations as assigned.

10.4.2.3 Mixing Helpers

- a. Qualifications: The Mixing Helper is to have received aircraft familiarization training and mixing training from Mix Master.
- b. Position Responsibilities: The Mixing Helper will assist Mix Master in the preparation of Alumgel / gasoline mix and ensure Helibase safety.
- c. Safety and Training: Helitorch procedures (Helibase), fuel mixing (gel / gas), fires involving flammable or combustible liquid (Class B), first aid training for burns, a minimum of 8 hours is required to fulfill the additional training needs for a safe and efficient helitorch operation.

10.5 Helitorch Equipment

10.5.1 Lighting Equipment and Supplies - The Burn Boss must make arrangements well in advance for the equipment needed to accomplish the project. The APM may assist with locating and committing the equipment. All equipment must be inspected and approved for its intended function by the AIS/AAS and meet Department of Transportation (DOT) specifications as applicable.

10.5.2 Helitorch Equipment - The following list of equipment will be based at operation site:

- Two 20-lb. dry chemical fire extinguishers;
- Wind indicator;
- Direction signs;
- Evacuation Kit;
- Crash Rescue Kit;
- Radios;
- Ten-man first aid kit plus burn kit;
- Non spark emitting mixing paddles for helitorch project or a batch mixer; and
- Additional 20 lb dry chemical fire extinguishers to extinguish test firing of helitorch while on helibase

10.5.3 Alumagel Storage and Transportation - Alumagel (See Attachment R) must be stored in a dry place and transported in waterproof containers. It is recommended Alumagel be pre-packed in 10 lb. lots for 55 gallon barrels. Plastic or paper bags can be used. Store in plastic garbage cans with seal tight lids.

10.5.4 Drop Heights and Air Speed - Maximum air speed is 50 knots. Fire on the ground can be obtained from heights of 200' AGL at air speed of 40 mph or 150' AGL and air speed of 30 mph

10.5.5 Wind Speeds - Operation within prescribed burning wind speeds will not significantly affect the drift of gel / gas during ignition.

10.5.6 Safety Factors - Gelled gas allows flying at higher elevations above the ground level and at an increased rate of speed without loss of accuracy. 100' is the minimum drop height that will be allowed because of the OE at the burn site and its potential cook-off. Travel speeds and patterns will be maintained to minimize the time and proximity to any area that has been ignited due to potential OE cook-off.

10.6 HELITORCH OPERATIONS CHECK LIST

Helitorch operation checklist shall be completed prior to each days operation.

10.6.1 Organization -

1. Helitack organization chart has been prepared and posted showing responsibility for functions by name.
2. All Helitack positions are filled by qualified personnel.
3. Pilot and aircraft agency approval cards check.
4. Helitorch module certified by qualified Helicopter Specialist.

10.6.2 Helibase Operations -

1. Helibase Manager-----
 - a. Has established separate radio frequencies as designated on Communications Plan (see Section 13.11).
 - b. Communications tested and operational. -----
 - c. Briefings to include as a minimum all required helitack personnel, key firing personnel and helitorch pilot.
 1. Overhead responsibilities and authorities.
 2. Flight routes include jettisoning torch considerations.
 3. Area flight hazards.
 4. Radio frequency assignments.
 5. Personnel assignments
 6. Emergency procedures with torch, man, and extinguisher.
 7. Helibase emergency fire suppression procedures, medivac, Foam / Extinguishers.
 8. Note: All personnel will be briefed on the adherency of alumagel and the hazards from coming into contact with it.

10.6.3 Mixing Area (if applicable)

1. Separate from other helibase activities.
2. Traffic control.
(a) Ground Vehicles, (b) Personnel, (c) Aircraft
3. Helitorch fuel supply. Available and properly located, static grounding in place.
4. Fire suppression equipment available.
Equipment operational.
Personnel available and briefed.
5. Personnel assignments.
6. Emergency procedures with helitorch, manning extinguishers.
Foam / extinguishers.

10.6.4 Landing Area

1. Located where safe approach and departure paths exist and separate from other helibase activities.
2. Free from flight hazards within the landing area.
3. Traffic control of (1) ground vehicles (2) personnel and (3) aircraft
4. Dust abatement measures taken.
5. Helitorch loading procedures briefed and personnel assignments.
6. Helicopter fuel truck security, parking area and driving route designated, located away from flight routes, landing areas and personnel static grounding measures required.
7. Fire suppression equipment available and operational.
8. Fire suppression personnel available and briefed.

10.6.5 Crash Rescue Plan

- 1. Follows Crash Rescue Plan
- 2. Base helibase crash rescue personnel assigned.
- 3. Posted at helibase.
- 4. Map showing flight routes, helitorch area, flight hazards and ground access routes, posted on a bulletin board.

10.6.6 Orientation Flight Completed

10.6.7 Go/No-Go Check List Completed

Certification: All items of the Helitorch Operation Checklist have been accomplished.

Helibase Manager **Date**

Aviation Project Manager **Date**

10.7 Burn Boss Responsibilities Checklist

10.7.1 Pre Burn - Creation of the Written Prescribed Burn Plan

The responsibilities of the Burn Boss include the following:

- Collect information on the unit (recon, maps);
- Identify line construction and other preparation needs (including location of sensitive features);
- Identify hazards and other potential problems;
- Are all components of burn plan complete and do the prescription and the firing plan allow the project to be completed within the range of acceptable results;
- Technical review completed and burn plan properly signed; and
- Notify OMC Fire Chief that burn plan is ready for his approval, which includes the smoke plan.

10.7.2 Pre Burn – Preparation to Burn

The responsibilities of the Burn Boss include the following:

- Have all firelines including protecting controlled areas been completed to burn plan specs;
- Weather collections complete as specified in the burn plan;
- Spot forecast and smoke transport forecast received from the meteorologist; and
- Public notification complete as specified in burn plan.

10.7.3 Day of Burn – Briefing the Prescribed Burn Organization

The responsibilities of the Burn Boss include the following:

- Forecasted weather, local trends, resource objectives, firing plan to meet objectives;
- Organization of prescribed burn project; and
- Safety briefing to include Lookouts, Communications, Escape Routes, Safety Zones (LCES), the Job Hazard Analysis (JHA), known hazards, and medical and evacuation plan.

10.7.4 Day of Burn – Pre-Ignition

The responsibilities of the Burn Boss include the following:

- Do you have authorization to burn from OMC Fire Chief?;
- Are contingency resources in place and available within time frames in burn plan?;
- Are all public notifications complete?;
- Is the contract and burn plan onsite?;

- Is the Spot forecast favorable for the ignition and holding/burn down phases, and will the smoke plan be met with the actual & predicted conditions observed on site?;
- Provisions for monitoring and recording weather available on site;
- Go/No Go checklist completed with all answers being a YES? Completion of the checklist is required for each day of ignition; and
- Test Fire – notify OMC Fire Chief prior to igniting, does observed fire behavior indicate that the burn prescription and objectives will be met and that holding forces are adequate? If not, do not proceed!

10.7.5 Day of Burn – Prescribed Fire Operation

The responsibilities of the Burn Boss include the following:

- Direct, delegate and coordinate resources to meet objectives;
- Ensure Safety of all personnel and the public;
- Monitor fire behavior, weather, smoke and resource objectives;
- Keep communications with OMC Fire Chief, Project Manager and Public Information Officer;
- Be prepared to terminate ignition by extinguishment, containment or implementation of the contingency plan if personnel or public safety will be comprised (including air quality), weather or fire behavior is out of prescription, and/or objectives are not being met or fire escapes or is expected to escape;
- Report daily accomplishments to OMC Fire Chief and Parsons;
- Evaluate conditions and determine mop-up and patrol intensity (burn plan);
- Complete documentations (weather, smoke, fire behavior); and
- Complete personnel performance ratings and/or sign off tasks (Task books).

References: R-5 Burn Plan, Prescribe Burn Boss 1 (RXB1), GO/NO GO Checklist

10.8 Burn Day Monitoring Form (to be completed after the test burn)

Date: _____

Test Burn Location: _____

Weather: _____

Fuel Consumption Rate: _____

Flame Lengths in Ft.: _____

Smoke Column Height: _____

Transport Dispersal: _____

Fire Behavior: _____

Recommendation to Proceed:

Meteorologist

Date

Fire Behavior Analyst

Date

Burn Boss

Date

Remarks: _____

11.0 HOLDING PROCEDURES

Due to the 1701' restriction for personnel from the project boundary, holding forces will be staged at strategic locations. The 1701 ft was based upon the range of known ordnance. It should be noted that a portion of the southeastern section of the Fitch Park Housing Area falls within the 1,701' exclusion zone; however, the USACE OESS has determined that it is acceptable for personnel to work in this area within the exclusion zone. Observations will be performed by helicopter using visual, video and I/R.

11.1 Controlling Spot Fires - Type II helicopters along with Single Engine Air Tankers (SEATs) will be the primary resource for controlling spot fires. These resources may be used to pretreat the perimeter fuels before any ignition. The amount pretreated will be determined onsite before the the burn.

11.2 Equipment Needs –

- Two (2) SEAT air tankers will be staged at the Marina Municipal Airport for immediate dispatch;
- Three (3) Type II helicopters/buckets will be staged at the Helicopter Base-Airport (at least 1 with bucket full in air during ignition phase);
- One (1) Task Force of NWCG Type 3 (with 3 personnel) and NWCG Type 6 engines and a task force leader will be staged for use in areas clear of OE such as existing BLM land; and
- Fitch Park Housing will have minimum of three (3) engines for patrolling protection.

11.3 Video/Camera - A helicopter with I/R and Video capabilities will be under the control of the AIS/AAS. It will have a I/R real time down link established to the operations unit. Any spots that it observes will be immediately reported to the AIS/AAS on a controlled frequency. The I/R unit will download geo-referenced I/R information as appropriate. Detailed infrared and color imagery information on fire line and hot spots with risk assessment classification will be obtained. Information will be recorded on video and still images, which are geo-referenced with GPS and linked to United States Geologic Survey (USGS) 7-1/2' maps or ortho quad maps. Real time fire line and hot spot location downloads from aerial and ground based platform to Incident Command Post will be performed.

11.4 Water (Sources) – Water pond and operating hydrants. This will be verified near the day of the burn for appropriate flow from hydrants. The Marina Coast Water District will supply the hydrants with water. Hydrants will supply dip tanks (for storage) from which helicopters can load and reload. A reservoir may also be utilized, if approved by the OMC Fire Chief. Also, this will be further coordinated with the Bayonet & Black Horse Golf Course and BLM as appropriate.

11.5 Line Construction – Description of Burn Unit Primary Containment Lines (see Attachments A, C, D and J)

Northern Boundary of the Burn Unit/Primary Containment. The northern boundary of the burn unit is comprised of (from east to west): the Blue Line fuel break from Evolution Road to the eastern boundary of OE-15SEA.4; the northern boundary of the future habitat reserve portion of the burn site; an unnamed dirt road that extends southeast from Eucalyptus Road; and the Blue Line fuel break from the junction of the dirt road to Orion Road. The vegetation on the 45-ft-wide Blue Line fuel break has been cut and OE has been removed from the subsurface of its 15-ft-wide center road and from the surface of its two 15-ft-wide sides. In addition, the vegetation between the burn line and the fuel break to the north of it, Eucalyptus Road, has been cut to a 4-in. height.

Southeastern and Southern Boundary of the Burn Unit/Primary Containment. The southeastern and southern boundary of the burn unit is comprised of the 45-ft-wide Eucalyptus Road, Orion Road, and Broadway Avenue fuel breaks—the vegetation has been cleared from these fuel breaks and OE has been removed from the subsurface of their 15-ft-wide center roads (for safe access of fire personnel prior to ignition so that these fuel breaks can be reinforced with a fire retardant/foam) and from the surface of its their two 15-ft-wide sides. In addition, vegetation has been cut 100 ft inside the southeastern portion of Eucalyptus Road and 45 ft inside Orion Road and Braodway Avenue (to a 2½–3 ft height).

Western Boundary of the Burn Unit/Primary Containment. The western boundary of the burn unit is the Evolution Road fuel break. The vegetation on this 45-ft-wide fuel break has been cut and OE has been removed from the subsurface of its 15-ft-wide center road (for safe access of fire personnel prior to ignition so that the fuel break can be reinforced with a fire retardant/foam) and from the surface of its two 15-ft-wide sides.

Secondary lines are those that follow existing roads that are sufficient to provide a fuel break. These lines form the edges of areas that are called defensible polygons. A defensible polygon is an area that has boundaries sufficiently established that would allow a spot fire to be confined within the defensible polygon. The burn unit is located in defensible Polygon B. For the defensible polygon roads, the vegetation has been cut to allow for a total of 45', including the dirt road. The road has been cleared of ordnance and explosives to a four-foot depth to allow for safe access of fire personnel. In the areas where vegetation has been cleared, ordnance and explosives have been removed also to a depth of four feet. See Attachment J for location of defensible polygons.

Tertiary lines are defensible lines that have been established at the perimeter of the former Fort Ord property boundaries.

11.6 Preparatory Activities – A preparatory action will be performed in the Ranges 43–48 site before the prescribed burn. This action will entail

removing tires; prepping structures; cutting down or prepping (with foam) utility poles; clearing brush; and pruning/removing trees. This action will also include fire prevention work in and around the Fitch Park Housing area. The Watkins Gate Road fuel break may be disked at the discretion of the USACE. The following table breaks down the extent of the brushcutting and tree removal/pruning that will be performed around the burn site’s perimeter.

Location	Brushcutting	Pruning/Removing Trees
From northern section of Evolution Road at burn line junction to Eucalyptus Road at burn line junction; area between Eucalyptus Road and burn line	Clear brush (to 4-in. height) between Eucalyptus Road and burn line	Remove trees, or prune trees to 8 ft and prune treetops (to be determined by OMC Fire Chief)
From southeastern section of Eucalyptus Road at burn line junction to northern section of Orion Road	Clear brush 100 ft inside Eucalyptus Road; clear brush 45 ft inside Orion Road to 2½–3 ft height	Prune trees 100 ft inside of Eucalyptus Road/Orion Road to 8 ft
From northern section of Orion Road to Broadway Avenue junction and along Broadway Avenue from Orion Road junction to Evolution Road junction ^a	Clear brush 45 ft inside Orion Road and Broadway Avenue to 2½–3 ft height	Remove trees 100 ft inside Orion Road
Along Evolution Road from Broadway Avenue junction to Stinger Road junction	N/A	Remove trees 100 ft inside Evolution Road; prune trees 50 ft outside Evolution Road to 8 ft
Along Evolution Road from Stinger Road junction to Blue Line fuel break	Clear brush underneath trees 50 ft outside Evolution Road	Prune trees 50 ft outside Evolution Road to 8 ft
^a Brushcutting will stop 1,500 ft west of Broadway Avenue/Orion Road junction		

Operations in the Fitch Park Area include: widening the Fitch Park fuel break by 150 ft via a vegetation clearance; in the area between the Fitch Park fuel break and the backyards of the houses behind it, limbing up trees to 8 ft, and removing the resulting debris and chipping it in another location; and in those backyards, cutting all the unmaintained vegetation and cleaning any debris off the roofs. In addition, water tanks will be prepositioned near the Fitch Park Housing area and foam will be sprayed between the Fitch Park fuel break and the backyards behind it.

11.7 Pretreatment – The immediate perimeter of the burn unit will be pretreated with foam/water and/or retardant on the critical sides for a 100’ minimum by water tenders and fire engines (helicopters and SEATs may be used, as necessary) or sprinklers during the 24 hour period before the burn is scheduled. The critical sides will depend upon the actual and forecast weather and the fuel conditions at the time of the burn. Foam/water and/or retardant will be sprayed over areas at least 50-ft wide surrounding the outside of the perimeter. SEATs using retardant may be added as directed by the Burn Boss.

12.0 MOP UP AND PATROL PROCEDURES

Mop up will be accomplished by water/foam bucket drops from helicopters. If necessary, SEATs can be also used to lay a strip of retardant at the appropriate location. The advantage to chaparral over heavier fuel such as a timber type fuel is burn out time is much shorter.

12.1 Three levels of Probability of Ignition (P_1) will be used.

P_1 of < or =40:	Low potential for new ignitions
40 – 70:	Moderate potential for new ignitions
70 - > :	High potential for new ignitions

12.2 Three wind speed levels will be used based on their effect on spotting. Wind speed (s) are average readings at mid flame height.

0 – 4:	Minimal effect on holding
5 – 9:	Significant effect on holding
9+ mph:	Adverse effect on holding

12.3 The following chart will be used to determine the minimum level of action required based on the actual and/or predicted weather conditions per unit and production rate of resources used. All contingency resources are required from ignition until the fire is declared out or resources are released by the OMC Fire Chief (See Section 15.4). We are currently projecting that mop up will take two (2) to three (3) days depending upon fuel and weather conditions.

Activation Levels		Actions Required
Probability of Ignition	Mid Flame Wind Speed Mph	Patrol Frequency
10-40%	1-4	Burn Boss
	5-9	Burn Boss
	9 plus	Burn Boss
40-70%	1-4	Burn Boss
	5-9	1 Aerial Patrol/Day
	9 plus	2 Aerial Patrol/Day
70%	1-4	Aerial patrol every 30 minutes
	4-9	Aerial patrol every 15 minutes
	9 plus	Aerial patrol constant

Chaparral has a short burn duration and will be allowed to burn out on its own. Aerial patrol frequency will change as probability of ignition changes. If designated by Burn Boss then aerial suppression of lines at perimeter will be performed. The presence of surface OE prevent ground patrol or mop up, except along perimeter roads. Patrol will continue at the above frequencies until the burn unit is accepted by the OMC Fire Chief.

13.0 **FIREFIGHTER AND PUBLIC SAFETY AND SPECIAL CONDITIONS**

The purpose of this Health and Safety Plan (HSP) is the prevention of occupational accidents, injuries, exposures, and illnesses for personnel performing work activities specific to this Project. Accordingly, the policies set forth in the HSP are to:

- ◆ Provide a safe working environment;
- ◆ Conduct operations within guidelines of safety requirements;
- ◆ Comply with appropriate government regulations (i.e., California Code of Regulations (CCRs), Code of Federal Regulations (CFRs), and Forest Service Manual (FSM), and other related recommendations for employee health and safety;
- ◆ Maintain high standards of performance concerning environmental protection, industrial health, and fire safety; and
- ◆ Ensure that project workers are aware of the hazards associated with the site activities and the related protective measures.

Procedures involved in normal and emergency response activities may expose personnel to hazards in several different occupation areas (i.e., fire, OE, general hazards, chemicals, burn fuels and aviation). To fulfill the requirements of this HSP and provide a safe work place, personnel will only perform tasks associated with their expertise and qualifications. Wildland firefighters are trained to deal with many types of field related hazards, and with this project, all firefighters will be briefed on working in and around OE. This HSP describes in detail how the health and safety of personnel working for Fire Stop or its subcontractors on this Project will be handled.

13.1 Scope of Work - This HSP covers prescribed burn operations on Ranges 43-48 to clear vegetation to allow safe access for ordnance workers to remove unexploded ordnance. The prescribed burn is to be performed by Fire Stop and its subcontractors. This HSP will be utilized to ensure that adequate site safety practices are utilized throughout all prescribed burning activities.

13.1.1 Location and Site Background - The Fort Ord Prescribed Burn Ranges 43-48 (approximately 500 acres) are part of the Army's Multi-Range Area (MRA) used many years in training activities. The site is located just east of the City of Seaside, California which is located in the Monterey Bay Area (See map Attachments A, B, C, and D). Since the closing of the military base, brush has grown up in the range areas and is preventing a safe removal of unexploded ordnance.

13.1.2 Description of Onsite Activities - Specifically, the work involving this HSP includes the Prescribed Burn and Test Burn along with all aerial ignition prescribed burn activities, aerial holding and suppression and ground holding and suppression, all preparation activities and post activities to meet the goals set forth by Parsons and the USACE in a safe manner as listed below:

- Mobilize and set up all operations as required;
- Prepare the burn units with aerial and ground pre-treatment per the Burn Plan (BP);
- Test Burn and suppression as needed for fire behavior and smoke analysis;
- Aerial ignite the units to meet objectives of the BP and SMP;
- No burning will be performed, if preparedness levels exceed Level 3;
- Aerial suppression on any spot fires or slop-overs;
- Patrol perimeters as required in the BP;
- Aerial mop up as needed; and
- Perform all post burn activities and de-mobilization.

13.2 Organizational Chart and Responsible Parties – See Personnel and Organization Chart (Section 1.0).

13.2.1 Responsible Parties – Fire Stop - Working under the direction of Parsons for OE related safety hazards and contracturally for the burn, with direct interfacing with the OMC Fire Chief for all burn related activities. Fire Stop and its subcontractors will provide the following management team using the Incident Command System (ICS):

- Project Manager – Dale Miller

The Project Manager (PM) will act as the liaison between Fire Stop and Parsons / Army Corps and will be available during all operations to handle any contract and other related issues. The Project Manager will have direct communications with the Burn Boss and Parsons by 2-way radio and cell phone

- Prescribe Fire Burn Boss – Ron Dougherty

The Burn Boss will be the person in-charge of the overall burn during all phases. While working under the ICS management system, the Burn Boss (Type 1 IC) will work with the OMC Fire Chief prior to and during the actual burn and have direct communication with the Project Manager, Aviation Project Manager, AIS/AAS, Operations Section Chief, Air Ops Manager, Planning Section Chief including the Fire Behavior Analyst and Fire Weather Meteorologist, and the OMC Fire Chief. If an escape takes place beyond the ability of Fire Stop resources, the OMC Fire Chief will take command and call for contingent resources if necessary. The Burn Boss will work directly with the OMC Fire Chief, but will continue to oversee the continued burn holding operations.

- Safety Officer – Hank Howerton

The Safety Officer (SO) will be working directly with the Burn Boss in the Planning and Operations phase of the burn and be the Project Safety Officer. The Safety Officer will patrol the project checking for any unsafe work practices and advise the Project Manager of those practices. As a Burn Boss I, the SO will also be the back-up Burn Boss to Ron Dougherty.

- Public Information Officer – Dave Leist

The Public Information Officer (PIO) will be at the information center to answer questions from the media and public. All questions for the media and public to Fire Stop personnel should be channeled to the PIO.

- Planning Section Chief – Roy Pike

The Planning Section Chief (PSC) will be working with the Burn Boss, Fire Behavior Analyst, Meteorologist, AIS/AAS, Operations Section Chief, Logistics and Air Operations in the planning stage and will meet each day after the burn to discuss the strategy for the next days operation. The Planning Section Chief is responsible for coordinating and completing all planning documents. The Planning Section Chief will conduct the daily briefing.

- Fire Weather Meteorologist/Smoke Specialist – Kent Field

The Fire Weather Meteorologist (FWM) will be monitoring weather data from several RAWS site in the Fort Ord area and on the Burn unit. After months of analyzing this data, the FWM will develop a weather pattern that will give necessary condition to burn hot enough to meet the objective in both fuel reduction and smoke management. The FWM will work directly with the Burn Boss, Fire Behavior Analyst and AIS/AAS.

- Fire Behavior Analyst – Jim Bishop

The Fire Behavior Analyst (FBA) will be in charge of determining whether or not conditions are correct for the burn to proceed and be successful in meeting our objectives of achieving fuel consumption and containing the fire within the established fuel break systems (defensible polygons). He will perform initial evaluations of weather conditions provided by the FWM along with fuel conditions both inside the burn area of ranges 43-48 and outside the burn area. His job will involve evaluation of the test burn and determining whether or not we should proceed. He will be in direct communication with the Burn Boss and FWM.

- Situation Unit/Geographic Information System (GIS) Mapping Coordinator – John Newman

The Situation Unit/GIS Mapping Coordinator will work in the I/R / video helicopter to insure that all I/R and video data is being recorded and operated properly. He will insure that all GIS systems are up and running properly. He provides his own self-sufficient mobile unit organized with monitors and ready to operate.

- Logistics Section Chief – Steve Bowman

Logistics Section Chief (LSC) will work with Planning and Operations to make sure all necessary supplies are in place and ready for use. He is responsible for insuring that communications function properly on assigned frequencies. He will also be in charge of all rooms and meals for the Fire Stop crews and Fire Stop subcontractors.

- Aerial Ignition Specialist/Air Attack Supervisor – Dave Cook

The Aerial Ignition Specialist/Air Attack Supervisor (AIS/AAS) will be directly in charge of the ignition. Once the helicopters are airborne, they will report to the AIS/AAS and either be put into a holding pattern or directed to lay down fire in a given area. Once released by the AIS/AAS, the helicopter will return to the control of the APM. The AIS/AAS will ignite the unit per pre-arranged patterns set in planning. The AIS/AAS is in direct communication with the Burn Boss and will be able to modify the patterns to meet the objectives of the Burn. The AIS/AAS will control all aircraft over the burn area, ignition and suppression.

- Holding Group Supervisor – Rick Comeau

The Holding Group Supervisor (HGS) will work directly with the Burn Boss on the pre-treatment operations and during all other phases of the Burn until complete. He will be responsible for control of all ground suppression forces and ensuring that their placement does not violate the approved exclusion zone and enhances the holding efforts.

- Aviation Project Manager – Jerry Vice

Aviation Project Manager (APM) will be directly in charge of all air operations including ground based rotary wing and fixed wing, helibases, and all air craft when not under the direction of the AIS/AAS. The APM will communicate with the local airports as to the burn operations and what effects the Burn will have on the overall air traffic in the Monterey area.

- Helicopter Base Manager – Ignition – Duane Sidebottom

The Helicopter Base Manager–Ignition (HEMG-I) will report directly to the Aviation Project Manager and supervise all operation at the Ignition Helibase to insure safety and efficiency.

- Helicopter Base Manager – Airport – Jim Sutter

The Helicopter Base Manager-Airport (HEMG-A) will report directly to the Aviation Project Manager and supervise all operations at the Airport Helibase to insure safety and efficiency.

- Single Engine Attack Tanker Manager – Bob Harris

The Single Engine Attack Tanker (SEAT) Manager will make sure that both SEATs are mobilized and in place at the Marina Airport ready for operation. Has complete knowledge of the burn units and all associated hazards in the area.

- Retardant Base Operations Manager – _____ (Fire Trol)

The Retardant Base Operations Manager will make sure that all liquid concentrate (LC) retardant mixing operation are properly functioning and ready for operation. He will make sure that all loading systems are in proper working condition and match up to the Single Engine Attack Tankers (SEATs). His communication will be with the SEAT Manager and the SEATs.

- Ignition Base Mix Master - _____ (Brim Aviation)
- Ignition Base Mix Master - _____ (San Joaquin Helicopter)
- Ignition Base Mix Master - _____ (Sinton Helicopters)

The Ignition Base Mix Masters will make sure that all Gel mixing operations are properly functioning and ready for operation. The Ignition base Mix Masters will make sure that all loading systems are in proper working condition and match up to the helitorch units. Their communication will be with the HEMG – I and the helicopter pilots. They will make sure that the fuel gel mixing system is properly set up and ready for service. They will make sure that sufficient product is available and ready to load out when helicopters land for torch re-fueling. They will make sure that their respective load areas and take-off and landing zones are clear and secured and that all employees are properly protected and wearing the proper Personnel Protective Equipment (PPE).

- Foam Base Operations Manager – Tim Schrader

The Foam Base Operations Manager will make sure that all systems are in place and functioning properly for bucket loading of helicopter water buckets and that the proper foam mixture is used and the dip tanks are filled and ready at all times. He will ensure that the area around the dip tanks and up wind are clear and secure, and will have communication with HEMG-A at the airport and the helicopters.

- Task Force Team Leader – Chuck Murphy

The Task Force Team Leader will mobilize and travel to the burn site safely; be in communication with the HGS and adjoining resources; conduct a thorough site tour with all engines to be familiar with roads and hazards; oversee that the 5 engines and crews are ready for emergency response at all times during the burn and to direct those engines into the right locations for holding, initial attack, patrol, burn-out and observation; and ensure that all crews conduct themselves in a safe and professional manner during all phases of the burn and during non-work hours while staying in the area.

- Water Tenders

Water tenders (1 operator each) will mobilize and perform pre-treatment as directed by the HGS during pre-burn activities. All water tenders are operated in a safe and professional manner and ready for immediate emergency service during the burn and will be in communication with the HGS.

- Dozer Tractor Boss – (subcontractor)

The Dozer Tractor Boss is to be in communications with the HGS and all water tenders during the project hours and after hours; ensure that all dozers are ready for immediate emergency service during the burn and that all transport unit are ready for emergency service during the burn.

13.3 Hazards (See JHA in Section 13.16) - It is important to all personnel on this project to be knowledgeable about site specific hazards. These are the known hazards, which are not the only hazards to which we will be subjected. All employees must be alert during all operations as to hazards of all type that may cause injury, illness or damage to equipment and/or the environment. During site familiarization, note any hazards, correct or flag them and bring them to the attention of your supervisor. A successful project is one without injuries. Make sure that all personnel stay clear of the OE areas. Serious injury or possible death may be cause by the slightest movement of unexploded ordnance. Entry into these areas can only be made with a Parsons' UXO Escort.

13.4 Safety Meetings

13.4.1 Safety Meeting Documentation - Documentation is extremely important on this Project. All Safety Meetings must have a printed sign-in sheet with each individual's name printed and a line for the signature along with the date. This document will be computer printed documents prepared prior to the project with the names of all individuals listed. If an individual's name was left off, then it shall be printed along with the signature.

13.4.2 Parsons OE Safety Meetings and Orientation - This Safety Meeting is mandatory for all personnel involved in this prescribed burn operation. All persons must sign in on the safety meeting document sheet. Even though personnel are not to enter any OE areas, patrol operations will be on the Fort Ord Base and in areas that may contain OE. These ordnance are designed to

destroy, injure and kill humans. **DO NOT TOUCH ANYTHING THAT IS NOT FLORA.**

13.4.3 Fire Stop Safety Meeting - This Safety Meeting is mandatory for all Fire Stop personnel and Fire Stop subcontractor personnel. All personnel must sign the attendance sheet. There will be other safety meetings for different operations given by individual companies prior to their operational periods. All safety meetings and what was discussed must be documented and copies presented to the Fire Stop SO.

13.4.4 Daily Safety Meetings - Prior to the start of daily operation, a Safety Meeting must be held which will discuss the task to be completed and hazards associated with those tasks. Each Safety Meeting must be documented and have a sign-in sheet.

13.4.4 Daily De-Briefings - Upon the completion of the daily operations, there shall be a de-briefing for all Fire Stop supervisory personnel (Crew Boss and higher) and all subcontractor management personnel. This will allow any safety issues to be discussed along with the night shift Safety Briefing and assigned task.

13.4.5 Final De-Briefing - There will be a final de-briefing for all Fire Stop supervision personnel and sub-contract supervision personnel. The information from this briefing will be used on post burn documentation that will be presented to Parsons.

13.4.6 Safety Meetings Times and Locations - Times and locations will be announced to all personnel prior to mobilization but will most likely be held at the staging area. Each site will have its own Safety Meetings and they will be held at each individual location by the site manager or supervisor: Airport, Heliports, Dip Tank Sites, Mixing Sites.

13.5 Compliance Program

13.5.1 Training Standards - All Fire Stop personnel will meet or exceed National Wildfire Coordinating Group (NWCG) 310-1 training requirements for prescribed burning in the classification they are working. Each Fire Stop firefighter shall carry a Fire Stop ID listing their qualifications, dated and signed by a company officer. This will include personnel working with Air Operations. A qualifications record will be maintained and

available for inspection prior to mobilization (See examples in Attachment O).

13.5.2 Personnel Protection Equipment (PPE) - All Fire Stop personnel shall comply with U.S. Forest Service (USFS) Region 5 PPE Standards listed on Emergency Equipment Rental Agreement (EERA) for wildland fire. Minimum standards are: Nomex shirt and pants, hard hat, ear protection, wildfire boots, gloves, fire shelter, water bottle holder.

13.5.3 Equipment Standards - All fire engine equipment shall meet NWCG Region 5 EERA standards following national type rating 1 - 6. All engines shall have a minimum of a 2 or 3 person crew.

13.5.4 Aircraft and Pilots - All aircraft and pilots shall meet OAS or U.S. Forest Standards and be carded for the type of work they are to perform. Flak jackets are not mandatory for pilots to wear, but are encouraged.

13.5.5 Prescribed Burn Guidelines - The burn operation will follow the guidelines of the USFS Forest Service Manual (FSM) 5100 Fire Management, Chapter 5140 Fire Use Planning, and Chapter 5142 Prescribed Fire.

13.5.6 Burn Plan - The Burn Plan shall follow the USFS Pacific Southwest Region 5 FSM 5100, Chapter 5142.2 “Developing Prescribed Fire Burn Plan”

13.5.7 Smoke Management Plan (See Section 9) – The SMP was developed using Title 17 guidelines.

13.6 Hazardous Materials

There will be several different materials that will be involved in the Burn Operation. All personnel working with and around these materials must have knowledge about the product and its use. Each operation using these products shall have an MSDS on site. All personnel working with the products shall follow all instruction set forth in the Material Safety Data Sheets (MSDS) (See Attachment R):

- Gasoline MSDS;

- Diesel MSDS;
- Fire Trol FIRE-GELL MSDS;
- Fire Trol LC Retardant MSDS;
- Fire Trol Class A Fire Foam MSDS;
- Aviation Gasoline MSDS; and
- Jet A Fuel MSDS.

13.7 Site Control Plan

13.7.1 Incident Command System (ICS) - ICS is the model tool for command, control and coordination of a response and provides a means to coordinate the efforts of individual agencies and/or private companies as they work towards the common goals of managing the incident and prolonging life and property, and the environment. ICS uses principles that have been proven to improve efficiency and effectiveness in a business setting and applies the principles to emergency response. The success of the ICS is a direct result of applying:

- a common organizational structure;
- key management principles in a standardized way; and
- key team and management personnel.

13.7.2 Organizational Chart (See Section 1.0)

13.7.3 Site Maps - The following site maps are provided in the attachments to this Burn Plan. All management personnel will become familiarized with these documents so that safe work practices, emergency and/or evacuation plans can be implemented promptly.

- Site Vicinity Map (Attachments A, B, C)
- Site Location Map (Attachment D)
- Hospital Route Map (Attachment S)
- Aerial Site Map (Attachment E)

13.7.4 Site Security and Safety

- Security will be provided by the OMC Police Department and private security personnel. All unauthorized personnel shall be kept from entering the area at least 48 hours prior to the burn period and until the burn has been completed. Signage shall at the minimum be in accordance with Attachment K.

- The SO will carry out the duties to provide a safe working area and shall patrol all areas of operation (outside the exclusion zone) during the burn checking on crew safety and hazards. The SO shall conduct the Safety meeting and make sure that all documentation is collected from all Safety Meetings of Fire Stop subcontractors.

13.8 Weather Monitoring - Weather monitoring will be accomplished by the use of 2 Remote Automated Weather Stations (RAWS) on site (Fort Ord 1 and Fort Ord 2). In addition, weather has been and will be collected by other RAWS in the vicinity. Fire Stop's FWM, Kent Field has been monitoring these sites and will continue monitoring these sites until the Project is completed. All of this weather information will be made available to Fire Stop, Parsons, the OMC Fire Department and the DENR.

13.9 Smoke Monitoring - Visual and video monitoring will be taking place throughout the burn. Using a helicopter with video camera, smoke information will be gathered and recorded. Communication with the Burn Boss and the FWM will allow for updating of the smoke plume. Using good visibility sites around the area, cameras will be recording the smoke plume and smoke monitors will report smoke information to the Burn Boss.

13.10 Escape and Spot Fires - Using ICS and along with the Prescribed Burn organization chart, we have built an ICS Team and additional resources to manage escapes and spot fires. A spot fire is created in a location by a burning ember, ordnance, helitorch incident, or similar event. A "slop-over" is when the fire crosses the lines. We do not expect any slop-overs due to the sizes of the lines and the pre-treatment surrounding the lines. An escape will only be declared by the OMC Fire Chief. If the spot fires cannot be contained by on site resources, contingency plans will be put into place through the OMC Fire Chief. At this point, command will be transferred to the OMC Fire Chief or assignee. Fire Stop resources will continue holding and suppression operations on the prescribed burn with air support. Two Fire Stop engines, four water tenders and dozers will be used to support any burn out and/or suppression operations to help contain the escape fire out-side of the OE areas only. All of Fire Stop's resources will work for the OMC Fire Chief as directed.

13.11 Communication Plan - Communication is key to the successful operation of this Project. Two-way radios and cell phones will be

necessary for all supervisors. The Communication Plan will be made into a handout for all supervisory personnel, and handed out during the Safety Meeting.

2-Way Radio Frequencies:

OMC Command:	_____	(controlled)
Burn Command:	_____	(controlled)
Air to Ground:	_____	
Air to Ground (back-up)	_____	
Aerial Ignition:	_____	* (controlled)
Ground Suppression	_____	(controlled)
Logistics:	_____	
Emergency:	_____	OMC
Tac – 1:	_____	
Tac – 2:	_____	

*Only assigned personnel to have controlled frequencies programmed into radios.

Cell phone numbers and other key phone numbers:

OMC Fire Chief (Jack Riso): -----

Parsons Contract Manager (Roger Miller) -----

Fire Stop: Main Office -----
 Project Manager (Dale Miller): -----
 Burn Boss (Ron Dougherty): -----
 Meteorologist (Kent Field): -----
 Fire Behavior Analyst (Jim Bishop): -----
 Situation Unit (John Newman):-----
 Aerial Ignition (Dave Cook): -----
 Safety Officer (Hank Howerton): -----
 Air Operations Manager (Jerry Vice): -----
 Operations Section (Rick Comeau): -----
 Logistics (Steve Bowman): -----
 Communications (Tom Buckley)-----
 Helibase Manager – Airport (Jimmy Sutter): -----
 Helibase Manager – Ignition (Dwayne Sidebottom)-
 Finance Manager (Tom Bartlett) -----
 Public Information Officer (Dave Leist) -----
 Photographer (Scott Miller) -----
 Engine Task Force Team Leader (Chuck Murphy):

Fire Trol Orland Manager (Terry Brinson) -----
 LC Retardant Team Leader (_____) ---

Brim Aviation - Main Office -----
 Chief Pilot (Burl Brim) -----

San Joaquin Helicopter – Main Office (Lee Cranney) -----

Special Operations Flight Support Systems – Main Office -----

SEAT Operation Manager (Bob Harris)-----
Hendrickson Aviation Pilot (Gary Hendrickson) -----

The completed list with telephone numbers will be onsite the day of the burn.

13.12 Notification Plan - As with any highly visible public relations project, public notification plays a big part. This project is located on federally-owned property and has specific public affairs procedures in accordance with U.S. Army policies.

- Fire Stop's Public Information Officer will be available for media before, during, and after the burn. Media entry and interviews will be coordinated and have prior approval by the Presidio of Monterey Public Affairs Officer.
- All Fire Stop personnel and subcontractors will refer all questions to the Project Manager and/or PIO
- Signage (Parsons) will be posted throughout the area. (See Attachment K)

13.13 Escape Routes and Safety Zones

- Fire - Prior to the burn operation, the Safety Officer and Operations Section Chief will survey the perimeter area for escape routes and safety zones. These areas will be flagged and noted on the maps for notification of all resources.
- Medical - Use the chain of command to notify the Burn Boss who will notify OMC Fire Chief. The emergency routes taken to the Hospital will be under the control of the medics. The alternate method would be using your cell phone and dial 911 and report the emergency and then go through the chain of command for notification of the Burn Boss.

13.14 Medical and Emergency Locations and Phone Numbers - The following information will provide ready numbers and locations for emergency. Fire Stop will have one medic on site in engine No. 328 (E-328) with a field medic kit, back board and oxygen kit. The Fire Stop Medic will be used for small medical problems. OMC medic will be on site and used for all other medical emergencies. Contact will be made through the Burn Boss on Command frequency. Always use the chain of command to report an emergency.

The Community Hospital of Monterey Peninsula, Natividad Medical Center, and Salinas Valley Memorial Hospital will be notified at least 24 hours before the burn begins.

Emergency Locations and Phone Numbers (See Map Attachment S)

Hospital: Community Hospital of Monterey Peninsula
23625 Holman Highway
Monterey, CA
831-625-4900
Lat N36.34.625 Long W121.54.813
Radio Freq.: Med 6 – 463.125
7.9 miles from Burn
Code 3 Ground Transport = approx. 15 min.

Air-Vac Hospital: Salinas Valley Memorial Hospital
450 E Romie Lane
Salinas, CA
831-372-7844
Lat N36.39.547 Long W121.38.462
Radio Freq.: Med 7 – 463.10
13.3 miles from Burn
Code 3 Ground Transport = approx. 27 min.

Hospital: Natividad Medical Center
1441 Constitution Blvd.
Salinas, CA
831-755-4111
Lat 36.41.887 Long W121.38.146
Radio Freq.: Med 7 – 463.150
19.8 miles from Burn
Code 3 Ground Transport = approx. 35 min.

Burn Center: Santa Clara Medical / Burn Center
751 S Bascom Ave.
San Jose, CA
408-885-6666
Lat N37.20.554 Long W121.52.599
Radio Freq.: Med 8 – 463.175
Air Transport = approx. 39 min.

Mutual Aid: OMC Fire District
(Contact Chief Riso through the Burn Boss)

Ambulance Provider: AMR ----- 831-384-8458
Air Ambulance: CalStar----- 800-252-5050

Burn Notification (24-hours prior):

Seaside Fire Department (non-emerg.)	831-889-6262
California Dept. of Forestry (dispatch)	831-647-6237
Salinas Rural Fire Department	831-455-1828
Monterey County Fire Communications (Salinas)	831-755-5209
Monterey County Fire Com (Monterey)	831-647-7900
Monterey County Office of Emergency Services	831-755-5010
California Highway Patrol (dispatch)	831-455-4860

13.15 AIR OPERATIONS SAFETY

13.15.1 Risk Analysis - A Risk Analysis will be completed and attached prior to the burn proceeding. Only the negative response will be addressed.

- Example: Method (1)
 1. No---Because of the risk factor to ground personnel of unexploded ordnance in the burn area using hand held firing devices is so great, it is safer to do it by aerial ignition.

13.15.2 The 4M's

METHOD

Yes No

1. Is there an alternative method which would accomplish the mission more safely and/or efficiently (including accomplishment by ground methods)?
2. Is the method selected approved and do detailed instructions for safe accomplishment exist?
3. Have adequate flight following and communication methods been established?

MEDIUM

1. Can factors of terrain, altitude, temperature, or weather which could adversely affect the mission's success be mitigated? (See Burn Plan)
2. Will the mission be conducted at low (below 500' AGL) or high altitudes—can the same objective be achieved by flying at a higher altitude AGL?
3. If low-level flight, have all known aerial hazards been identified during the planning process and are they known to all participants?
4. If there is a potential for an airspace conflict (military, media, or sightseeing aircraft), have mitigating measures been taken? (notification of Monterey Airport)
5. Have adequate landing areas been identified and/or improved to minimum requirements?

MAN (GENERIC)

1. Is the Pilot properly carded for the mission to be conducted?
2. Will the flight be conducted within the Pilot flight time/duty day requirements and limitations?
3. Have the minimum number of personnel necessary to accomplish the mission safely been assigned, and do they meet personnel qualifications and experience requirements?
4. Will adequate personnel (flight and ground crew) and Pilot briefings be conducted prior to the flight?

Yes No

5. Are users aware that the Pilot-in-command has final authority over any operations conducted involving the aircraft or its occupants?

MACHINE

1. Is the aircraft capable of performing the mission in the environment (altitude, temperature, terrain, weather) where the operation will be conducted?
2. Is the aircraft properly carded for the intended mission?

Aviation Project Manager: _____ Date: _____

13.15.3 Hazard Map – There will be a hazard map posted at the main Helibase. The map will be prepared and updated within 30 days prior to the Burn. It will be initialed by all participants including the IC, Burn Boss, HEMG-I, HEMG-A, APM and Pilots.

Pilots will have a personal hazard map and will do an aerial recon of the burn site and flight routes prior to any aerial ignition. Pilots will also canvas area for any intruders as part of recon.

A safety session will be conducted everyday that aerial ignition takes place, incorporating the hazard map & flight routes.

A daily debriefing will also take place with necessary personnel.

The hazard map will be provided by the Planning Section to show all known aerial hazards, such as wires, towers, the burn site project areas, emergency landing areas, helibase locations, flight routes and areas to avoid.

13.15.4 Aviation Communication Plan - There will be three discrete VHF-FM frequencies assigned to the burn.

Air to Air _____. As Assigned
Will be used for the aerial ignition helicopters. This channel will also be used for air to air control in case suppression activities take place.

Air to Ground _____. As Assigned
Will be for helibase control and the parking tender at both the main helibase and the helitorch helibase.

Air to Ground _____. As Assigned
Will be for flight following and a back up to the AIS/AAS.

In addition to the above radio frequencies, there will be tactical channels assigned for air to ground crew coordination and will be listed in the general communication plan. (Section 13.11)

Aircraft will use their “N” number for identification.

13.15.5

Crash Rescue and Medivac Plan - A Medivac helicopter will be designated and qualified Rescue/Medics will be assigned by OMC. The Medivac helicopter will be under the control of the AIS/AAS using the “controlled” air ignition frequency.

In the event of downed aircraft, notify the Burn Boss, OMC Fire Chief, APM, AIS/AAS. The assigned Medivac helicopter will pick up the Rescue/Medic Team at the Burn Helibase. All aircraft will be put into the help suppression mode to suppress any craft fire or prescribed fire if necessary. Any ground approach or aerial team that will need to dismount shall be accompanied by a Parsons’ UXO escort.

All aircraft not assigned to rescue by the Incident Commander will return to their respective landing sites.

The AIS/AAS will also direct any suppression activities of the helicopters and SEAT aircraft if needed for crash rescue efforts.

Injured personnel may be taken to the main helibase and may be transported to the nearest hospital by ground or air ambulance if necessary. Attached is a list of area hospitals (See Attachment S)

Any injured ground personnel will follow the same procedure as stated above depending on the seriousness of the injury.

If there is an accident, a post accident investigation is deemed necessary, USACE will be the lead agency.

All procedures for helibase fire protection and crash rescue as outlined in the Interagency Helicopter Operations Guide (IHOG), Chapter 12 will be followed, including all refueling operations.

A copy of the IHOG will be kept in the Air Operation Control Trailer.

13.15.6 Flight Following - Flight following procedures will be a ten minute check-monitored by the Helibase radio operation for all aircraft.

Any helicopter or aircraft missing for an additional ten minutes after the initial check-in will be presumed down and a search will be instituted using the Helicopter Coordinator. If an aircraft loses communication, they shall clear the area and promptly return to their base for correction.

The Helibase Radio Operator will maintain a flight log on all aircraft.

Any aircraft will use the established flight routes. Any aircraft not involved in the helitorching or suppression activities will maintain a minimum 1,000' above the burn site. Altitudes for the infrared and smoke management aircraft will be given assigned altitudes the day of the initial briefing.

No media aircraft will be allowed in the burn site area. There will be an air space restriction and NOTAM. Any media interest will have to go through the PIO.

13.15.7 Helibase Management - Refer to Personnel and Organization Chart (Section 1.0)

The Aviation Program Manager and all helibase personnel will, at a minimum review Chapter 15 of the IHOG before the burn. Chapter 15 deals with the overall helibase management and provides a guide to setting up the helibase prior to use.

The Helibase Managers reminder list in Appendix H in the IHOG, will be filled out prior to the burn and reviewed daily. Appendix H is a Helibase Manager's reminder list and has to be checked daily prior to any flight.

FIRE STOP	Project: Fort Ord Rx Burn	Location: Ranges 43-48 located at the Former Fort Ord
Job Hazard Analysis	Ranges 43 - 48	Job Title: Safety Officer Date: 2/11/02 (Rev. 1 9/27/02)
TASK / PROCEDURES	HAZARDS	ABATEMENT ACTIONS
1) Personnel selection: Past experience and knowledge of duties.	Persons not physical fit, lack of experience and knowledge could endanger themselves or others.	Follow contract requirements for qualifications and physical testing with minimum standards to meet or exceed NWCG 310-1 training and physical standards. Keep documentation on each person. Each person is to carry a Firefighter ID card with all qualifications listed. Structure Group firefighters will meet qualifications of either California State Fire Marshall or NWCG 310-1.
2) PPE Required	As with any wildland fire, prescribed burning exposes employees to the same conditions and hazards - known and unknown such as burns, trip and fall, sharpe tools, vehicles, etc.	Follow NWCG specifications: Nomex shirt and pants, hard hat, eye protection, leather non-skid boots, leather gloves, fire shelter, hearing protection, and carry enough water.
3) Traveling to the Project on Highway. Travel in and around Project before, during and after the Project.	All normal traffic hazards. Heavy load - loss of brake. Equipment and item loading. Unfamiliar with roads, streets, and highways. Use map - follow directions. Convoy travel hazards and passing may cause accidents. Inexperienced drivers may cause accidents.	Drive safe, defensively, follow all laws, and wear seat belts. Gear down on long down grades - do no overload brakes. Store in proper compartment, tie down properly, check load. Do not over load, travel light and w/o water. Travel as a Team, minimum of 100 yards between vehicles to allow other vehicles passing room. Use 2-way communication at all times. Designated drivers as approved by Management. Drive safe, defensively and be courteous. Watch for Drop Point signs. Be familiar with project site.
4) Traveling on narrow back roads.	Steep, winding, rough dusty roads. Other traffic and oncoming traffic. Getting lost - delaying project. Inexperienced drivers / accident.	Drive slow, watch for rough areas, check load. Drive slow, keep to far right and use 2-way radios. Stay together, follow maps provided, use 2-way communication Install DP signs and arrows . Designated drivers only approved by Management only.
Traveling on Former Fort Ord Base.	Restricted areas that may contain unexploded ordnance that may cause injury or death. Speeding may cause accident and will be cause for a speeding ticket that may get you kicked off the base.	All posted signs must be adhered to. "Do Not Enter" areas must have Parson's Escorts when entering. Always follow instructions without fail. DO NOT SPEED - FOLLOW SPEED LIMIT IS A MUST
5) Staging Area unloading and set up. Parking of vehicles.	Backing of vehicles. Handling heavy loads - back injuries Vehicle rolling out of control.	Use a backer, if no second person, check backing area first. Use proper lifting proceedures - lift with knees - not back. Use Chock-blocks. Tie bright flagging on chock-block as as a reminder of being placed. Tie flagging on steering wheel as a reminder to pick up chock-block.

TASK / PROCEDURES	HAZARDS	ABATEMENT ACTIONS
6) Use and handling of burn fuels.	Spills, exposure, vapors, burns may cause injury to personnel or damage to the environment.	Transport fuels in proper containers that are will marked. Containers secured properly. Haul less than 119 g / vehicle. Use visquine or tarp while mixing and transferring.
(See Air Operations Section 13.15 of the Burn Plan for more details)		
	Possible for a Class B type fire.	Carry a spill kit to handle any spills and notify supervisor in case of spill. Properly dispose of any contaminated soils or absorbent. Do not carry fuel inside cab. Clean torches. Carry a Class B fire extinguisher or foam on vehicle.
7) Project Safety Meetings / Briefings.	If not done, may lead to confusion and possible cause of accidents and / or injuries.	Hold a Safety Meeting / Briefing at the beginning of the project and each day and shift. Hold tail gate safety meeting / briefing at each division, group, base of each shift. Read over entire JHA and have all sign at the first safety meeting / briefing. Go over Chain of Command, Teams, Objectives, Tactics, Assignments, Contingencies.
8) UXO Safety Briefing by Parsons (Mandatory)	Many unexploded ordinance (UXO) are scattered throughout the area including outside the burn unit. These UXO may cause serious injury or death if disturbed. They come in many different sizes and shapes and many are armed and ready to explode with the slightest touch.	All personnel, including Fire Stop personnel and all Fire Stop Sub-Contractor personnel must attend a UXO Safety Meeting prior to any work on the base. No one is aloud to enter any area is inside the holding lines (please see maps) unless authorized by the IC and accompanied by a Parson's Escort Areas out side the holding lines must be entered into with caution. Watch for any signs of UXO. DO NOT TOUCH ANY ITEMS - DO NOT TAKE ANY ITEMS. Notify your supervisor if found. Failure to follow these safety instructions may be cause for immediate release from the project and possible arrest by OMC Police.
9) Use of All Terrain Vehicles.	Steep and uneven terrain with narrow trails can cause an accident. Improper hauling equipment/supplies. Inexperienced operator / accidents. May cause damage to environment.	Operators of ATV's shall have prior training on the proper and safe use of the ATV. Use proper PPE, with hard hat chin strap securely in place. Do not over load, properly tied down, personnel in seat only Designated operators only. Follow Ft Ord Environmental guidelines on off-road travel.
10) Cutting fire line and pre-burn prep.	Sharp tools causing injuries. UXO may cause injury or death.	Keep proper spacing of 10+ feet during work or hiking. Check tools for proper condition. Work as a Team. Keep full PPE on and use good communication. May need Parson Escort. Follow proper procedures. Parson Escort will be required when entering the UXO area.
11) Felling of trees and snags with chain saws.	Improper operation may cause injury or death to sawyer or others. May cause damage to environment.	Only certified sawyers at appropriate levels may use chain saws. Use a swamper and all safety steps when felling operations are taking place. LCES Before cutting any tree, get approval from Ft Ord Environmental Specialist and approval from the Burn Boss.

TASK / PROCEDURES	HAZARDS	ABATEMENT ACTIONS
12) Patrolling, Hiking, Cutting Line in normal suppression operations.	Trip / Fall may cause injury.	Wear proper PPE, watch your step, do not run, work in pairs
	UXO in area may cause injury/death.	If in the UXO area, have a Parson's Escort and follow directions 100%. No room for error.
	Poison Oak may cause skin irritation and may become serious enough to cause loss of time. Poison Oak is widely scattered throughout the site.	Wear PPE with sleeve rolled down. Stay out of the Poison Oak. Change clothes each night, wash effected clothing. Shower and don't allow others to touch clothing. Point out the plant to others and stay out of heavy plant smoke. If necessary, take medication prior to being on site.
	Ticks may be in the area and can cause health problems like Lyme disease.	Keep full PPE on and sleeve down. Check yourself and each other at end of the day. If you have a tick, see the your medic. Avoid walking in brush whenever possible.
13) Engine and Vehicle Operations.	Broken high pressure hose, slip and fall, foam use, sharp tools may cause injuries to personnel.	Wear full PPE when working around high pressure hose. Wash off foam from engine. Watch step while on engine. Keep tools properly stored while on or off engine. Any damage tools, hose or equipment must be flagged and taken out of service. Notify Supervisor for replacement.
	Driving of engines and vehicles may cause injury or death while on the Project or during mob or de-mob.	Drive cautiously, follow all local vehicle laws. Be courteous to locals and keep on flashers and rear amber for safety. Pass all questions on to your supervisor or PIO unless otherwise directed.
	Protesters or un-lookers may cause problems to disrupt the project.	Notify your supervisor on any protester / on-looker problems or anyone entering the area of concern.
14) Communication.	If not used or used properly may cause confusion which may lead to injury or escape of fire.	Proper 2-way communication to be issued to the following: Burn Boss, Ignition Specialist, Holding Specialist, Medics, Strike Team Leader, Engines, WT operator, Aircraft, Control Tower, Mixing Teams, Logistics, all overhead personnel will have radios. Radio Frequency list will be given to each person with radio. 3 Freq. will be issued to Air Operations. Burn Boss will have communication with Project Manager and OMC Fire Chief at all times with 2 -way radio and cell phone. Proj. Manager will have direct communication Parson's Project Manager and asignees.
(Please refer to Communications Section 13.11 of the Burn Plan.		Aerial Ignition freq. will be controlled. Only the Burn Boss
15) Aerial Ignition Operation.	If not done by a certified and experienced person, may cause escape which may cause injuries to personnel or damage to the environment and private property.	Ignition Specialist and pilots will have the freq. The Ignition Specialist is under supervision of Burn Boss and in communication with the Burn Boss and Holding Specialist. The Aerial Ignition Specialist to be in direct radio communications with every helicopter & Helibase Director.
	Dripping ignited fuel outside of burn area or near ground personnel.	Ignition Specialist's duties are to supervise and not light.
Please check Air Operation Section 13.15 of the Burn Plan		

TASK / PROCEDURES	HAZARDS	ABATEMENT ACTIONS
16) Fuel Mixing Operation.	If not done by a qualified and experienced crew, may cause injury to personnel or damage to the environment or ignition equipment.	Only qualified mixing crew-members will operate the fuel mixing system and loading systems. Area will be will posted with proper signage and cordoned off to keep unauthorized person out. Area to be kept picked up and organized for proper safe and efficient operation.
	Fuel on clothing my cause skin irritation.	Wear proper PPE as shown in the MSDS. Do not breath or get into eyes. Aviod prolong skin contact. Wash off with detergent and water. Flush eyes with plenty of water.
	Fire-Trol FIREGEL may cause health problems.	Wash body were fuel contact was made.
	Fuel on clothing my cause skin irritation or serious burns.	
(See Air Operation in Section 13.15 of the Burn Plan)		
17) Retardant Mixing Operations	If not done by qualified personnel and per SOP, may cause injury to personnel or damage to the environment and retardant mixing system and/or aircraft.	Only qualified personnel will be involved in the operation and will follow all Fire Trol SOPs. The operation will be set-up at the Marina Airport in an area that will not interfere with normal airport operations. The area shall be cordoned off and properly posted to keep all unauthorized persons out. The area will be properly cleaned up and kept in orderly condition throughout the operation and thoroughly cleaned upon completion of the operation.
		Spill Kit will be required.
(See Air Operation in Section 13.15 of the Burn Plan)		
18) Pretreatment Operation.	Failure to follow safety regulations may cause injury or death to drivers and/or assistant during spraying of water, foam or retardant. High voltage power lines are located on the north side of the unit. Other power lines are located at various locations that may look to be out of service but may be energized. Spraying water, foam or retardant on lines may cause electrocution.	If spraying under the high power lines or around any power, lines, use extreme caution and keep the spray low and under control at all times. When necessary, strap the monitor tip down in a manner that will not allow the angle to pass above level spray.
	Foam and retardant may cause slick road conditions.	Prior to any pre-treatment under the line, engine and water crews will hold a safety meeting as to the safe methods to be used. Use horizontal spray only from tenders and engines.
		Make sure that all foam and retardant is washed off any road surfaces.
19) SEAT and Helicopter Pre-treatment	Powerlines in the area may cause injury or death. Retardant or foam on roadways may cause slick conditions.	Tour of site shall be conducted by all pilots prior to any flight operations to become familiar with all obstacles that may cause problems to lower flying aircraft, both fixed and rotary wing. Check the Aviation Hazard Map.

TASK / PROCEDURES	HAZARDS	ABATEMENT ACTIONS
20) Holding Operations.	If not done by a certified and experienced person, may cause escape which may cause injuries to personnel or damage to the environment and private property. UXO in area that may cause injury or death.	A qualified Holding Specialist will be in direct communication with the Burn Boss and the Ignition Specialist along with STL and engines on all lines, dozer and the WT operators. Holding procedures will follow the Burn Plan. If additional resources are need, contact the Burn Boss. Only patrol in designated areas. Do not patrol in any areas posted for UXO. On entering these areas, you must have a Parson's escort at all time. NO NOT TOUCH ANY UXO ITEMS. Observe all areas around the burn for spot fires caused by UXO. Report the location, rate of spread, type of fuel, scope potential, and other information to your supervisor. Do Not go into the area until approved by UXO experts. Some areas may be pre-approved for ground suppression. Report any hazards to your supervisor and flag the area or post a look-put until the hazard has been mitigated.
21) Slop-over / Spot Fires.	Fire may cause injuries to personnel, harm to the environment. Spot fire may be burning in UXO area and exploding UXO may cause injury or death to personnel or damage to equipment.	If the spot fire is outside the UXO area, use all standard safety procedures on direct attack. Notify your supervisor. Watch out for UXO. If found, report that information to your supervisor and flag if safe. If necessary, post a lookout to insure that other engines and equipment stays clear of the device. If the spot fire is inside the UXO area, report the location to your supervisor and monitor its spread. Air Operation will direct air attach suppression into the area. If firing-out procedures may be needed and only under the the IC and OMC Fire.
22) Firing Out Operation.	May cause injury or death to personnel and damage to the environment and person property.	Firing out procedures may be used to contain fires inside the UXO areas. Firing out operation will be under the direction of the IC and/or OMC Fire. Engines may be used to follow up behind the firing operation to suppress any slop-over of spots outside the UXO area. Water Tender may be used to pre-treat areas ahead of the firing operation. Report any slop-overs or spot fires to your supervisor immediately. Mark spot with flagging. Use date, time, etc. plus name.

TASK / PROCEDURES	HAZARDS	ABATEMENT ACTIONS
23) Suppression	High-power lines, both transmission and distribution, are located in several areas around the burn unit.	Signs stating "CAUTION - High-Voltage Overhead" will be posted in areas to warn firefighting personnel of the hazard.
	Any water, foam, or retardant coming into contact with these line may injury or death.	All pilots must tour the site and check the "Hazard Map" as to the location of these lines. No aerial suppressant will be dropped on the lines.
		Areas close to power poles or any low lines will be mechanically thinned by Parsons as requested by Fire Stop.
24) Medical Problems and Care	Medical problems: Heat stress or exhaustion, cut, scrapes, sprains, broken bones, head injuries, foot problems, burns, smoke inhalation and all other medical problems. If not taken care of properly, may cause additional injury or loss of work.	Notify your supervisor and get help from the medic as soon as possible. Drink water through the day and start your morning by drinking juice. Eat properly and get the proper rest. The medic will have direct 2-way radio communication with all radio personnel on the burn. Full medical kit, O2 kit and back board will be located in Engine 328. Stay out of smoke or in for short duration and monitor each other. Notify your supervisor for any medical attention. OMC Fire will have first response medics on site along with Fire Stop's medics. Check Burn Plan for more information on radio frequencies and location of medics unit, hospitals, routes and phone numbers.
25) Patrol Operations.	If not conducted properly, may cause escape and damage to the environment or injuries to personnel. UXO in area and may cause injury or death. Steep terrain in some areas need caution when driving. Interested public or protesters may cause traffic congestion in some areas.	Follow the Burn Plan and any Burn Boss changes to that Plan. A Division qualified person will be in charge of holding operations. Follow the JHA plans for safety. Install water bars where needed on lines. Repair damaged water bars on any back roads. Stay on designated roads. Always use an escort when entering into UXO area. Drive safe and slow, follow all posted speeds, use flashers and amber flashing light when on public roads and streets. Obey all local vehicle laws. Stay within your designated area. Report any possible problems to your supervisor, including problems concerning the public and attempt to cause problems with the Project.
26) Rehab Areas	Some damage may have been caused to the environment by vehicle travel and/or line construction. Do not let your guard down on safety.	Work with Parson's Environmental Specialist for any rehab that may need to be conducted. Flag the area of concern and notify your supervisor of the details for proper rehab. Continue to use safety in all finish up work.
27) Clean Up and Demob.	Completed to prevent damage to the environmental or the reputation of Fire Stop, Parsons, US Army or the Corps of Engineers.	Check water bars, pick up all trash and remove from the project site. Remove all signage on site and road ways. Pick up all tools, hoses and equipment left on site.



Ten Standard Fire Orders and 18 Watchout Situations

The 10 Standard Fire Orders were developed in 1957 by a task force studying ways to prevent firefighter injuries and fatalities. Shortly after the Standard Fire Orders were incorporated into firefighter training, the 18 Situations That Shout Watch Out were developed. These 18 situations are more specific and cautionary than the Standard Fire Orders and described situations that expand the 10 points of the Fire Orders. If firefighters follow the 10 Standard Fire Orders and are alerted to the 18 Watch Out Situations, much of the risk of firefighting can be reduced.

Ten Standard Fire Orders

Fight fire aggressively but provide for safety first.

Initiate all action based on current and expected fire behavior.

Recognize current weather conditions and obtain forecasts.

Ensure instructions are given and understood.

Obtain current information on fire status.

Remain in communication with crewmembers, your supervisor, and adjoining forces.

Determine safety zones and escape routes.

Establish lookouts in potentially hazardous situations.

Retain control at all times.

Stay alert, keep calm, think clearly, and act decisively.

18 Watchouts Situations

1. Fire not scouted and sized up.
2. In country not seen in daylight.
3. Safety zones and escape routes not identified.
4. Unfamiliar with weather and local factors influencing fire behavior.
5. Uninformed on strategy, tactics, and hazards.
6. Instructions and assignments not clear.
7. No communication link with crewmembers/supervisors.
8. Constructing line without safe anchor point.
9. Building fireline downhill with fire below.
10. Attempting frontal assault on fire.
11. Unburned fuel between you and the fire.
12. Cannot see main fire, not in contact with anyone who can.
13. On a hillside where rolling material can ignite fuel below.

[Link to 10 & 18 en Espanol](#)

14. Weather is getting hotter and drier.
15. Wind increases and/or changes direction.
16. Getting frequent spot fires across line.
17. Terrain and fuels make escape to safety zones difficult.
18. Taking a nap near the fire line.

Quick Find 

14.0 PUBLIC INFORMATION PRE BURN INFORMATION/COORDINATION

See Smoke Management Plan, Chapter 9.0, Section 9.3.1

- 14.1 Prior to Burn** – Fire Stop’s Public Information Officer (PIO) will be in a support role to the Army and providing information on what Fire Stop is doing, as it pertains to the project.

- 14.2 During Burn** – PIO will be available for media during and after the burn and coordinated with the Presidio of Monterey Public Affairs Officer prior to media interviews.

- 14.3 Location** – A separate location for the media will be provided in the general area for media briefings at predesignated times. This location will be selected based upon safety requirements with the exclusionary zones and the possibility of OE in areas that spot fires might occur. Final selection will occur prior to burn in sufficient time to establish appropriate communications for the media and the PIO.

15.0 ESCAPED FIRE CONTINGENCY

Priority will be on protection for the firefighters and public safety. Attachment T details the potential for escapes, and it includes hypothetical escape situations (using the most severe conditions within the prescription) and the control actions that would be taken to limit them.

- 15.1** Upon observing a spot fire, the AIS/AAS will be notified. He will confer with the Burn Boss and agree upon appropriate action. A pilot that is airborne may contact the AIS/AAS direct when observing a spot fire. The reason for this is the exclusive frequency assignment for the ignition portion of the overall operation. See Communication Plan, Section 13.11 for details.
- 15.2** If spot fires occur that require more than two (2) suppression helicopters, firing operations may be stopped while adequate suppression units are deployed and the site secured.
- 15.3** If a situation develops beyond Fire Stop's suppression capabilities the Ord Military Community Fire Chief will be immediately notified so local area resources can be activated.
- 15.4** Total Fire Stop Resources available for escaped fire contingency:
- Three Suppression only ships (Type 2);
 - Three Burn ships – convert to suppression (Type 2 and 3);
 - 2 SEAT air tanker positioned at Marina Municipal Airport;
 - 2 Command ships (Type 3) – Air Ignition Specialist/Air Attack Supervisor and Incident Commander/Burn Boss;
 - Video Camera and I/R Camera ship;
 - Photographer ship Type 3 (only utilized if necessary);
 - 1 Task Force of Fire Stop engines will be deployed only at the direction of the IC and utilized in an area free of OE;
 - 3 engines at Fitch Park Housing;
 - 2 dozers; and
 - water tenders.

These are the maximum number that will be available. An additional suppression ship and two additional burn ships were provided as spares. These will be available for contingency resources, but if they are not operational that shall not constitute a basis for not allowing firing to proceed.

- 15.5** Bulldozers may be necessary to establish fuel breaks when there is a threat to life and/or property and where unexploded ordnance is not expected. Usage of these will be coordinated with Parsons' biologist. Any environmental damage caused by the use of heavy equipment will be restored.

- 15.6** The Monterey County OES plan for fire will be the contingency plan used for this burn.

- 15.7** No burning will proceed without the contingency resources from the appropriate agencies being at a preparedness level of Level 3 or less.

16.0 RISK ASSESSMENT

The primary values at risk on this project are public and burn personnel safety, public lands and structures, and protection of private property interests.

16.1 Public Safety – The public will be informed of our burning (Section 9.0, 9.2.10). It is likely that smoke may impact some of the surrounding communities towards the west, including possibly Seaside and Marina during the day, and the Highway 68 corridor, along with Spreckels and Salinas towards the east during the night (see Attachment M). An assessment of smoke intrusion will occur throughout the burning period as well as evaluation and monitoring of smoke intrusion during the nighttime hours. The Army has offered to relocate all of the public that is sensitive to smoke or that believes this nuisance smoke may be harmful due to the chemical contents of ordnance exploding and the smoke and particulate matter that may be carried aloft with the overall smoke from the vegetation. The relocation should eliminate essentially all of the potentially harmful effects to that portion of the population that is relocated. The Army has evaluated the smoke produced by similar exploding ordnance and found that the anticipated amount of smoke to be produced is within acceptable limits for the public at large (See Attachment P and Section 2.4). The vegetative smoke produced should be less than what similar sized wildfires would produce, since it is being fired with techniques and conditions leading toward a rising and generally dispersing weather pattern (See Smoke Management Plan – Section 9.0). The possibility of fire escaping outside the Ranges 43–48 site is low (See Section 16.4).

16.2 Burn Personnel Safety – The primary concern is for exploding ordnance to injure personnel. The consequence of burn personnel in helicopters being struck by ordnance or shrapnel from ordnance may be great. However, the probability is low due to almost all of the ordnance having been previously fired or detonated on the ranges, its general orientation (horizontal), and the pilots awareness of the hazards and thereby maintaining patterns designed to avoid prolonged exposure during ignition and likely “cooking off periods”. Following the JHA (Section 13.16) mitigates burn personnel hazards. All ground based personnel will be outside the exclusionary area during the aerial ignition phase. All ground personnel will remain outside for 24 hours after the last detonation (for light cased munitions), and 48 hours if heavy cased munitions are encountered. The USACE Ordnance and Explosive Safety Specialist will provide the final determination when the exclusion area is safe to enter. All Fire Stop personnel and subcontractors will have

attended a general and specific safety meeting, including a meeting conducted by the OE contractor.

- 16.3 Public Lands and Structures** – The Ranges 43–48 site and the adjacent properties surrounding it belong to the Army or have been transferred from the Army to BLM. If a spot were to occur caused by winds carrying burning material or munitions, it would be picked up quickly by infrared and video surveillance and extinguished with foam and water by helicopters dedicated to suppression and SEATs with retardant. The I/R and video helicopter can direct the suppression forces to the spot even if it is visually hidden by smoke and record whether the bucket drops hit the correct location or need to be adjusted. Also, the aerial ignition helicopters will all have buckets and they can additionally be utilized for suppression. The area immediately at the perimeter of the burn units 43-48 will have been pretreated with foam and/or retardant. Given the number and ability of the helicopters and SEATs any potential spots would be suppressed quickly. The structures in the surrounding area consist of base housing (Fitch Park) towards the north and a BLM headquarters towards the south. Engines and crews will be stationed in the Fitch Park Housing Area to extinguish any fires. It should be noted that a portion of the southeastern section of the Fitch Park Housing Area falls within the 1,701' exclusion zone; however, the USACE OESS has determined that it is acceptable for personnel to work in this area within the exclusion zone. The area between the Fitch Park Housing Area and Ranges 43-48 will be subject to a preparatory action that will include widening the fuel break that borders the housing area to the south by 150 ft by clearing the vegetation. The area surrounding BLM headquarters will be pretreated and is beyond the exclusion zone. The probability of fire at either set of structures is low. Given the roads and water sources available in the area, any potential spots would be suppressed quickly.
- 16.4 Private Property** – The areas containing private property are located approximately one mile west of the proposed burn site. The overall general area has been sectioned off into “defensible polygons”. There is a “strike team” of engines and crew along with dozers and water tenders dedicated to stopping any escape before it would leave public lands—these engines can be directed to perform activities including clearing firelines with dozers in areas allowed by the field biologist and foaming fire lines anywhere until the fire is within the 1701-ft exclusion zone. Also, mutual aid coordinated by the Ord Military Communities Fire Chief would be available at the boundary of the former Fort Ord. That, coupled with the significant aerial resources available, and the meteorological conditions (low wind speeds) provide an extremely low probability of an escape.

17.0 POST BURN SUMMARY AND DOCUMENTATION

All records compiled during the period leading up to the decision to burn and preparation for burning, the actual burn, the mop-up, and the demobilization will be provided as documents.

- 17.1 Meteorological** - This data will include the meteorological data and a log of observations with a written discussion and summary of why the decision was made to mobilize and provide public notifications for possible relocation and the same will be provided as to the reasoning involved in making a go or no go decision.
- 17.2 Photographic Images** - Documentation will include a video made from a helicopter of the fire's development with primary emphasis on the smoke plume. This video will be professionally made and narrated to record the smoke plume's overall direction, height, dispersion, and any areas impacted by touchdown. Also, still photos will be made and catalogued. A time lapse sequence of the fire will be recorded from a stationary camera located in Monterey recording in a northerly direction. Additionally, the aerial video and I/R camera feed of the helicopter looking for spots and observing the fire will be recorded.
- 17.3 Field Logs** - All field documentation developed during the burn and mop-up will be categorized and turned over including quantities of alumagel, foam, and fire retardant used. The field observations by pilots and ground based personnel, logs of the IC, FBA, FWM, AIS/AAS, HEMG-A, HEMG-I, HGS, PSC, and Project Manager will be included in the documentation.
- 17.4 Post Burn Evaluation** - The Army will submit the preliminary draft of the Post-Burn Evaluation 45 days following project completion. It will address all of the elements involved from meteorological patterns and initial decisions to mobilize through the burn and mop-up and all the way to demobilization. It will assess whether the objectives of the burn were met regarding both vegetation removal and the effectiveness of the smoke management efforts. It will include maps of the burn progression and vegetation removed. Also, maps will be prepared documenting any smoke impacts and their extent. Compliance with the safety plan will be reviewed and evaluated. All of the requirements listed in the SMP will be reported and included in the evaluation.

17.5 Future Recommendations - A review of areas for improvement and recommendations for methods of performing future burns will be prepared. It will include a thorough analysis of the meteorological data during the pre-burn, burn, and post-burn periods. How closely it was to the burn prescription and what can be done to improve future forecasts and decision making. Any smoke complaints will be reviewed as to how to eliminate or mitigate in the future.

18.0 BURN DAY GO/NO GO CHECKLIST

The Burn Day Checklist is to be filled out daily by Burn Boss (BB) and filed in project folder. A “no” response to any item means ignition of the burn will not occur. (This checklist was developed in accordance with NWCG PMS 421 of January 2002.)

18.1 Burning Operations

1. _____ Are ALL burn prescription criteria met Y/N?
FBA
2. _____ Has ALL required current and projected fire
MET weather forecast been obtained and are they/it
favorable Y/N?
3. _____ Are ALL planned operations and equipment on-
LSC site, available and operational Y/N?
4. _____ Have ALL personnel been briefed on project
SO objectives, their assignment, safety hazards,
escape routes, and safety zones Y/N?
5. _____ Is ALL of the required aerial equipment in place
AIS/AAS and in working order Y/N?
6. _____ Is ALL of the required ground equipment in place
HGS and in working order Y/N?
7. _____ Can the burn be executed according to plan and
BB will it meet management objectives Y/N?

18.2 Helicopter and Fixed Wing Operations

8. _____ Have ALL aviation safety requirements been met
APM Y/N?
9. _____ Have aerial hazards been noted Y/N?
AIS/AAS
APM
10. _____ Have pilots been appraised of unavoidable flight
AIS/AAS hazards Y/N?
APM
11. _____ Have pilots been reminded of hazards Y/N?
AIS/AAS
APM

12. _____
AIS/AAS Have over flights been avoided and personnel placed away from flight paths Y/N?
13. _____
APM Are helibase and airport controls in place Y/N?
14. _____
LSC Have communications been reviewed Y/N?
15. _____
LSC Is dedicated frequency established Y/N?
16. _____
LSC Is security plan in place Y/N?

18.3 Smoke Management

17. _____
MET Are ALL smoke management description specifications met Y/N?

18.4 General

18. _____
BB Has the availability of ALL contingency sources been checked, and are they available Y/N?
19. _____
BB Have all the pre-burn considerations identified in the prescribed fire plan been completed or address Y/N?
20. _____
BB Have ALL the requirement notifications been made Y/N?
21. _____
BB Are ALL permits and clearances obtained Y/N?
22. _____
BB In your opinion, can the burn be carried out according to the prescribed fire plan and will it meet planned objective Y/N?
23. _____
OMC
Fire Chief Are sufficient backup resources available for containment of escapes Y/N?

Ranges 43–48 Prescribed Burn Plan

If all the questions were answered “YES”, proceed with a test fire.
Document the current conditions, location, and results.

CERTIFIED BY: _____ DATE: _____

TITLE: Burn Boss

CERTIFIED BY: _____ DATE: _____

TITLE: Ord Military Community Fire Chief

19.0 TECHNICAL REVIEW

Checklist for Review of Prescribed Fire Burn Plans

Project Name _____ District _____

_____ Plan is in compliance with the Applicable or Relevant and Appropriate (ARARs) for this remedial project.

_____ Objectives, Desired Results & Tolerable Deviations clearly outlined.

_____ Prescription adequate to meet objectives & have a safe burn.

_____ Plan includes a prediction of expected fire behavior.

_____ Plan provides for requesting a spot weather forecast on moderate and high complexity burns.

_____ Plan requires a test burn.

_____ Problem areas or sensitive areas identified clearly.

_____ Plan includes organization needed and instructions for overhead.

_____ Maps adequate.

_____ Escape Contingency Plan adequate.

_____ Safety Plan adequate.

_____ Smoke sensitive areas identified & Smoke Management Plan adequate.

_____ RECOMMENDED FOR APPROVAL.

INSTRUCTIONS: Technical Reviewer shall complete this checklist and attach it to the prescribed burn plan. Initial each box to indicate item found satisfactory. Enter N/A (not applicable) for those items reviewed and found not applicable to this.

Technical Review Completed by: _____ Date _____

Prescribed Fire Qualification _____

20.0 NWCG COMPLEXITY RATING

NWCG PRESCRIBED FIRE COMPLEXTIY RATING WORKSHEET

L = LOW, M = MODERATE, H = HIGH

ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1. Potential for escape	H	H	H
2. The number & dependence of activities	H	H	M
3. Values at risk	L	H	H
4. Fuels/Fire Behavior	M	M	M
5. Size of prescribed fire team	H	H	H
6. Magnitude of oversight/ political activities	H	H	H
7. Fire treatment objectives	M	M	M
8. Environmental constraints	H	H	H
9. Safety	H	H	H
10. Ignition procedures/methods	M	H	M
11. Interagency problems	M	M	M
12. Project logistics	M	H	M
13. Special features inside fire	H	H	H
14. Smoke management	H	H	H
15. Other - security	H	H	H

Ranges 43–48 Prescribed Burn Plan

Total Number of “LOW” Ratings	1	0	0
Total Number of “MODERATE” Ratings	5	3	6
Total Number of “HIGH” Ratings	9	12	9
SUMMARY	H	H	H

Document why H, M,L, ratings where selected under rationale.

NWCG PRESCRIBED FIRE COMPLEXITY RATING WORKSHEET

<u>RISK</u>	OVERALL RATING	HIGH
<u>POTENTIAL CONSEQUENCES</u>	OVERALL RATING	HIGH
<u>TECHNICAL DIFFICULTY</u>	OVERALL RATING	HIGH
SUMMARY COMPLEXITY DETERMINATION		HIGH

RATIONALE:

It has been determined by the Fire Stop Burn Boss to assign an overall rating of HIGH in order to represent this burns complexity. This rating was performed in accordance with NWCGH PMS 424 revision of January 2002.

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