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February 4, 2013

Matt Huber, P.E.
Principle Engineer-Substations
8315 Century Park Ct. CP21G
San Diego, CA 92123-9517

Re: East County Substation Project Fire Protection Plan (8/24/2012)
East County Substation Project Construction Fire Prevention Plan (11/26/2012)

Dear Mr. Huber,

The San Diego County Fire Authority has reviewed both the East County Substation Project Fire Protection Plan dated August 24, 2012 and the East County Substation Project Construction Fire Prevention Plan dated November 26, 2012. Both of these documents are acceptable to the San Diego County Fire Authority and should be considered complete. These shall also be the working documents for the course of construction for the substation.

Please contact me directly if you have any questions. (858) 974-5925 or
ralph.steinhoff@sdcounty.ca.gov

Sincerely,

Ralph Steinhoff
Fire Services Coordinator
San Diego County Fire Authority



SAN DIEGO RURAL FIRE PROTECTION DISTRICT

December 11, 2012

Matt Huber, P.E.
Principle Engineer- Substations
8315 Century Park CT. CP21G
San Diego, CA 92123-9517

Re: East County Substation Construction Fire Protection Plan (**November 26, 2012**)

Dear Mr. Huber,

The San Diego Rural Fire Protection District has reviewed the CFPP for the ECO Substation dated November 26, 2012. This latest version is acceptable to the Fire District, and should be considered to be complete, and also be used as a working document for the course of construction for the substation. Please call me directly with any questions that you may have.

Sincerely,

David R. Nissen
Division Chief, San Diego Rural Fire protection District.



EAST COUNTY SUBSTATION PROJECT CONSTRUCTION FIRE PREVENTION PLAN

November 26, 2012

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Table of Contents

1. Fire Plan Definitions	4
2. Project Description	6
3. Project Fire Risks	8
4. Project Fire Risk Mitigation Measures	9
5. Staging Areas, Fly Yards, and Major Operation Work Sites	13
6. ECO and Boulevard Substations	14
7. Other Project Tools and Equipment Requirements	14
8. Project Specific Schedule Restrictions	15
9. Agency Specific Requirements	15
10. Red Flag Warnings, Project Activity Levels, and Other Declarations	16
11. Helicopter Operations Safety Plan	16
12. Training Requirements for SDG&E & Other Contract Personnel	17
13. Safety Briefings, Inspections, & Compliance Plan	17
14. Communications Plan	18
15. References	18
16. Review & Approval	18
<u>Attachments:</u>	
Attachment 1 Map of ECO Project	20
Attachment 2 Map of Fire Hazard Severity Zones	21
Attachment 3 Map of SDG&E Wildland Fire Area	22
Attachment 4 ECO Substation Site Map	23
Attachment 5 National Interagency Fire Council – Interagency Helicopter Operations Guide, June 2009 (Chapter 13 Fueling Operations)	24
Attachment 6 SDG&E Electric Standard Practice (ESP) 113.1 – Wildland Fire Prevention & Fire Safety – July 5, 2012	25

1. CONSTRUCTION FIRE PREVENTION PLAN DEFINITIONS

1. **Activity Risk:** An activity risk includes those activities that present a risk of igniting a wildfire.
2. **“Elevated” Fire Risk Conditions:** Fire conditions will be considered to be elevated when the average live fuel moisture content in the service territory is equal to or less than 75%.
3. **ESP 113.1 SDG&E Wildland Fire Prevention & Fire Safety Plan (SDG&E ESP 113.1):** This is an internal San Diego Gas & Electric (SDG&E) standard practice or procedure outlining fire suppression tools and equipment required for its employees and contractors, fire prevention requirements, and fire related training. It serves as an attachment to this Plan.
4. **Fire Marshal:** An SDG&E employee who serves as liaison or agency representative to the fire agencies and other emergency services during an emergency and with other fire related activities in non-emergency situations.
5. **Project Fire Marshal:** An SDG&E employee assigned full-time during the construction phase to monitor compliance with this plan, to continually evaluate fire prevention and fire safety issues, and to be the primary contact with the fire agencies.
6. **Fire Patrols:** SDG&E shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. An individual will be assigned as “Fire Patrol” specifically to monitor work activities when an Activity Risk exists for fire compliance. This person verifies proper tools and equipment are on-site, assesses any fire agency work restrictions, and serves as a lookout for fire starts, including staying behind to make certain no residual fire exists.
7. **Fire Suppression Resource Inventory:** SDG&E will provide the fire agencies with 24 hour contact information and on-site fire suppression equipment, tools, and personnel list, updated on a quarterly basis, and make amendments as changes occur.
8. **“Normal” Fire Risk Conditions:** Since fire season is no longer officially proclaimed SDG&E will identify normal fire risk conditions as the average live fuel moisture content in the service territory (as determined by CALFIRE & USFS) is greater than 75% or formal determination that area has received sufficient rain to adequately mitigate fire danger.

- 9. Plan:** This Construction Fire Prevention Plan, designated as Mitigation Measure FF-1 in the joint CPUC/BLM Final Environmental Impact Report/Environmental Impact Statement issued in December 2010.
- 10. Red Flag Warning (RFW):** A Red Flag Warning is issued for a stated period of time by the National Weather Service (NWS) using pre-determined criteria to identify particularly critical danger in a particular geographic area. All construction and maintenance activities shall cease during RFWs, as discussed in the plan.
- 11. ECO or Project:** The East County Substation Project that includes the ECO Substation, Boulevard Substation, the transmission line between ECO Substation and Boulevard Substation and the transmission loop-in of the existing Southwest Powerlink (SWPL) into the ECO Substation.

2. PROJECT DESCRIPTION

General location: The East County Substation Project (Project) will be constructed and later maintained in south eastern San Diego County. It will consist of the rebuild of SDG&E’s existing Boulevard Substation located in the community of Boulevard, the new East County Substation (ECO) to be constructed just east of the community of Jacumba, a new 138 kV transmission line from the rebuilt Boulevard Substation ECO, and an interconnect (loop-in) to the SDG&E’s existing 500kV Southwest Powerlink (SWPL) at the ECO Substation. The total distance of the new 138kV transmission line is 13.9 miles with an affected right of way area that ranges from 60 to 100 feet across (see Attachment 1). The Project will be constructed and maintained within the wildland areas of southern San Diego County including areas determined to be moderate, high, and very high Fire Hazard Severity Zones (see Attachment 2). The Project will be located in fire jurisdictional and land management responsibility areas for the following departments or agencies; Bureau of Land Management (BLM), California Department of Forestry and Fire Protection (CALFIRE), San Diego County Fire Authority (SDCFA), and the San Diego Rural Fire Protection District (SDRFPD). The fire suppression and cost recovery for suppression for the BLM land is contracted to CALFIRE. Other fire management services for the BLM land, such as, Fire Mitigation, Fire Education and fuels management remain the responsibility of BLM.

Table 1- Fire jurisdiction & land ownership

Ownership/Responsibility within Project	Fire Suppression Responsibility	Approximate. Miles in Project Area
Private land (SRA)	CALFIRE (DPA)	12.0
Private land (LRA)	SD RURAL FIRE	7.9
Private land (LRA)	SD County Fire Authority	6.0
Bureau of Land Mgmt. (FRA)	CALFIRE (DPA)	0.1

(DPA, Direct Protection Area, SRA, State Responsibility Area; FRA, Federal Responsibility Area; LRA, Local Responsibility Area)

Scope and Intent of Proposed Project: The proposed ECO Substation site is located approximately 0.5 miles south of Interstate 8 (I-8) and 4 miles east of the community of Jacumba. The substation will be located on private land, just east of Old Highway 80, 0.5 miles west of the Imperial County border, and 0.5 miles north of the U.S.–Mexico border in southeastern San Diego County (see Attachment 4). Privately owned, undeveloped land borders the northern, western, and southern sides of the ECO Substation site and undeveloped land managed by the BLM is located to the east. Attachment 4, *ECO Substation Temporary and Permanent Footprint Map*, shows the fenced portion of the ECO Substation, which will encompass approximately 58 acres. The permanent impacts of the ECO Substation will be approximately 83.56 acres and will include the fenced substation, a 20-foot buffer around the perimeter of the substation yards, permanent slope and grading impacts, permanent access roads to the substation from Old Highway 80, and drainage facilities.

The SWPL loop-in will be constructed in the same general location as the ECO Substation. A short transmission connection to the existing 500 kV SWPL transmission line into the new

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

substation will begin along the existing SWPL right-of-way (ROW), traverse south-southwest for approximately 1,600 feet, then will turn westerly for 770 feet, and enter at the east side of the new substation.

An approximately 13.9-mile-long 138 kV transmission line will be constructed from the ECO Substation to the rebuilt Boulevard Substation (located within the unincorporated community of Boulevard in southeastern San Diego County). The line will travel west out of the ECO Substation for approximately 800 feet and then turn north until reaching the SWPL ROW. The 138 kV line will then go underground for approximately 2.8 miles. It will be constructed along Old Highway 80 heading west toward Carrizo Gorge Road. At Carrizo Gorge Road, the new underground transmission line will turn North and continue along Carrizo Gorge Road until it reaches the SWPL ROW. At this point, the new transmission line will continue overhead parallel to the south side of the SWPL for approximately 3.4 miles. At this point, the line will cross under the SWPL and continue parallel for approximately 3.2 miles along its north side until it intersects with an existing dirt access road. At this point, the line will go underground and turn to the north. The transmission line will continue heading north along existing dirt roads for approximately 4 miles to the rebuilt Boulevard Substation.

The new 138 kV transmission line will require a 60 foot wide permanent ROW for the underground segments and a 100 foot wide permanent ROW for the overhead segments. Approximately 6.8 miles of the new transmission line that parallels the SWPL will be adjacent to SDG&E's existing easements. This area is predominantly privately owned, undeveloped open space.

The existing Boulevard Substation and its rebuild site are located approximately 12 miles northwest of the proposed ECO Substation site. SDG&E has acquired one 8.5 acre parcel immediately east of the existing Boulevard Substation to rebuild the substation. The fenced portion of the new substation will encompass approximately 2 acres. Nine existing structures located on this property will be removed prior to substation construction. In addition, the existing Boulevard Substation will be dismantled and removed after the new substation is put in service. Single-family residences on large lots surround the existing and rebuilt substation sites. The site can be accessed by traveling east from San Diego on I-8, heading south on Highway 94 (Jewel Valley Road), and then heading west on Old U.S. Highway 80.

As a result, the Project will traverse through wildland areas of various hazard classes, including approximately 0.5 miles within the moderate, 3.7 miles within the high, and 9.7 miles within the very high Fire Hazard Severity Zones, see attachment 2, *Fire Hazard Severity Zone Map*. The construction phase will involve multiple operations that can present a fire ignition risk. The intent of this Plan is to identify those potential ignition risks and plan reasonable mitigation measures to eliminate or reduce such risks as much as possible. It is also the intent of this Plan to look at the pre-existing hazards along the route and plan Project activities in a manner that best minimizes the risk of fire. In the higher hazard areas avoidance of hazards, scheduling, vegetation management work, or other means will be used to minimize fire risk. Lastly, it is the intent of the Plan to identify tools, equipment, and training requirements necessary to rapidly extinguish a small fire, should one start during any of the Project operations.

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

Project Timeframes: This Project is scheduled to begin construction in mid 2012 and is expected to be completed by the end of 2013. However, this projected construction schedule is dependent upon licensing and permitting for the Project. Regardless of this proposed schedule, construction will continue until the project is complete. Work on the Project will take place during all seasons within the proposed time frames including summer and fall, when wildland fire concerns are generally elevated. Although there will be a heightened concern when the annual grasses cure each year, fire mitigations will be addressed for two distinct conditions; "NORMAL", when live fuel moistures are equal to or above 75% (determined by USFS/CALFIRE sampling data) and "ELEVATED", when live fuel moistures are less than 75%. During the "ELEVATED" time of the year there will be more restrictive operations combined with additional fire risk mitigation requirements. SDG&E will assign a Project Fire Marshal for the Project duration. The Project Fire Marshal will oversee all fire related activities for SDG&E and their contractors.

Description of work activities that will take place in the SDG&E Wildland Fire Area: The following work activities will take place in areas considered to be wildland as referenced by the SDG&E Wildland Fire Area (see attachment 3).

Construction Phase

- Vegetation removal; chain saws, brush cutters, chippers, excavators, tractors
- Road, tower pad, & staging area development; bulldozers, graders, loaders, other equipment
- Aviation activities; helicopter heavy lift and cargo transportation, landing zones, fueling activities
- Other construction related activities with the potential to ignite a wildfire:
 - Generators, augers
 - Grinding, welding, and blasting
 - Staging areas with fuel and/or other hazardous or flammable materials (emphasis on flammable)
 - ECO and Boulevard Substation construction specific fire related issues
 - Other, as determined by Project Fire Marshal, Project Supervisor, or Fire Agency

3. PROJECT FIRE RISKS:

During the construction phase of the Project, SDG&E shall implement ongoing Fire Patrols during the fire season as identified each year by local, state, and federal fire agencies when performing any activity in the SDG&E Wildland Fire Area (see Attachment 3). The following describes activities creating fire risks associated with the Project that will occur within the SDG&E Wildland Fire Area; where they apply, to what extent they apply, and what time frame they are applicable. Others will be added as they become identified by SDG&E or a participating fire agency.

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

<u>Activity Risk:</u>	<u>Location on Project:</u>	<u>Miles or Acres on Project:</u>	<u>Time of year and duration:</u>
1. Working on energized or de-energized electrical equipment.	Entire Project	13.9 miles	All year
2. Any off-road vehicle use within Project area.	Entire ECO Project	13.9 miles	All year
3. Any on highway vehicle use within project area.	Entire ECO Project	13.9 miles	All year
4. Chain saw use of any kind.	Entire ECO Project	13.9 miles	All year
5. Use of generators, pumps, augers, or other equipment capable of ignition.	Entire ECO Project	13.9 miles	All year
6. Other tree removal equipment; whole tree grinders, chippers, skidders, etc.	Entire ECO Project	13.9 miles	All year
7. Grinding or welding.	Entire ECO Project	13.9 miles	All year
8. Blasting or other explosive work.	Entire ECO Project	13.9 miles	All year
9. Aviation activities.	Entire ECO Project	13.9 miles	All year
10. Pad clearing accessible areas	Entire ECO Project	13.9 miles	All year
11. Pad clearing inaccessible Areas	Entire ECO Project	13.9 miles	All year
12. ECO Substation	Substation	83.56 acres	All year
13. Personnel smoking areas	Across entire ECO Project	13.9 miles	All year

4. PROJECT FIRE RISK MITIGATION MEASURES:

The following pre-identified “Activity Risk” tool and equipment requirements are based on the *Forest Standard Practice Rules 2008* and in most cases exceed those requirements. Activity Risks identified after Project initiation shall be added to this section with appropriate mitigation measures mutually determined by the Project Fire Marshal and the appropriate fire agency with jurisdictional responsibility.

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

<u>Activity Risk:</u>	<u>Risk Mitigation Description:</u>
<p>1. Working on energized electrical equipment in or adjacent to wildland vegetation.</p>	<p>“NORMAL”, have required tools and equipment on site, either available on vehicles within 100’ or in a fire box (sealed box of tools) on site for remote sites (delivered by air if necessary). This would be 1 round point shovel, 1 Pulaski, and 1 (5) gallon backpack pump p/vehicle or 1 firebox [1 (5) gal. backpack pump w/H₂O, 1 Pulaskis, 1 McCleod, 2 round point shovels] p/5 personnel on job site.</p> <p>“ELEVATED”, same as above with the additional requirement of 1 (5) gallon backpack pump p/3 persons on site and a water reserve that totals 2 refills for each (5) gallon backpack pump w/H₂O.</p>
<p>2. Any off-highway vehicle use within Project area.</p>	<p>“NORMAL”, have required tools and equipment available in vehicle, 1 round point shovel, 1 Pulaski, and 1 (5) gallon backpack pump w/H₂O. Visually confirm that no fire has started behind the path of travel. Vehicles must be highway legal and equipped w/spark arresters if required.</p> <p>“ELEVATED”, same as above with the additional requirement of having a “Fire Patrol” (individual w/shovel and/or backpack pump w/H₂O) to lag behind vehicle and insure no fire has started and to extinguish rapidly if one has. Use lookouts for early detection of fire starts.</p>
<p>3. On highway activities in particularly hazardous areas.</p>	<p>May not be applicable to this Project, however still prudent to carry all required tools and equipment on vehicles. Work with Fire Agency involved to mitigate any delays to fire response equipment during underground construction near roadways.</p>
<p>4. Chain saw use of any kind in or immediately adjacent to wildland vegetation. (Must comply with PRC Code Div. 4, Ch. 6, 4431 & 4442)</p>	<p>“NORMAL” & “ELEVATED”, have required tools and equipment on site, either available on vehicles within 100’ or in a fire box on site for remote sites (delivered by air if necessary). This would be 1 round point shovel, 1 Pulaski, and 1 (5) gallon backpack pump w/H₂O p/vehicle or 1 firebox [1 (5) gal. backpack pump, 1 Pulaskis, 1 McCleod, 2 round point shovels] p/5 personnel on job site. Have 1 round point shovel within 25’ of the chainsaw operation or 1 serviceable fire extinguisher in the operator’s immediate possession. Refuel chain saw after cooling and in a minimum 10’ area cleared of all flammable vegetation. Assign spotter or swamper “Fire Patrol” duties during chain saw operations. Tools utilizing internal combustion engines will be provided with spark arrestors.</p>

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

Activity Risk:	Risk Mitigation Description:
<p>5. Use of generators, pumps, augers, or other equipment capable of ignition and located in or adjacent to wildland vegetation. (Must comply with PRC Code Div. 4, Ch. 6, 4442)</p>	<p>“NORMAL” & “ELEVATED”, have required tools and equipment on site, either available on vehicles within 100’ or in a fire box on site for remote sites (delivered by air if necessary). This would be 1 round point shovel, 1 Pulaski, and 1 (5) gallon backpack pump w/H₂O p/vehicle or 1 firebox [1 (5) gal. backpack pump, 1 Pulaskis, 1 McCleod, 2 round point shovels] p/5 personnel on job site. Place equipment in a minimum 10’ area cleared of all flammable vegetation. Tools utilizing internal combustion engines will be provided with spark arrestors.</p>
<p>6. Other tree removal equipment; whole tree grinders, chippers, skidders, etc. working in or adjacent to wildland vegetation. (Must comply with PRC Code Div. 4, Ch. 6, 4442)</p>	<p>“NORMAL”, have required tools and equipment on site, either available on vehicles within 100’ or in a fire box on site for remote sites (delivered by air if necessary). This would be 1 round point shovel, 1 Pulaski, and 1 (5) gallon backpack pump w/H₂O p/vehicle or 1 firebox [1 (5) gal. backpack pump, 1 Pulaskis, 1 McCleod, 2 round point shovels] p/5 personnel on job site.</p> <p>“ELEVATED”, same as above with the additional requirement of 1 (5) gallon backpack pump w/H₂O p/3 persons on site and a water reserve that totals 2 refills for each (5) gallon backpack pump. Tools utilizing internal combustion engines will be provided with spark arrestors.</p>
<p>7. Grinding or welding, in or immediately adjacent to wildland vegetation (see Forest Std. Practice Act 918.7, 938.7, 958.7 Blasting and Welding and NFPA51B-2009)</p>	<p>“NORMAL”, have required tools and equipment on site, either available on vehicles within 100’ or in a fire box on site for remote sites (delivered by air if necessary). This would be 1 round point shovel, 1 Pulaski, and 1 (5) gallon backpack pump p/vehicle or 1 firebox [1 (5) gal. backpack pump, 1 Pulaskis, 1 McCleod, 2 round point shovels] p/5 personnel on job site. All welding, cutting and other hot work will require a Hot Work Permit as described in NFPA 51B with SDG&E designated as the Authority Having Jurisdiction and the SDG&E ECO Project Fire Marshal designated as the Permit Authorizing Individual.</p> <p>“ELEVATED”, same as above with the additional requirement of assigning a “Fire Patrol” or observer during grinding or welding operation.</p>
<p>8. Blasting or other explosive work in or adjacent to wildland vegetation. (see Forest Std. Practice Act 918.7, 938.7, 958.7 Blasting and Welding)</p>	<p>Any blasting or explosive work will require a separate and independent fire mitigation plan. The contents of this Plan can serve as the foundation, but each proposed blasting event will require specific direction and mitigation requirements. Fire Agency having authority shall be notified prior to any blasting.</p>
<p>9. Aviation activities</p>	<p>All aviation activities and mitigation requirements will be addressed separately in the “Helicopter Operations Safety Plan” later in this document.</p>
<p>10. Pad clearing accessible areas in or adjacent to wildland vegetation.</p>	<p>“NORMAL”, have required tools and equipment on site, either available on vehicles within 100’ or in a fire box on site. This would be 1 round point shovel, 1 Pulaski, and 1 (5) gallon backpack pump p/vehicle or 1 firebox [3 (5) gal. backpack pump, 1 Pulaskis, 1 McCleod, 2 round point shovels] p/5 personnel on job site.</p> <p>“ELEVATED”, same as above with the additional requirement of a standby water truck w/pump and hose (minimum 50 gals.) staged, available, and</p>

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

	within 1 mile of work site, 250 gallons within 3 miles and 500 gallons within 5 miles. (can serve more than 1 work site)
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<u>Activity Risk:</u>	<u>Risk Mitigation Description:</u>
11. Pad clearing inaccessible areas in or adjacent to wildland vegetation.	<p>“NORMAL”, have one fire box on site p/5 personnel containing [1 (5) gal. backpack pump, 1 Pulaski, 1 McCleod, 2 round point shovels].</p> <p>“ELEVATED”, same as above with the additional requirement of 1 (5) gallon backpack pump p/3 persons on site and a water reserve that totals 2 refills for each (5) gallon backpack pump.</p>
12. ECO and Boulevard Substation construction	<p>A site inspection prior to project initiation will determine any additional fire mitigation requirements for the ECO and Boulevard Substations and documentation of those will serve as an amendment to this document. The following minimum requirements however will apply.</p> <p>“NORMAL”, have required tools and equipment on site, either available on vehicles within 50’ or in a fire box on site. This would be 1 round point shovel, 1 Pulaski, and 1 (5) gallon backpack pump p/vehicle or 1 firebox [1 (5) gal. backpack pump, 1 Pulaskis, 1 McCleod, 2 round point shovels] p/5 personnel on job site.</p> <p>“ELEVATED”, same as above with the additional requirement of a standby water truck w/pump and hose (minimum 50 gals.) staged, available, and within 5 miles of work site. (can serve more than 1 work site)</p>
13. Personnel smoking areas	Where permitted, smoking will be in designated areas only, 10’ cleared circle, with ash cans, and no butts left on ground.

5. STAGING AREAS, FLY YARDS, AND MAJOR OPERATION WORK SITES:

List all staging areas and major operations work sites within Project that are located throughout the Project area; San Diego County entries are located in the SDG&E Wildland Fire Area:

<u>NAME</u>	<u>COUNTY</u>	<u>Fire Agency With Jurisdiction</u>	<u>Township/Range/Section</u>	<u>Acreage</u>
Airstrip	San Diego	SD County FA/CAL FIRE	SE ¼ SW ¼, S33, T17S, R7E	5.50
Boundary Peak	San Diego	SD County FA/CAL FIRE	NW ¼ SW ¼ S9, T18S, R7E	5.66
Jacumba	San Diego	SD Rural/CAL FIRE	NE ¼ SW ¼, S4, T18S, R8E	0.89
ECO Substation	San Diego	SD Rural/CAL FIRE	SW ¼ S1, T18S, R8E	101.91
Boulevard	San Diego	SD County FA/CAL FIRE	SW ¼ NE ¼, S28, T17S, R7E	4.30

The following precautions will take place at each fly yard, staging area, or major operations work area;

- The site will be assessed by the Project Fire Marshal for wildland fire threat and/or risk prior to beginning operations associated with that site.
- Each site will have a minimum of one fire box with tools for 5 personnel and additional tools and equipment as determined by the Project Fire Marshal and/or jurisdictional fire agency. Requirements will be posted visibly at location.
- If a risk of fire propagating out from the staging area into the wildland exists, the Project Fire Marshal will invite the jurisdictional fire agency out for an inspection and additional recommendations or requirements.
- The Project Fire Marshal and appropriate fire agency representative will determine if any hazard reduction will be completed around site perimeter to reduce chance of fire escaping into the wildland.
- Additional specialized tools and/or equipment will be identified during the inspection and requirements posted visibly at the location.
- Additional fly yards, staging areas, or major operation work areas not covered by this document will be reported to the appropriate fire agency prior to initializing activity in those areas. The fire agencies will be given the opportunity to assess these new sites.
- SDG&E will provide the fire agencies with a Fire Suppression Resource Inventory which will include 24 hour contact information and a list of on-site fire suppression equipment and make amendments as changes occur throughout the Project.

6. ECO AND BOULEVARD SUBSTATIONS:

- The site will be assessed by the SDG&E Fire Marshal and the responsible fire agency for wildland fire threat and/or risk prior to beginning operations associated with that site.
- A determination will be made as to additional tools and equipment requirements in addition to those discussed in the “Activity Risks” section of this document.
- A determination will be made as to any hazard reduction measures required around site perimeter to reduce risk of fire escaping into wildland.

7. OTHER PROJECT TOOLS & EQUIPMENT REQUIREMENTS:

(Describe any special tool & equipment requirements above those required of the California State Forest Standard Practice Act)

The following equipment may be required to be staged as proximate as possible to on-going Project activities during “ELEVATED” fire conditions to supplement basic requirements already addressed in this Plan. These items should be strategically placed to afford the best opportunity to help to expeditiously extinguish any fire resulting from Project activities. The Project Fire Marshal, with consultation from jurisdictional Fire Agency will determine additional needs.

- Water storage or water reserve, use water buffalos, (5) gallon cubi-tainers, or fixed tanks to maintain 1,000 gallons of water in the staging areas, fly yards, or major operations work sites for any work activities proximate to that site.
- Pole protection truck, meets the specifications for a Type 6 Fire Truck, or equivalent should be available for staging by the Project Fire Marshal when conditions and work warrant.
- A cache of hose, pumps, fittings, etc. will be available at staging sites. Amount to be determined by consultation between the Project Fire Marshal and responsible fire agency.
- A construction Helicopter should be available for fire suppression as determined by the Project Fire Marshal when conditions and work warrant.
- Each crew member will carry at all times a laminated, Fire Prevention Plan card listing 24-hour contact information, telephone numbers for reporting fires and immediate steps to take if a fire starts. Information on the Fire Prevention Plan card will be updated as needed, redistributed and outdated cards destroyed. On the day the information change goes into effect, the Project Fire Marshal will assure this redistribution is conducted before the initiation of any construction activities.

8. PROJECT SPECIFIC SCHEDULE RESTRICTIONS:

All work will cease should any of the following take place:

- The initiation of a Red Flag Warning for the area involved for the entire duration of the RFW. (See section 10 for work on the substation pads.)
- A special proclamation from an appropriate fire official declaring certain work activities cease for a given period of time due to extreme weather or fire resource availability is at a draw down.

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

Consideration should be given anytime fire danger is elevated to completing work in early morning hours and not conducting any activities with fire risks during the hot, dry, and breezy part of the afternoon.

Fire Patrols and Fire Suppression Resource Inventory: During the construction phase of the Project, SDG&E will implement ongoing Fire Patrols during those times the State and Federal fire agencies elevate their resource staffing patterns due to the seasonal fire conditions. These dates vary from year to year, generally occurring from late spring through mid-November. Fire Patrols will be conducted by the Fire Marshal, or a qualified employee as assigned. See description under Fire Plan Definitions. At all construction areas requiring a Fire Patrol, a standardized form will be used to document t Fire Patrols, including any preventative actions. Fire Patrols will also verify the Fire Suppression Resource Inventory is maintained; that all crew members have the Fire Prevention Plan card with 24-hour contact information, including numbers for reporting fires and directions for immediate steps to take if a fire starts. See the section in this Plan for Project Fire Risk Mitigation Measures and for Staging Areas, both of which identify an Inventory of Fire Suppression Resources.

9. AGENCY SPECIFIC REQUIREMENTS:

CALFIRE: The Project activities must comply with Title 14 of the California Code of Regulations; California Forest Practice Rules 2011, in its entirety for the duration of the Project with particular attention to Subchapter 4, 5, & 6 Article 8 Fire Protection and Public Resource Codes (PRC) 4427 Operation of Fire Causing Equipment, PRC 4431, Gasoline Powered Saws and Equipment, and PRC 4442, Spark Arrestors. Also requirements for Smoking and Matches in 918.4, 938.4 & 958.4. The project design will comply with applicable NFPA standards and the California Fire Code.

BUREAU OF LAND MANAGEMENT: The same requirements as described for CALFIRE above.

San Diego Rural Fire Protection District: The same requirements as described for CALFIRE above.

San Diego County Fire Authority: The same requirements as described for CALFIRE above.

10. RED FLAG WARNINGS AND OTHER CRITICAL FIRE DECLARATIONS:

All Project activities that would take place in or adjacent to wildland vegetation for the entire duration of any "Red Flag Warning" (RFW) will cease. Project managers and supervisors will be responsible for exchanging their contact information with Grid Operations, to insure they are notified of these events. At the end of the RFW, confirmation should be obtained from the on-call Fire Coordinator that work can begin again and under what continued restrictions.

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

Other critical declarations can be made by any jurisdictional Fire Chief for a given period of time, due to unusual circumstances or conditions. As soon as these declarations are shared with the SDG&E Fire Marshal, Distribution Operations, Grid Operations, or Service Dispatch; they will be communicated to Project personnel by Grid Operations in the same manner as RFWs. Upon notification, all work activities that apply to the specific declaration will cease in those areas identified.

SDG&E Fire Marshals (company-wide fire managers) have the authority to stop any Project work activity that appears to pose a particular fire risk or hazard not uniquely covered by this Plan. The SDG&E Fire Marshal will contact the Project Fire Marshal, on site supervisor or Project Manager directly and identify clearly what will not be allowed, the projected duration, and the circumstances making this action necessary.

11. HELICOPTER OPERATIONS SAFETY PLAN:

When the Project requires the use of helicopters and involves landing or taking off in areas within or adjacent to wildland fuels and vegetation within the SDG&E Wildland Fire Area, special mitigations may be required. A plan specific to the safety related to the helicopter operations will be completed and serve as a supplement to this document. It will include at a minimum the following:

- Identification of all landing areas within the SDG&E Wildland Fire Area
- Wildland hazard assessment for each site
- Fueling safety plan; this plan will follow *Interagency Helicopter Operations Guide – June 2009, Chapter 13 Fueling Operations, ref. 15.3.*
- Identification of special tool and/or equipment requirements for each landing site where applicable.
- Designate a “Helicopter Safety Officer” or manager responsible for compliance with the plan during all helicopter operations.
- A communications plan will be developed to coordinate air operations with the surrounding fire agencies. Air operations will cease upon request by a fire agency

12. TRAINING REQUIREMENTS FOR SDG&E & CONTRACT PERSONNEL

Prior to Project initiation and each spring prior to the curing of the annual grasses; all Project supervisors (*SDG&E & Contractors*) will receive a minimum of 1 hour training on Wildland Fire Prevention and Safety (*ref. SDG&E ESP113.1*). This training will be provided by

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

an SDG&E Fire Marshal or their qualified designee. This training will then be shared with all construction personnel either by the Project supervisors or an SDG&E Fire Marshal or designee. Each member of the construction crew shall be:

- Trained in fire reporting
- Trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats.
- Trained in fire prevention
- Trained in Initial Attack Firefighting
- At all times within 100' of required fire related tools and equipment

This supervisory training will be conducted by the Project Fire Marshal or other qualified fire expert and compliance and documentation for all training will be monitored by the Project Fire Marshal.

13. SAFETY BRIEFINGS, INSPECTIONS & COMPLIANCE PLAN

A formal pre-Project inspection and plan review will take place with a minimum of the SDG&E Contract Administrator, the contract Project Manager, the SDG&E Project Manager, the SDG&E Fire Marshal, the ECO Fire Marshal, the Helicopter Manager, and invitations to the respective fire agencies. Monthly inspections of work sites and/or when a new site is initiated will take place with a minimum of the SDG&E Contract Administrator, Fire Marshal, and the contract Project Manager. The ECO Fire Marshal will conduct routine unannounced inspections a minimum of twice weekly. The ECO Fire Marshal will develop an inspection check sheet to document these inspections.

Prior to Project initiation, all Project personnel will receive a ½ hour presentation on the contents of this Plan along with additional fire safety and fire prevention information provided by an SDG&E Fire Marshal. Supervisors will be responsible for sharing its content with transient Project personnel throughout the duration of the Project. A review of the content of this Plan will take place at a formal safety briefing; a minimum of once each month the "ELEVATED" condition. Each daily safety tailboard session should include an assessment of the day's fire related risks or hazards and the mitigation for each. The contractor Project Manager will submit in writing to the Fire Marshal a review of the upcoming month's work activities, a brief fire risk & hazard assessment, and a mitigation plan for the month using the guidance in this Plan.

Compliance with this Plan is mandatory. Monitoring compliance with this Plan is everybody's responsibility. All levels of project management have the authority to shut down any operation that presents an inappropriate amount of fire risk or hazard until it can be properly mitigated. Violations of any of the requirements of this Plan will be addressed immediately. Appropriate consequences for repeated or serious negligence in respect to this Plan will be dealt with accordingly. All project-related vegetation fires, regardless of size, shall be promptly reported to the California Public Utility Commission and Bureau of Land Management to determine if appropriate mitigation measures are being taken.

The Fire Marshal shall develop an inspection checklist that will include daily checks, weekly, and monthly as appropriate. These inspections will be conducted, documented, retained and compliance audited by the ECO PROJECT Construction Safety Manager.

14. COMMUNICATIONS PLAN

The ability to communicate with all Project personnel working with the SDGE Wildland Fire Area is mandatory. Cell phone, Satellite phone, and/or radios are all acceptable means provided they work appropriately within the area of the work. Communications must be maintained even if it requires the use of portable repeaters, human repeaters, or other technological means for this to happen. The Fire Marshal, Contract Administrator, or contract Project Manager must be able to contact the appropriate Emergency Communications Center immediately in the event of an emergency. If one of the three is not available to perform this function, the task must be officially delegated for the duration of the absence. SDG&E will provide the fire agencies with a Fire Suppression Resource Inventory which will include 24 hour contact information and a list of on-site fire suppression equipment and make amendments as changes occur throughout the project.

All construction crews and inspectors will be required to have radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. As part of the Fire Patrol duties, communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires will be reported to the fire agencies with jurisdiction in the Project area immediately upon ignition.

Community Education and Outreach Program: The SDG&E Construction Notification Plan, the Community Fire Safety Program and the Sempra Utilities Wildland Fire Prevention and Fire Safety Guide all are avenues that will be used to communicate SDG&E fire prevention practices. As per the Construction Notification Plan, a public notice mailer will be mailed to all residents, property owners or tenants within 1,000 feet of Project components providing advanced of construction activities. Additionally, a public affairs officer and a dedicated public affairs contact number have been appointed to address community education and outreach.

15. REFERENCES:

California Forest Standard Practice Rules;

http://www.fire.ca.gov/resource_mgt/downloads/2011_FP_Rulebook_with_Diagrams_with_Tech_Rule_No_1.pdf

Interagency Helicopter Operations Guide; <http://www.nifc.gov/ihog/>

ECO Substation Final EIR/EIS;

http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/ECO_Final_EIR-EIS.htm

16. PLAN REVIEW AND APPROVAL:

The signatory reviewing officials are acknowledging that SDG&E has a Construction and Fire Prevention Plan that is necessary to mitigate fire hazard and risk for the ECO project construction

EAST COUNTY SUBSTATION PROJECT: CONSTRUCTION FIRE PREVENTION PLAN

and maintenance activities. They do not accept any responsibility for SDG&E interpretation or implementation of this plan during the construction and maintenance of the ECO project or for any resulting actions associated with these activities.

Reviewed by:

SDG&E Fire Program Manager

Date

San Diego Rural Fire Protection District Chief

Date

CAL FIRE Chief

Date

San Diego County Fire Authority

Date

California Public Utilities Commission

Date

Bureau of Land Management

Date

Approved by:

SDG&E ECO Project Manager

Date

SDG&E ECO Fire Marshal

Date



Attachment 1: Project Vicinity/Overview Map

East County Substation Project

- Proposed 138 kV Line Milepost
- Existing SWPL Structure
- Proposed SWPL Loop-In Structure
- Boulevard Substation Rebuild
- Substation Yard
- Proposed 138 kV Overhead Line
- Proposed 138 kV Underground Line
- Proposed SWPL Loop-In
- Existing Transmission Line
- San Diego County Fire Authority
- San Diego Rural Fire Protection District
- Interstate
- Major Road
- Railroad



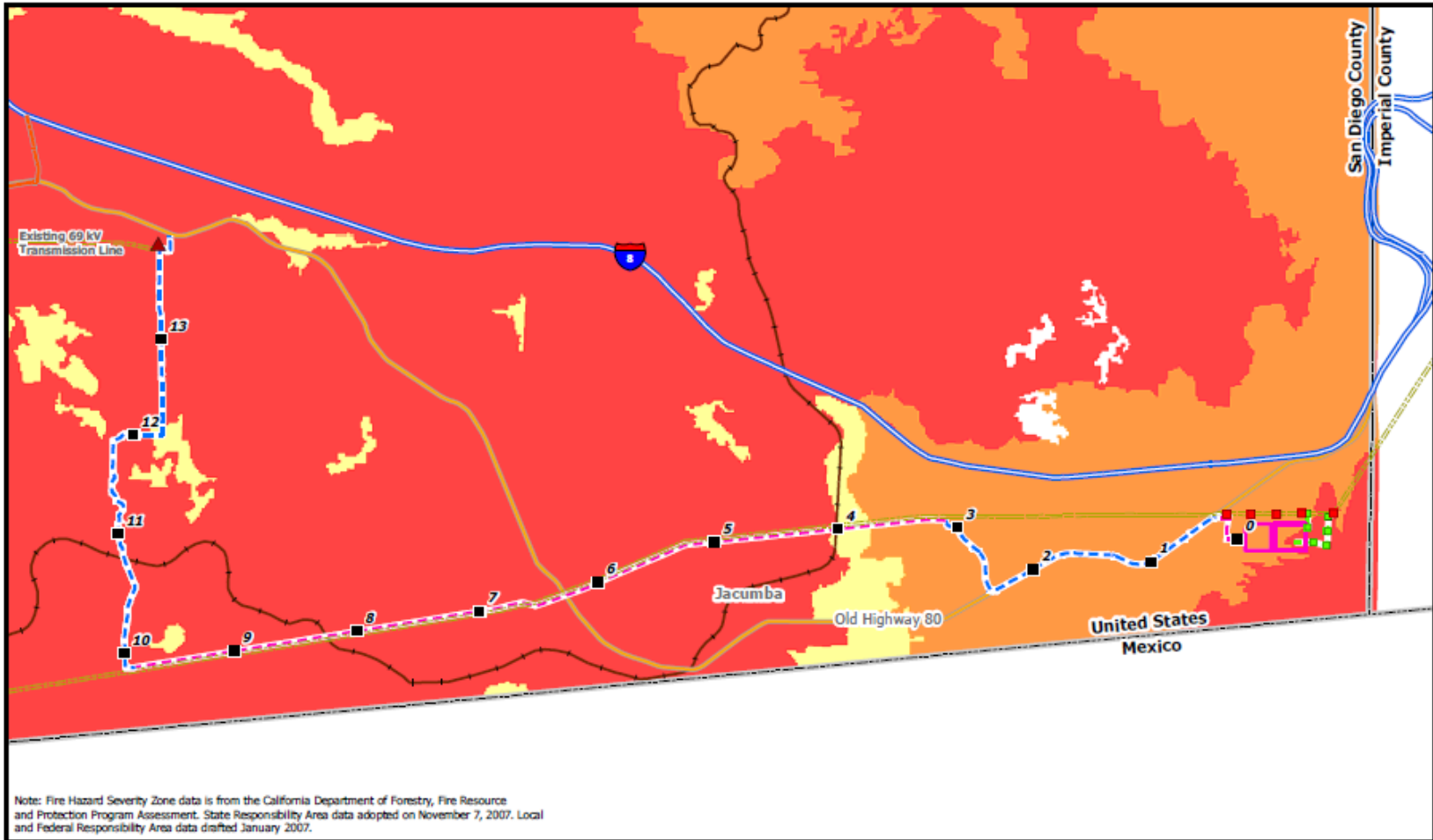




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08/30/2017

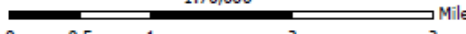


Attachment 2: Fire Hazard Severity Zone Map **East County Substation Project**

▲ Existing Boulevard Substation	— Proposed 138 kV Overhead Line	— Interstate	Fire Hazard Severity Zone
■ Proposed 138 kV Line Milepost	— Proposed 138 kV Underground Line	— Highway	Very High
■ Existing SWPL Structure	— Proposed SWPL Loop-In	— Major Road	High
■ Proposed SWPL Loop-In Structure	— Existing Transmission Line	— Railroad	Moderate
■ Boulevard Substation Rebuild			
■ Substation Yard			

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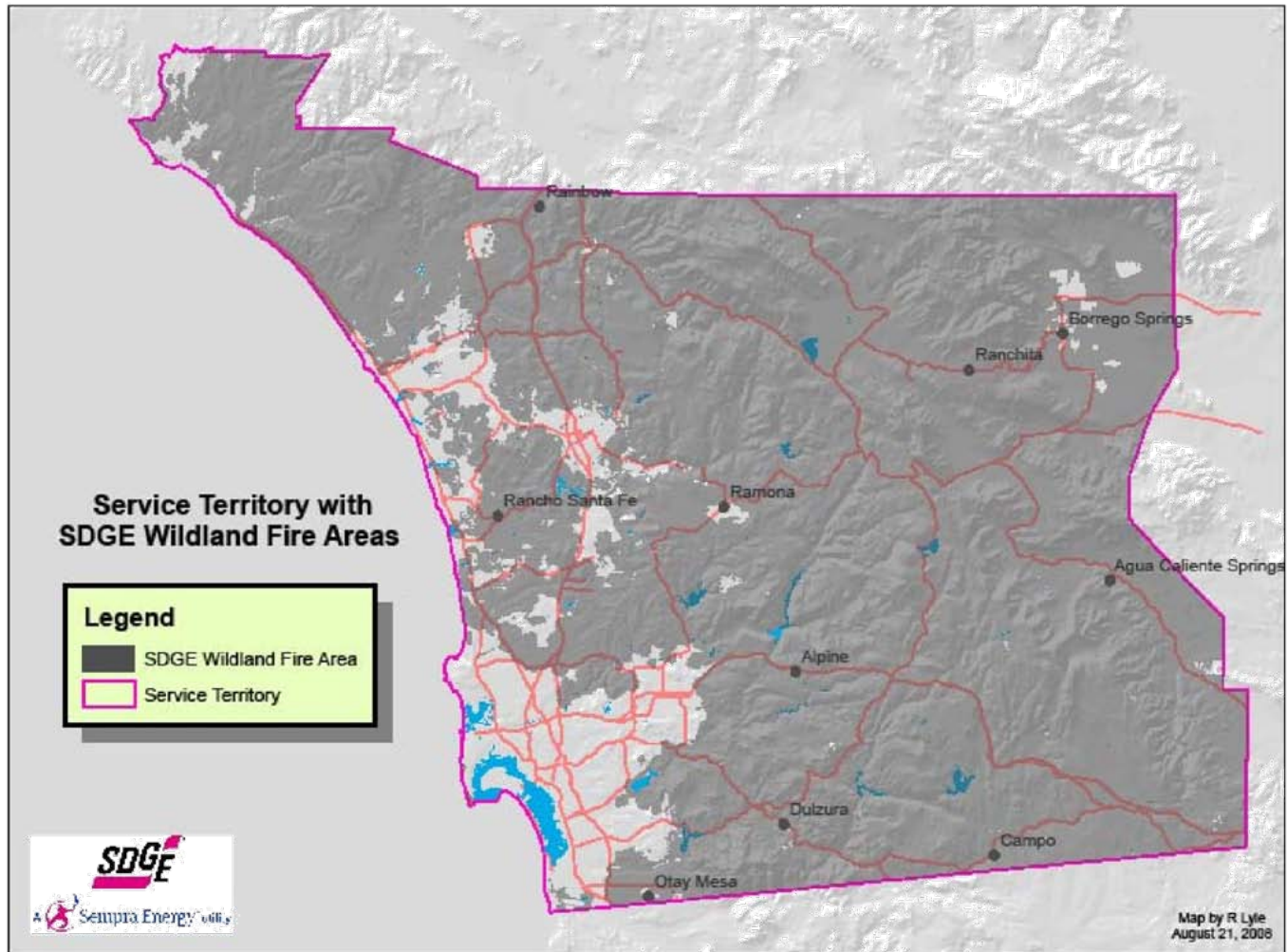


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10/31/2011

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Attachment 2
Fire Hazard Severity Zones



Attachment 3
SDG&E Wildland Fire Areas

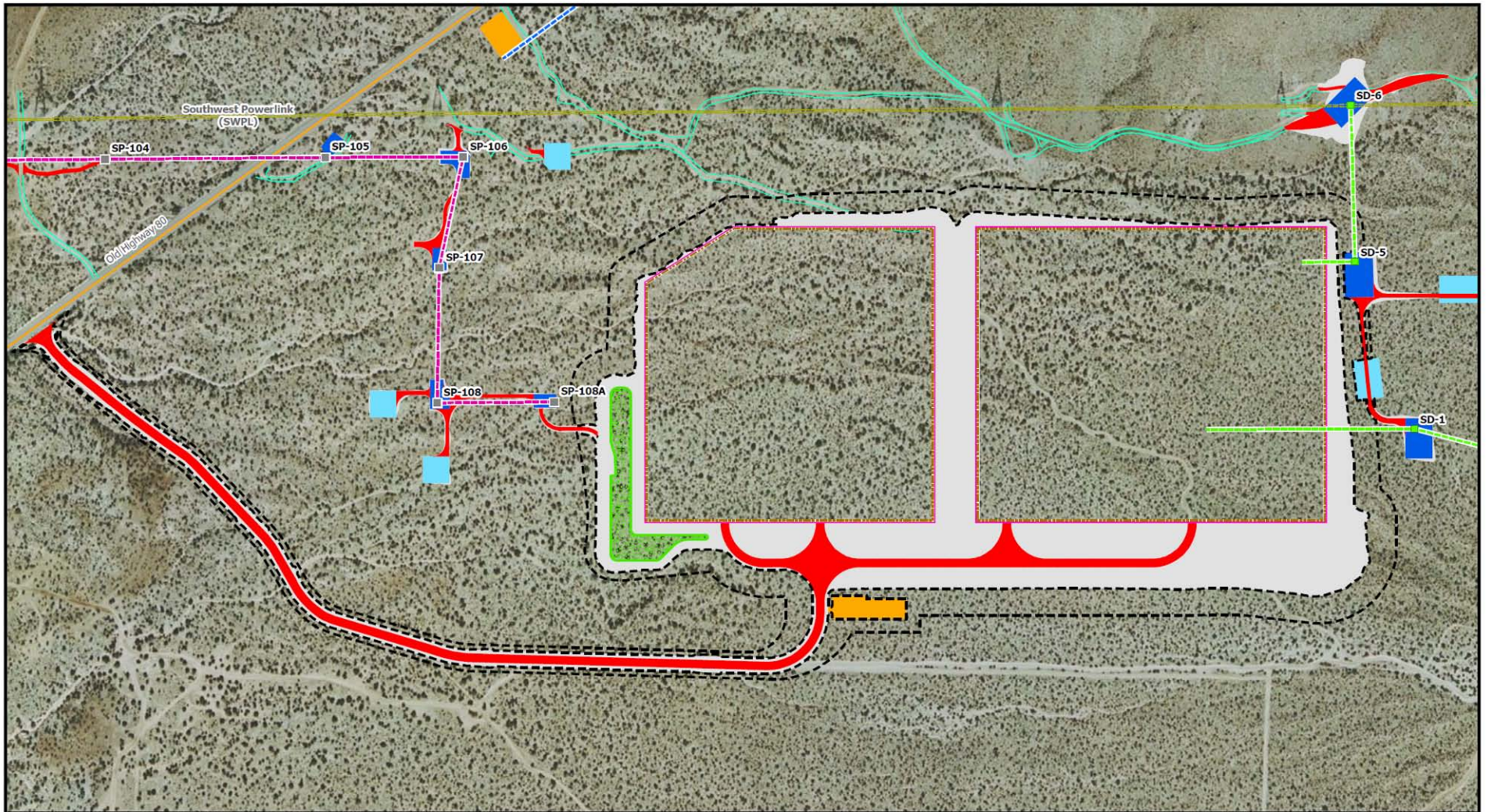


Figure B-3: ECO Substation Temporary and Permanent Footprint Map **East County Substation Project**

<ul style="list-style-type: none"> — Proposed SWPL Loop-In — Proposed 138 kV Line — Proposed 12 kV Temporary Distribution Tap — 445 Circuit Collocated with 138 kV Line — Existing Transmission Line 	<ul style="list-style-type: none"> Proposed ECO Substation Fence Line Temporary Construction Area Access Road Pole Work Area 	<ul style="list-style-type: none"> Pull Site Retention Basin Staging Yard Grading 	<ul style="list-style-type: none"> Proposed SWPL Loop-In Structure Proposed 138 kV Tower Major Road — Existing Access Road
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SDGE
Semptra Energy utility

INSIGNIA
ENVIRONMENTAL

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0 250 500 1,000 1,500 Feet

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02/23/2011

Attachment 4

ECO Substation Temporary and Permanent Footprint Map

Attachment 5
National Interagency Fire Council – Helicopter Operations
Guide, June 2009
Chapter 13 – Fueling Operations)

IHOOG



Interagency Helicopter Operations Guide

NFES 1885

June 2009

IHOG

Interagency Helicopter Operations Guide

NFES 1885
June 2009

The IHOG participating Agencies have developed this information for the guidance of their employees and are not responsible for the interpretation or use of this information by anyone except the participating agencies. The use of trade, firm or corporation names or illustrations of any particular product in this publication is for information and convenience of the reader and does not constitute an endorsement by the participating agencies of any product, service or aircraft make and model to the exclusion of others that may be suitable.

The agencies would like to acknowledge the assistance of the many product manufacturers, as well as the National fire Protection Association, the International Fire Service training Association, and the United State Department of the Army, who kindly furnished material used in the production of this document.





National Interagency Aviation Council
3833 South Development Avenue
Boise, Idaho 83705

June 3, 2009

To: IHOPs Steering Committee

Subject: IHOG

The IHOG and IHOG Supplemental Forms Package have been revised for new publication in May of 2009. All policy changes become effective at this time. Published hardcopies will be available in June 2009. Changes include revisions proposed by the IHOG Working Group, coordinated by the National Interagency Aviation Council, and approved by the U.S. Forest Service and the Department of the Interior. Some revisions to the IHOG were necessary to be compatible with changes made to the national helicopter contracts. Other revisions were based on proposals submitted by field personnel and agency program managers.

Additional or altered language for 2009 is noted with an arrow (→) at the beginning of each section that has been revised.

The IHOG is a dynamic document and will be reviewed again in 2012. Please forward suggested changes for the 2012 revision to the appropriate agency representative from the IHOG Working Group.

Publication as a cache item and placement on the NIFC Website is authorized. The forms package will be maintained in NFES 0660, Air Operations Branch Kit, and NFES 3521, Helicopter Support Kit, Box 2. The IHOG and IHOG Forms Package are available for downloading at <http://aviation.blm.gov/library>.

A copy of this memo will be included in the front of the IHOG.

Mark L. Bathrick
Associate Director
Aviation Management Directorate
National Business Center
U.S. Department of the Interior

NIAC Chair

Karyn Wood
Assistant Director, Operations
Fire and Aviation Management
U.S. Forest Service
U.S. Department of Agriculture

IHOG Revision 2009

Background

The IHOG Working Group met in March and November of 2008 to review and consolidate proposed revisions to the IHOG that were generated from the field and from user agencies at all levels. The process allowed almost a full year for the field to propose changes. Each proposal was analyzed and either approved or rejected. The IHOG Working Group was represented as follows:

- Dianne MacLean, FWS, Chair
- Carrie Vernon, NPS, Vice Chair
- Cameron Dingman, BLM,
- Bob Quirino, USFS
- Todd Couture, BIA
- Meg Gallagher, USDOJ/AMD

The IHOP Steering Committee reviewed and approved the proposed revisions in February, 2009.

- Vince Welbaum, USFS Chair
- Bryan Bitting, BLM
- Dave Underwood, BLM
- Arlyn Miller, AMD
- Chuck Taylor, USFS
- Mike Jefferies, FWS
- Kris Damsgaard, AMD
- Tom Monterastelli, NPS
- Dan Boyle, States

There is no revision summary included in this document, but each change is noted with an →.

Table of Contents

CHAPTER 1: INTRODUCTION

I. Objectives.	1-1
II. Scope.	1-1
III. Authority.	1-2
IV. → Participating Agencies.	1-2
V. Organization.	1-2
VI. Publication.	1-2
VII. Review and Revision.	1-2
VIII. Ordering and Distribution	1-3

CHAPTER 2: PERSONNEL

I. Introduction.	2-1
II. Qualifications, Certification, Currency and Experience.	2-1
A. Incident Helicopter and Helibase Management Positions.	2-1
B. Resource Helicopter and Helibase Management Positions.	2-1
C. → Specialized Helicopter Positions.	2-1
III. Helicopter Management.	2-4
A. Helicopter Manager.	2-5
B. Helicopter Flight Manager.	2-8
C. → Helicopter Crewmember (Both Fire and Resource Exclusive-Use and Call-When-Needed) (HECM).	2-9
D. Pilot.	2-9
IV. Helibase/Helispot Management.	2-11
A. Helibase Manager (HEB1 or HEB2).	2-11
B. Helispot Manager	2-14
C. Deck Coordinator (DECK).	2-15
D. Parking Tender	2-17
E. Loadmaster (Personnel or Cargo)	2-18
F. Takeoff and Landing Coordinator (TOLC).	2-19
G. Aircraft Base Radio Operator (ABRO).	2-19
H. Aircraft Timekeeper	2-20
I. Mixmaster - Retardant.	2-21
V. Specialized Positions.	2-22
A. Helicopter Aerial Ignition Positions.	2-22
B. Helicopter Rappel and Short-Haul Positions.	2-22
C. Law Enforcement Helicopter Positions.	2-22
D. Search and Rescue Helicopter and Helibase Positions.	2-23
E. Helicopter Coordinator (HLCO).	2-23
F. Military Helicopter Management.	2-24
G. Aerial Capture, Eradication, and Tagging Of Animals (ACETA) Helicopter Positions.....	2-24

CHAPTER 3: OPERATIONAL PLANNING.

I. → Introduction.....	3-1
II. Risk Management.....	3-3
A. Risk Management Principles.....	3-4
B. Time Element in Risk Management.....	3-5
C. Risk Management Process.....	3-6
D. Risk Assessment Tools.....	3-10
III. Types of Flight Missions.	3-16
A. Point-to-Point vs. Mission-Type Flight.	3-16
B. General Use (point to point) vs. Special Use.	3-17
IV. Specific Missions.....	3-18
A. Law Enforcement.	3-18
B. Search and Rescue.	3-18
C. Aerial Ignition.	3-18
D. Rappelling.	3-18
E. Shorthaul.	3-19
F. Aerial Capture, Eradication, and Tagging of Animals (ACETA).	3-19
G. Media.	3-19
H. External Load Operations.	3-19
I. End Product Contracts.	3-19
V. Project Flight Planning and Scheduling Process.	3-19

A.	Elements of the Process.	3-20
B.	Frequency of Completion.	3-20
C.	Aircraft Flight Request/Schedule Preparation.	3-21
D.	Manifest.	3-22
E.	Aircraft Capability and Selection Factors.	3-22
F.	Aircraft Cost-Comparison Analysis.	3-23
G.	Scheduling Aircraft with Vendors.	3-23
H.	Obtaining Approved Pilots and Aircraft.	3-24
I.	Obtaining Necessary Equipment.	3-24
J.	Analyzing Known Aerial Hazards.	3-24
K.	Airspace Coordination.	3-26
L.	Flight or Driving Time and Duty Day Limitations.	3-27
M.	Personal Protective Equipment (PPE) and Aviation Life Support Equipment (ALSE).	3-27
N.	Flight Following.	3-27
VI.	Fire Aircraft Aviation Safety Plans.	3-27
VII.	Pre-Flight Briefings.	3-27
VIII.	Post-Flight Evaluation.	3-27

CHAPTER 4: FLIGHT FOLLOWING, RESOURCE TRACKING, AND COMMUNICATIONS

I.	Introduction.	4-1
A.	Definition of Flight Following.	4-1
B.	Definition of Resource Tracking.	4-1
II.	Flight Following. ¹	4-1
A.	Identification of Flight Following Requirements.	4-1
B.	Methods of Flight Following.	4-2
C.	Documentation of Flight Following.	4-2
D.	Check-In Facilities.	4-2
E.	Check-In Requirements.	4-4
F.	Check-In Information.	4-4
G.	Failure to Meet Check-In Requirements.	4-5
III.	Resource Tracking.	4-5
IV.	Communications Requirements.	4-5
A.	General.	4-5
B.	Aircraft VHF-AM Radio.	4-6
C.	Aircraft VHF-FM Radio.	4-6
D.	Tones.	4-6
V.	Helibase Communications.	4-6
A.	General Considerations.	4-7
B.	Organization.	4-7
C.	Forms Utilized for Helibase Communications and Flight Following.	4-9
D.	Incident Communications Plan and Frequencies.	4-9
E.	Communication Requirements and Options.	4-11

CHAPTER 5: VENDOR PERSONNEL AND EQUIPMENT: APPROVAL AND CARDING.

I.	Introduction.	5-1
II.	Responsibility For Checking Carding or Approval Prior To Use.	5-1
III.	Pilot Qualification Card.	5-1
IV.	Helicopter Data Card. (See Exhibit 5-3.)	5-3
V.	Mechanic Qualification Card.	5-4
A.	USDA-FS Procedure.	5-4
B.	DOI Procedure.	5-4
VI.	Service Truck Data Card.	5-5
VII.	Aircraft Fuel Facility Inspection and Carding	5-5

CHAPTER 6: HELICOPTER CAPABILITIES AND LIMITATIONS

I.	Introduction.	6-1
II.	Helicopter Performance and Selection.	6-1
III.	Weight and Balance.	6-2
IV.	Day/Night Flight Limitations.	6-2
A.	Day Visual Flight Rules (VFR) Only.	6-2
B.	Authorization For Night-Flying Operations.	6-3
V.	Instrument Flight Rules (IFR) Flight Limitations.	6-4
VI.	Wind Restrictions.	6-4
A.	Flight Above 500' AGL.	6-4

B.	Flight Below 500' AGL	6-4
VII.	Snow Operations.	6-5
A.	Flight.	6-5
B.	Landings.	6-5
VIII.	Helicopter Flight Over Congested Areas.	6-5
IX.	Lockdown of Controls.	6-5
X.	Military Helicopter Limitations.....	6-6

CHAPTER 7: HELICOPTER LOAD CALCULATIONS AND MANIFESTS

I.	Introduction.	7-1
A.	Agencies Not Utilizing the Load Calculation.	7-1
B.	Cooperator (Civil) and Other-Government-Agency Helicopters.	7-2
C.	Military Helicopters.	7-2
D.	Restricted Category (Limited Use) Helicopters.	7-2
II.	Responsibility for Completion of Load Calculations.	7-2
A.	Pilot.	7-2
B.	Government Representative.	7-2
C.	Mutual Responsibility.	7-3
III.	Determining Load Capability Using Appropriate HIGE and/or HOGE Aircraft Performance Charts.....	7-3
A.	General Requirement.	7-3
B.	Specific Requirements.	7-3
IV.	Manifests	7-8

CHAPTER 8: HELICOPTER LANDING AREAS

I.	Introduction.	8-1
II.	Planning.	8-1
A.	Permanent Helibase.	8-1
B.	Temporary Helibases and Helispots.	8-2
III.	Selection of and Specifications for Temporary Helibases, Helispots, and Unimproved Landing Sites.	8-5
A.	Landings at An Unimproved Landing Site.	8-5
B.	Construction and Improvement.	8-6
C.	Recommended* Separation of Helicopters at Helibases	8-10
D.	General Locations For Helispots and Unimproved Landing Site.	8-11
E.	Surface Features and Requirements.	8-12
IV.	Required Equipment and Facilities.	8-14
V.	Markings for Aerial Identification.	8-16
A.	Helibases.	8-16
B.	Helispots.	8-16
VI.	Dust Abatement.	8-17
A.	Types and Methods.	8-17
B.	Hazardous Materials and Materials Safety Data Sheets (MSDS).	8-18
VII.	Procedures for Landings.	8-18
A.	Load Calculations.	8-18
B.	High-Level Reconnaissance.	8-18
C.	Areas to Avoid.	8-18
D.	Wind Direction.	8-18
E.	Reduction of Power.	8-19
F.	Pre-Exit Briefing.	8-19
G.	One-Skid, Toe-In, or Step-Out Landings.	8-19
H.	Tundra or Boggy Areas.	8-19
I.	Snow Landings.	8-19
VIII.	Helibase and Helispot Rehabilitation And Restoration.....	8-19

CHAPTER 9: EQUIPMENT REQUIREMENTS AND MAINTENANCE

I.	Introduction.	9-1
II.	Interagency Fire Helicopter Equipment Requirements.	9-1
III.	Personal Protective Equipment (PPE).	9-1
A.	Protective Head Gear.	9-4
B.	Hearing Protection.	9-4
C.	Eye Protection.	9-4
D.	Fire-Resistant Clothing.	9-4
IV.	Survival Equipment.	9-5

A.	Overwater Flotation and Survival Equipment.	9-6
B.	Overland Survival.	9-7
V.	Aircraft Equipment.	9-9
A.	Personnel Restraints, Seat Belts, and Harnesses.	9-9
B.	Emergency Locating Transmitter (ELT).	9-10
C.	Emergency Position Indicator Radio Beacon (EPIRB).	9-10
D.	Personal Emergency Locator Transmitter (P-ELT).	9-10
E.	Fire Extinguisher.	9-10
VI.	Crash-Rescue Equipment for Helicopter Landing Sites.	9-11
A.	Requirements for Fire Extinguishers, Evacuation Kits, and Crash-Rescue Kits at Helicopter Landing Sites.	9-11
B.	Crash-Rescue Kit.	9-11
C.	Evacuation Kit.	9-12
VII.	Standard Equipment for External Loads.	9-13
A.	Approval of Helicopters and Pilots for External Loads.	9-13
B.	Cargo Baskets and Racks.	9-13
C.	Cargo Hook.	9-13
D.	Swivel.	9-14
E.	Leadline.	9-15
F.	Longline with Remote Electric Hook ¹	9-17
G.	Multiple Remote Cargo Hook System (Carousel Hook) ²	9-18
H.	Cargo Net.	9-19
I.	Cargo Lift Bag.	9-21
J.	Rings, Links and Hooks.	9-22
K.	Buckets.	9-23
L.	Helicopter Fixed Tank.	9-25
VIII.	Specialized External Load Equipment.	9-25
A.	Barrel Hooks/Clamps.	9-25
B.	Chokers.	9-27
C.	Seed and Fertilizer Spreaders.	9-27
D.	Helitorch.	9-28
E.	Plastic Sphere Dispenser (PSD).	9-29
F.	Slingable Bags (Portable and Non-Portable Water, Fuel).	9-30
IX.	Ground-Based Tank Systems for Helicopter Dipping and Filling.	9-31
A.	Portable Auxiliary (Rigid) Water Tanks.	9-31
B.	Self-Supporting Open-Top ("Pumpkin") Water Tanks.	9-33
X.	Helicopter Manager's Kit.	9-34
XI.	Helibase Manager's Kit.	9-36
XII.	Recommended Standard Contract Helicopter Crew Support (Chase) Truck.	9-37
XIII.	Recommended Standard Equipment for Contract Helicopter Crew Support (Chase) Truck.	9-37

CHAPTER 10: PERSONNEL TRANSPORT

I.	Introduction.	10-1
A.	Authorized Passengers.	10-1
B.	Unauthorized Passengers.	10-1
C.	Essential Passengers.	10-1
D.	Carriage of Government Employees Aboard Restricted Category Helicopters.	10-1
E.	OMB Circular A-126 Requirements.	10-1
F.	News Media as Passengers.	10-2
II.	Qualified Personnel.	10-2
III.	Load Calculations and Manifesting.	10-2
IV.	Air Crew Member on Board During External Load Missions.	10-2
V.	Procedures for Transporting Personnel at Helibases or Helispots.	10-3
A.	Arrival of Personnel at the Helibase or Helispot.	10-3
B.	Manifesting Personnel.	10-3
C.	Other Considerations.	10-4
D.	Passenger Safety Briefings.	10-4
E.	Loading Procedures after Safety Briefing.	10-5
F.	In-Flight Precautions.	10-5
G.	Unloading Procedures.	10-6
VI.	Personnel Transport Using Military Helicopters.	10-6
A.	Incident Operations.	10-6
B.	Project Operations.	10-6

VII. Special Law Enforcement Operations.	10-7
VIII. Special Search and Rescue Operations.	10-7

CHAPTER 11: CARGO TRANSPORT

I. Introduction.	11-1
A. Longline Operations.	11-1
II. Qualified Personnel.	11-3
A. Ground Personnel.	11-3
B. Pilot Qualification.	11-3
III. Load Calculations and Manifesting.	11-3
IV. Air Crew Member on Board During External Load Missions.	11-3
V. Hazardous Materials Transport and Handling.	11-3
A. Exemptions.	11-3
B. Requirements.	11-4
C. Transport and Handling During Law Enforcement or Search and Rescue Operations.	11-4
VI. Cargo Transport with Military Aircraft.	11-4
VII. Cargo Preparation.	11-4
A. Pilot Approval.	11-5
B. Weighing.	11-5
C. Methods of Identifying Cargo Destinations.	11-5
VIII. Equipment Inspection.	11-6
IX. Cargo Inspection.	11-6
X. Establishing the Loading Area.	11-6
XI. Loading and Rigging Procedures.	11-7
A. Internal Cargo.	11-7
B. External Cargo Racks.	11-7
C. Proper Rigging Methods for External Cargo.	11-7
XII. Hookup Methods.	11-20
A. Preparation for the Hookup.	11-20
B. Hookup with Helicopter on the Ground.	11-20
C. Hover Hookup with No Leadline.	11-22
D. Hover Hookup with Leadline.	11-22
E. Hover Hookup with Longline and Remote Electric Hook.	11-23
XIII. General Requirements for External Load Missions.	11-25
A. Required Personnel.	11-25
B. Radio Communications.	11-25
C. Briefing.	11-25
D. External Load Operations.	11-28
E. Personal Protective Equipment.	11-28
F. Equipment.	11-29
G. Grounding.	11-29
XIV. Procedures for Hover Hookups.	11-29
A. General.	11-29
B. Longline and Longline with Remote Electric Hook Procedures.	11-31
XV. Cargo Letdown.	11-31
XVI. Cargo Freefall.	11-33
A. Required Personnel.	11-33
B. Criteria For and Situations When Cargo Freefall May Be Used.	11-33
C. Planning for the Drop.	11-33
D. Drop Procedure.	11-35

CHAPTER 12: FIRE PROTECTION AND CRASH-RESCUE

I. Introduction.	12-1
II. On-Site Accident Preparedness Planning.	12-1
III. Types of Emergencies.	12-4
A. In-Flight Emergency.	12-4
B. Fueling Area Emergency.	12-5
C. Helicopter Start-Up Emergency.	12-5
D. Approach-Departure or External Load Operations Emergency.	12-5
E. Other Hazards to Helicopters at Landing Sites.	12-6
IV. Classes of Fire.	12-7
A. Class A Fires.	12-8
B. Class B Fires.	12-8
C. Class C Fires.	12-8

D.	Class D Fires.	12-8
V.	Extinguishing Agents.	12-8
A.	Water.	12-9
B.	Foam. Aqueous Film Forming Foam	12-9
C.	Carbon Dioxide.	12-9
D.	Dry Chemical	12-9
E.	Halon.	12-10
F.	Dry Powder.	12-10
VI.	Requirements.	12-10
A.	Extinguishing Agent for Helicopter Landing Areas.	12-10
B.	Personal Protective Equipment.	12-10
C.	Emergency Tools and Equipment.	12-11
D.	Additional Crash-Rescue Resources at Helibases.	12-11
VII.	Strategy and Tactics.	12-12
A.	Strategy.	12-12
B.	Tactics.	12-12
VIII.	Preservation of the Accident Scene.	12-17

CHAPTER 13: FUELING OPERATIONS.

I.	Introduction.	13-1
II.	Responsibilities.	13-1
A.	Management.	13-1
B.	Employees.	13-1
C.	Fuel Vendors.	13-1
D.	Pilots.	13-1
III.	Fuel or Oil Pollution Prevention.	13-2
A.	Fuel Spill Prevention Guidelines and Requirements in Environmentally-Sensitive Areas.	13-2
IV.	Types Of Fuel.	13-2
A.	Aviation Gasoline (AVGAS).	13-3
B.	Turbine (Jet) Fuel.	13-3
V.	Requirements for and Methods of Identifying Types of Fuel.	13-3
A.	By Color.	13-3
B.	By Markings of Fuel Type and Grade.	13-4
VI.	Contamination Testing.	13-5
VII.	Fueling Hazards.	13-6
A.	Fuel Vapors.	13-6
B.	Ignition Sources.	13-6
VIII.	Safety Precautions.	13-8
A.	Grounding Requirements.	13-8
B.	Bonding Requirements and Procedures.	13-8
C.	Rapid Refueling.	13-10
IX.	Vendor Fueling Operations.	13-10
A.	Vendor Responsibility.	13-10
B.	Government Responsibility.	13-11
C.	Government Participation.	13-11
D.	Vendor Service Truck Requirements and Specifications.	13-11
E.	Fuel Servicing Vehicle Driver Qualifications:	13-13
X.	Government Fueling Operations.	13-13
A.	General Guidance and Requirements.	13-13
B.	Personnel Requirements at a Government-Operated Fueling Site.	13-13
C.	Personal Protective Equipment.	13-14
D.	Fueling Site Layout.	13-14
E.	Equipment Required.	13-15
F.	Equipment Setup.	13-15
G.	Equipment Checks.	13-16
H.	Inspections and Quality Control.	13-18
I.	Record Keeping.	13-20
XI.	Fuel Spills.	13-20
A.	Prevention.	13-21
B.	Mitigation Procedures in the Event of a Spill.	13-21
C.	Fuel Spillage on Personnel.	13-23

CHAPTER 14: HELICOPTER MAINTENANCE.

I.	Introduction.	14-1
----	---------------	------

II.	Inspection.	14-1
A.	All Procurements.	14-1
B.	Military Aircraft.	14-1
III.	Pilot Functioning as a Mechanic.	14-1
IV.	Pilot Performing Preventative Maintenance.	14-1
V.	Mechanic Approval.	14-1
VI.	Maintenance Ferry Flight.	14-2
VII.	Scheduled Maintenance.	14-2
A.	Duties Authorized to Be Performed by the Pilot.....	14-2
B.	Inspections or Maintenance Performed by the Mechanic.	14-3
VIII.	Unscheduled Maintenance.	14-4
IX.	Mechanic Subsistence and Travel	14-4

CHAPTER 15: HELIBASE AND HELISPOT MANAGEMENT AND OPERATIONS.

I.	Introduction.	15-1
II.	Coordination with Project Aviation Manager or Air Support Group Supervisor and Air Operations Branch Director.	15-2
III.	Helibase Briefing/Debriefing.	15-3
A.	Daily Helicopter Operations Briefing/Debriefing Checklist.	15-3
B.	Helibase Manager's Reminders List.	15-3
C.	Requirements and Recommendations.	15-3
D.	Briefing/Debriefing Schedule.	15-4
IV.	Planning and Site Selection.	15-5
V.	Helibase Personnel and Organization.	15-6
A.	Helibase Manager (HEB1 or HEB2).	15-6
B.	Takeoff and Landing Coordinator (TOLC).	15-7
C.	Aircraft Base Radio Operator (ABRO).	15-7
D.	Aircraft Timekeeper.	15-8
E.	Mixmaster.	15-8
F.	Deck Coordinator (DECK).	15-8
G.	Parking Tender.	15-8
H.	Loadmasters - Personnel and Cargo.	15-9
I.	Helispot Manager.	15-9
VI.	Helibase Setup and Layout.	15-9
A.	Time Frames.	15-9
B.	Obtaining Necessary Equipment.	15-10
C.	Facilities and Layout Considerations.	15-10
VII.	Helispot Considerations.	15-18
A.	Personnel and Organization.	15-18
B.	Establishing Helispots.	15-18
C.	Obtaining Necessary Equipment.	15-19
D.	Facilities and Layout Considerations.	15-20
VIII.	Communications.	15-20
IX.	Safety.	15-21
X.	General Planning, Information, and Organization Needs.	15-21
XI.	Operations.	15-21
XII.	Demobilization of Aircraft and Personnel.	15-21
XIII.	Rehabilitation.	15-21
XIV.	Demobilization and Deactivation of the Helibase.	15-22
XV.	Miscellaneous Considerations.	15-22
A.	Operations Involving Military Helicopters.	15-22
B.	Pilot Informational Needs.	15-22
D.	Helibase Manager Kit.	15-22
E.	Aviation Safety Assistance Teams/Safety and Technical Aviation Team (ASAT/STAT).....	15-23

CHAPTER 16: LAW ENFORCEMENT OPERATIONS

I.	Introduction.	16-1
II.	Personnel Duties and Responsibilities, Qualifications, Certification, and Training.	16-1
III.	Operational Planning.	16-1
A.	Types of Missions.	16-1
B.	Helicopter Rappelling And Short-haul.	16-2
C.	Use of the Incident Command System Aviation Structure.	16-2
D.	Aerial Supervision/Airspace Coordination.	16-2

IV. Flight Following, Resource Tracking, and Communications.	16-2
A. Grid Map Reference Check-ins.	16-2
B. Flight Following Through Another Agency.	16-2
C. Satellite Flight Following.	16-2
V. Personnel and Equipment Approval and Carding.	16-3
A. Non-Emergency Operations.	16-3
B. Emergency Operations.	16-3
VI. Helicopter Capabilities and Limitations.	16-3
VII. Helicopter Load Calculations and Manifests.	16-4
VIII. Helicopter Landing Areas.	16-4
IX. Equipment Requirements and Maintenance.	16-4
X. Personnel Transport.	16-4
A. Transport of Injured Officers.	16-4
B. Transport of Canines.	16-4
C. Transport of Prisoners.	16-4
XI. Cargo Transport.	16-5
A. Transport of Evidence.	16-5
B. Hazardous Materials.	16-5
XII. Fire Protection and Crash-Rescue.	16-6
XIII. Fueling Operations.	16-6
XIV. Helicopter Maintenance.	16-6
XV. Helibase and Helispot Management and Operations.	16-6
A. Helibase.	16-6
B. Helispots.	16-7
C. Overnight Security.	16-7
D. Fuel Truck.	16-7
XVI. Administration.....	16-7

CHAPTER 17: SEARCH AND RESCUE OPERATIONS

I. Introduction.	17-1
II. Personnel Duties and Responsibilities, Qualifications, Certification, and Training.	17-1
III. Operational Planning.....	17-1
A. Types of Missions.	17-1
B. Rappelling and Shorthaul Operations.	17-2
C. Use of the Incident Command System Aviation Structure.	17-2
D. Aerial Supervision/Airspace Coordination.	17-2
IV. Communications and Flight Following.	17-2
V. Personnel and Equipment Approval and Carding.	17-2
A. Emergency Operations.	17-2
B. Non-Emergency Operations.	17-3
VI. Helicopter Capabilities and Limitations.	17-3
VII. Helicopter Load Calculations and Manifests.	17-3
VIII. Helicopter Landing Areas.	17-3
IX. Equipment Requirements and Maintenance.	17-3
X. Personnel Transport.	17-4
A. Medical Transport of Patients.....	17-4
B. Transport of Canines.	17-4
XI. Cargo Transport.	17-4
XII. Fire Protection and Crash-Rescue.	17-4
XIII. Fueling Operations.	17-4
XIV. Helicopter Maintenance.	17-4
XV. Helibase and Helispot Management and Operations.	17-5
XVI. Administration.....	17-5

APPENDIX A: HELICOPTER MANAGEMENT FORMS AND CHECKLISTS 17-4

I. Introduction.	A-1
II. Applicability.	A-1
III. Helicopter Management (HCM) Forms.	A-4
A. Aircraft Contract Daily Diary (HCM-1).....	A-4
B. Helicopter and Service Truck Pre-Use Checklist (HCM-2).....	A-6
C. Aircraft Fuel Facility Inspection Log (HCM-3).....	A-8
D. Helicopter Turbine Engine Power Check (HCM-4).....	A-10

E.	Helicopter Turbine Engine Power Trend Analysis	
	Chart (HCM-5).....	A-13
F.	Helicopter Information Sheet (HCM-6).....	A-15
G.	Helicopter Crew Information Sheet (HCM-7).....	A-17
H.	Helicopter Load Calculation (HCM-8).....	A-19
I.	→ Interagency Helicopter Passenger/Cargo Manifest.....	A-24
J.	Helicopter Load Capability Summary- Multiple Helispots (HCM-10).	A-27
K.	Aircraft Dispatch Form HCM-11 (NFES-2657)	A-29
L.	Pilot Flight Time/Duty Day Cumulative Log (HCM-12), Driver (Helicopter Attendant) Driving Time/Duty Day Cumulative Log (HCM-13), and Mechanic Duty Day Cumulative Log (HCM-14).	A-31
M.	Helicopter Daily Use and Cost Summary (HCM-17).	A-35

APPENDIX B

I.	Introduction and Purpose.	B-1
II.	Applicability.	B-1
III.	Helibase Management (HBM) Forms.	B-4
	A. Helibase Organization Chart (HBM-1).....	B-4
	B. Aviation Locations Summary (HBM-2).	B-6
	C. Helibase Aircraft Information Summary (HBM-3)	B-8
	D. Allowable Payload Chart (HBM-4)	B-10
	E. Helibase Flight Following Log (HBM-5).	B-12
	F. Flight Hour Tracking (Multiple Helicopters) (HBM-5A).....	B-14
	G. Helibase Mission Request Log (HBM-6).....	B-16
	H. Helibase Daily Use and Cost Summary (HBM-7)	B-18
	I. Helibase Communications Plan (HBM-8)	B-20
	J. Helicopter Demobilization Information Sheet (HBM-9)	B-22
	K. Helicopter Flight Schedule (HBM-9A)	B-24
	L. Helibase Diagram (HBM-10).....	B-26
	M. Helibase Cumulative Cost Summary (HBM-11)	B-28
	N. Helitack Crew Performance Rating (HBM-12) and Helibase Personnel Performance Rating (HBM-13).....	B-30
	O. Two for One CWN Mgt and/or Standard to Limited Request (HBM-14).....	B-33

APPENDIX C

I.	Introduction.	C-1
II.	Emergency Response Preparedness Plan.....	C-1
	A. Local Unit Responsibility.	C-1
	B. Helibase Manager Responsibility.	C-1
III.	Emergency Response Procedures.	C-2
IV.	Incident, Hazard, And Accident Reporting.	C-2
	A. Definitions.	C-2
	B. Procedure For Utilizing Agency Forms.	C-4
V.	HJA-4 Crash Rescue/Medivac/Evacuation Plan (See Exhibit C-2.).....	C-7
	A. Purpose.	C-7
	B. Applicability.	C-7
	C. Responsibility and Instructions for Completion.	C-7
	D. Routing and Filing.	C-7
	E. Posting.	C-7
	F. Related forms.	C-7
IV.	Air Operations Base Crash Rescue Organizational Chart.....	C-10
V.	Crash Rescue Duties and Responsibilities	C-11
VI.	Accident Response at Helibase.....	C-12
VII.	Accident Response Away from Helibase	C-13
VIII.	Helibase Medivac and Medical Transport Plan.....	C-15
IX.	Night time Medivac Plan.....	C-16
X.	Helibase Burnover and Emergency Evacuation Plan.....	C-17
XI.	Emergency Rescue Information (HJA-4A).....	C-18
	A. Purpose.	C-18
	B. Applicability.	C-18
	C. Responsibility and Instructions For Completion.	C-18
	D. Posting.	C-18
	E. Routing and Filing.	C-18
	F. Related Forms.	C-18
VII.	Emergency Medivac/Medical Transport Request (HJA-4B) (See Exhibit C-4.).....	C-20

A. Purpose.	C-20
B. Applicability.	C-20
C. Responsibility and Instructions For Completion.	C-20
D. Posting.	C-20
E. Routing and Filing.	C-20
F. Related Forms.	

APPENDIX D: CONTRACT ADMINISTRATION; AGENCY FLIGHT PAYMENT DOCUMENTS

I. Contract Administration.....	D-1
A. Introduction.	D-1
B. Contract File.	D-1
C. Types Of Contracts.....	D-1
D. Authority of Government Personnel.	D-2
E. Disputes with Vendors.	D-2
F. Generic Duties and Responsibilities of Contracting Personnel.	D-2
II. Flight Payment Forms and Instructions.	D-7
A. → Services Ordered and Received by the US Forest Service.....	D-7

APPENDIX E: HELITACK CREW AND HELIBASE PREPAREDNESS REVIEW

I. Introduction.....	E-1
II. Purpose.....	E-1
III. Applicability.....	E-1
IV. Responsibility and Instructions for Competition.....	E-1
V. Routing and Filing	E-1

APPENDIX F: DAILY HELICOPTER OPERATIONS

BRIEFING/DEBRIEFING CHECKLIST. (HJA-1)

I. Purpose.	F-1
II. Applicability.	F-1
III. Responsibility and Instructions for Completion.	F-1
IV. Posting	F-2
V. Routing and Filing	F-2
VI. Related Forms	F-2

APPENDIX G: “Reserved”

APPENDIX H: HELIBASE MANAGER’S REMINDERS LIST (HJA-2)

I. Purpose.	H-1
II. Applicability.	H-1
III. Responsibility and Instructions for Completion.	H-1
IV. Posting.	H-1
V. Routing and Filing.	H-1
VI. Related Forms.....	H-1

APPENDIX I: REMOTE FUEL SITE REMINDERS LIST (HJA-3)

I. Purpose.	I-1
II. Applicability.	I-1
III. Responsibility and Instructions for Completion.	I-1
IV. Posting.	I-1
V. Routing and Filing	I-1
VI. Related Forms	I-1

APPENDIX J: → Risk Management Tools

APPENDIX K: AVIATION PUBLICATION AND HELICOPTER OPERATIONS ORDERING LIST

I. Introduction.	K-1
II. Reference Publications.	K-1
A. Code of Federal Regulations (CFRs).	K-1
B. Agency Aviation Manuals and Handbooks.	K-1
C. Interagency Helicopter Operations Guide.	K-2
D. Aviation Transport of Hazardous Materials Guide.	K-2
E. Interagency Call When Needed Helicopter Contract.	K-3

F.	Federal Aviation Regulations and Airman's Information Manual (FAR/AIM).	K-3
G.	National Fire Equipment System (NFES) Catalog, Part 1: Fire Supplies and Equipment, and Part 2: Publications.	K-3
H.	Wildland Firefighters Frequency Guide.	K-3
I.	Sectional Aeronautical Charts.	K-3
J.	Aviation Information Resource (AIR) Library.....	K-3
III.	Helicopter Operations Ordering List.....	K-4

APPENDIX L: "Reserved"

APPENDIX M: CRASH-RESCUE DIAGRAMS

CHAPTER 13: FUELING OPERATIONS.

I. Introduction.

Fueling operations, whether conducted by government or vendor personnel, have the potential to result in environmental damages or catastrophic accidents.

It is the responsibility of all personnel, both vendor and government, to ensure that fueling operations are conducted in accordance with procurement document specifications, agency fueling directives, and all other applicable local, state, and federal regulations. Special attention must be paid to federal, state, and local hazardous materials regulations and to agency-specific fuel spill avoidance requirements.

Chapter 15, Helibase and Helispot Management and Operations, contains guidance on location of fueling operations. Appendix I, Remote Fuel Site Reminders List, is a job aid that can be utilized by Helibase Managers and Fueling Specialists.

II. Responsibilities.

A. Management.

Agency heads are ultimately responsible for the management and effective implementation of a Fuel Quality Control Program within their respective agency. Supervisors and managers at all levels are responsible for the safe delivery of uncontaminated fuels during aviation operations under their jurisdiction or control. Within this responsibility is the practical requirement to provide safe working conditions, prevention of injury to persons, and the protection of property.

B. Employees.

To enhance safety, employees of participating agencies who become aware of any fuel-related mishaps (for example, fuel spills, fires, damage to aircraft or fueling facilities or vehicles, incorrect fueling of aircraft, incorrect fuel put in an aircraft, etc.) should report such occurrences utilizing the agency incident/hazard report. Where imminent danger situations exist, the operation should be suspended immediately.

C. Fuel Vendors.

Vendors conducting business for the transportation, storage or dispensing of aviation fuels, including into-aircraft operations, shall adhere to the provisions and specifications for such operations as provided within the procurement document. For the most part, all such operations shall be in accordance with the standards and procedures specified in applicable American National Standards Institute (ANSI) or National Fire Protection Association (NFPA) publications.

D. Pilots.

The Pilot is personally responsible for ensuring that the proper type and grade of clean, dry fuel is pumped into the aircraft.

III. Fuel or Oil Pollution Prevention.

General Environmental Protection Agency (EPA) Requirements. Agencies must be cognizant of the Environmental Protection Agency's (EPA) regulations found in 40 CFR 112.

Regardless of the size or location of an operation, it is necessary that an assessment be made to determine whether or not provisions of the regulations are applicable.

Basically, the criteria is if it can be reasonably expected that a discharge of fuel or oil will enter navigable waters, a facility is subject to the regulations. These regulations require the preparation and implementation of a Spill Prevention Control and Countermeasure (SPCC) Plan. Exceptions to this requirement are:

- Aboveground facilities having a total aboveground storage capacity of 1,320 gallons or less of fuel, provided no single container has a capacity in excess of 660 gallons.
- Underground facilities having a total storage capacity of less than 42,000 gallons.

Agencies are encouraged to contact their local EPA office for detailed information concerning these regulations.

A. Fuel Spill Prevention Guidelines and Requirements in Environmentally-Sensitive Areas.

Check with the local aviation manager for additional fuel spill prevention guidelines and requirements in place for various geographic locations due to local or national environmental concerns and constraints.

Prior to the start of a project or upon arrival at an incident, the air operations staff should consult with the local Resource Advisor regarding any restrictions that may apply.

Restrictions may include, but are not limited to:

- Locating fueling sites at predetermined locations, occasionally at some distance from the helibase. Since this may have a significant impact on operations, additional planning and helicopters may be required.
- Prohibitions on fuel vehicles traveling on certain roads (usually adjacent to streams and rivers).
- Requirements for containment dikes around fueling pads.
- Proper containment and disposal of fuel samples.

IV. Types Of Fuel.

There are currently two categories of aviation fuel in use: aviation gasoline, commonly called AVGAS, and turbine or jet fuel.

A. Aviation Gasoline (AVGAS).

Aviation gasolines are used in reciprocating engine-powered helicopters. There are currently three grades of aviation gasoline in use:

- 80/87
- 100 Low Lead (100 LL)
- 100/130

B. Turbine (Jet) Fuel.

Aviation turbine fuels are used to power turboprop, turbojet, and turboprop aircraft engines. There are two types of turbine fuel in use:

- A kerosene base (Jet A, Jet A-50, JP-8, and Jet A-1)
- A blend of gasoline and kerosene (Jet B and JP-4)

Most commercial operators use Jet A or Jet A-50. The military normally uses JP-4 and JP-8. The specifications for JP-8 are similar to Jet A except that JP-8 has required additives for anti-icing, corrosion inhibitor, and anti-static.

V. Requirements for and Methods of Identifying Types of Fuel.

A. By Color.

If sample is not the right color, suspend the operation immediately. The following colors are indicative of the type of fuel:

Aviation Gasoline			Turbine Fuel
80/87	100 Octane Low Lead	100/130	(Jet A, Jet A-50, Jet A-1, Jet B, JP-4, and JP-8)
Red	Blue	Green	Clear or straw-colored

➔ **WARNING:** The Environmental Protection Agency (EPA) and Internal Revenue Service (IRS) have required that certain types of high and low sulphur diesel are colored blue and red. Aviation grade 100 LL (low lead) and 80/87 fuels are also colored blue and red respectively. The potential exists for a supplier to furnish diesel fuel instead of 100 LL. The FAA has issued a Notice to Airmen (NOTAM) and a special alert bulletin to pilots warning of the color conflict.

B. By Markings of Fuel Type and Grade.

In addition to coloring fuels, a marking and coding system has been adopted to identify the various fuel handling facilities, pieces of equipment, containers, inlet-outlet joints, and aircraft fuel filler openings according to the type and grade of fuel they contain.

1. Fuel Servicing Vehicles. Each aircraft fuel servicing vehicle shall be conspicuously and legibly marked with an identification decal to indicate the product contained in the vehicle. The markings shall be on each side and the rear of the fueler tank in letters at least 3" high. Vehicles must be marked as follows:
 - JET A - Combustible
 - JET B - Flammable
 - AVGAS - Flammable

Decal color markings are as follows:

Aviation Gasoline			Turbine Fuel
80/87	100 Octane Low Lead	100/130	(Jet A, Jet A-50, Jet A-1, Jet B, JP-4, and JP-8)
White Letters On A Red Background	White Letters On A Blue Background	White Letters On A Green Background	White Letters On A Black Background

2. Valves and Piping at Permanent Storage Facilities. Valves, loading and unloading connections, switches, and other control equipment shall be color-coded to identify the grade and type of fuel they control. The fuel in piping is identified by name and by painted color bands, or a decal placed around the pipe at intervals along its length.
3. Hose Lines. Hose lines shall be marked by decals or labeled adjacent to the nozzle to indicate the type of fuel dispensed. Reference the API Bulletin footnoted below.
4. Portable Storage Facilities - Containers.
 - a. Bulk Collapsible Tanks (Bladders and Rollagons). Large fixed collapsible tanking facilities, as well as their accessory fueling lines and equipment, shall be marked or decal attached in accordance with the requirements for fuelers in Section V.B.1.
 - b. 250- and 500-Gallon Collapsible Rollagons. Each end of a rollagon shall be marked in letters at least 4" high with the type and/or grade of fuel in the container.
 - c. 55-Gallon Barrels. The top head or sides of a 55-gallon barrel shall be marked in letters no smaller than 3/4" with the type and/or grade of fuel, filling date, vendor, and any other pertinent information.

REMINDER: Agency authorization is required for use of 55-gallon fuel barrels.

- d. 5-Gallon and Smaller Containers. All containers shall be marked with the type and/or grade of fuel contained in the container. In many cases the 5-gallon containers are marked by the fuel manufacturer.

➔ CAUTION: Portable plastic containers should be used only when refueling is necessary and no alternative exists. If using portable plastic containers, an approved funnel capable of separating water and contaminants, along with bonding capabilities is required.

5. Aircraft. Various FAR's require that aircraft fuel filler openings be marked to show the word "FUEL," the minimum fuel grade or designation for the engine(s), and the tank capacity. In order that these markings retain their effectiveness, they should be kept fresh and clean.

VI. Contamination Testing.

The "Clear and Bright" (Dry) Sampling Test should be utilized by either the vendor or, if government-operated fueling operation, by trained government personnel. This test involves the following steps, in order:

- Collect fuel sample in a clean clear 1-quart glass jar and swirl. Samples are collected from tank and nozzle.
- Check color against the background of the sky. If water is present, free water (water not in solution) will separate and lay in the bottom of the jar.
- Swirl the contents of the jar. Any free water and/or water in solution will cause the color to become cloudy.

IMPORTANT NOTE: If fuel is found or suspected to be contaminated, suspend all operations immediately (including those of other aircraft that may have been fueled from the same source) and contact agency aviation safety representatives.

- If water is detected in the tank sample, sump and continue to test until no more water is detected in sample jar. Do not allow helicopter fueling until the sample is free of contamination.
- If water is detected in the nozzle sample, suspend the operation immediately.
- Particles in the sample can also be visually identified.
- If particles appear in the tank sample, sump tank until sample is clean.

- Do not use fuel if any nozzle sample indicates:
 - Wrong color, not clear or bright
 - Particulates are present
 - Water is present

VII. Fueling Hazards.

➔ When service personnel fuel a helicopter, they transfer extremely combustible liquids from a storage or transportation vessel to the fuel tank(s) of a helicopter. Such operations are hazardous if the proper procedures are not followed.

Servicing personnel should follow servicing instructions and use the proper equipment in accordance with established operating procedures.

While fueling aircraft is not unusually hazardous under normal conditions, certain other conditions may increase the hazard. Fueling personnel should be aware of the potential problems caused by fuel vapors in the presence of ignition sources such as static electricity, certain weather conditions, electromagnetic energy, and open flames.

They should also be aware of other conditions that introduce additional sources of ignition and/or increase the likelihood of fuel or fuel vapors escaping.

A. Fuel Vapors.

Fuel vapors create potentially hazardous situations, so fuelers must be sure to follow prescribed procedures.

When fuel is transferred into an aircraft tank, the incoming fuel forces fuel vapors out through tank vents, with an explosive vapor-air mixture formed in the vicinity of the operation. At some point, the escaping fuel vapors will be within explosive limits, depending upon atmospheric conditions and the type of fuel involved.

WARNING: Because AVGAS has a flash point of about -50° F, sufficient vapors are liberated to produce a flammable vapor-air mixture under almost all conceivable atmospheric conditions. All that is needed to cause a fire or explosion is a source of ignition.

Additionally, because the rate of vapor generation increases as the temperature of the fuel increases, the risk of fire or explosion increases when atmospheric temperatures rise. Because fuel vapors are heavier than air, they will settle to the ground and accumulate in ditches, pits, or other depressions and may travel great distances before coming into contact with an ignition source.

B. Ignition Sources.

In any area in which aircraft are parked or operating, there are numerous ignition sources that may ignite fuel vapors. These sources include static electricity (such as that caused

by low-conductivity liquids, refueling vehicles, and clothing), adverse weather conditions (lightning), electromagnetic energy (radar), and open flames.

1. **Static Electricity.** Static electricity is more difficult to control than any other ignition source. The mechanism responsible for this phenomenon is complex, and there are many variables that may increase and decrease the amount of energy generated. Static charges may exceed 50,000 volts and may produce sufficient energy to cause an explosion above the liquid surface fuel.

When low-conductivity liquids, such as hydrocarbon fuels, flow through a piping system, they tend to become electrostatically charged. Refueling vehicles have developed measurable electrostatic charges exceeding 50,000 volts during filling operations. This high voltage is partially a result of the insulating effect of the vehicle's rubber tires. To eliminate this insulating effect, the refueling vehicle must be properly bonded to the helicopter during these operations.

During windy conditions, the movement of dust particles and air currents may cause parked helicopter and refueling vehicles to develop larger-than-usual charges of static electricity.

CAUTION: Personnel should exercise caution when there are thunderstorms or electrical storms in the vicinity. The energy generated by these natural phenomena may ignite flammable fuel vapors.

When the atmosphere is unusually dry, certain fabrics are notorious for accumulating a static charge. Therefore, personnel who operate refueling vehicles should avoid wearing materials made of polyester, nylon, rayon, silk, or wool when working in cold, windy weather.

2. **Electromagnetic Energy.** Transferring fuels is hazardous within 300 feet of the source of electromagnetic energy such as that created when high-powered radar operates. However, portable and mobile radio equipment may be used safely beyond 10 feet from fuel filler openings and/or vents.
3. **Open Flames.** Open flames should be strictly controlled or prohibited in aviation operations areas or within 50 feet of any aircraft fueling operation. Open-flame devices include:
 - Lighted smoking materials of any type.

NOTE: "No Smoking" signs should be posted at all entrances to fueling areas. At remote sites (off-airport), pennant-type flagging or other barrier should be utilized when a single-use fueling area is established.

- Exposed-flame heaters whether liquid, solid, or gas-fired devices, including portable and wheeled gasoline or kerosene heaters and open-element electric heaters.

- Welding and cutting torches and blowtorches.
 - Grinding equipment, either portable or stationary.
 - Flare pots or other open-flame lights.
4. Other Conditions. There are other normal and accepted fueling operations that are hazardous and may require additional safety precautions. Some of these operations are:
- Defueling an aircraft that requires fuel to be drained into open drums or containers.
 - Defueling an aircraft that requires an auxiliary power unit or the aircraft engine(s) to be operating during the defueling.
 - Servicing an aircraft fuel system that has undergone maintenance but has not been functionally tested before being serviced.
 - Fueling an aircraft or using systems with which servicing personnel are not thoroughly familiar.
 - Performing other potentially hazardous operations, such as maintenance, power plant operation, and energizing the aircraft electrical system, while the aircraft is being fueled/defueled.

VIII. Safety Precautions.

Aircraft batteries, battery chargers, or other electrical equipment should not be connected, disconnected, or operated during fuel servicing. Radios and electronic flash equipment should not be operated with 10 feet of fueling equipment or of the fill or vent points of the aircraft.

A. Grounding Requirements.

The National Fire Protection Association (NFPA) no longer recommends grounding aircraft during refueling operations. Due to the particular difficulty involved in grounding helicopters at off-airport sites, the recommendation of NFPA (not to require grounding) should be followed by participating agencies.

Grounding may still be required procedure at military or civilian airports or by military helicopter crews. Therefore, grounding should be accomplished when required by local regulation.

B. Bonding Requirements and Procedures.

(See Figure 13-1) Bonding involves connecting two or more metallic objects together by means of a conductor that equalizes the electrostatic potential between the objects. Although some fuels being used in aircraft have additives that inhibit static electricity generation, bonding aircraft to the fuel nozzle is required safe practice.

Interagency Helicopter Operations Guide - June 2009
Chapter 13

1. Pre-Bonding Inspection. Check condition of the bonding cable and plug. Procurement document language will usually state required bonding equipment condition.
2. Connecting the Bond. Refer to Exhibit 13-1. Bonding must be performed as follows, in order (omit grounding steps if not required):
 - Bond the fuel source to a grounding rod (if available and required).
 - Bond the helicopter to the grounding rod (if available and required).
 - Bond the fuel source to the helicopter.
 - Bond the fuel nozzle to the helicopter prior to opening the fuel port.
3. Disconnecting the Bond. Disconnect the bond in reverse order (omit grounding steps if not required):
 - Disconnect the fuel nozzle bond from the helicopter after closing the fuel port.
 - Disconnect the fuel source bond from the helicopter.
 - Disconnect the helicopter from the grounding rod (if used).
 - Disconnect the fuel source from the grounding rod (if used).

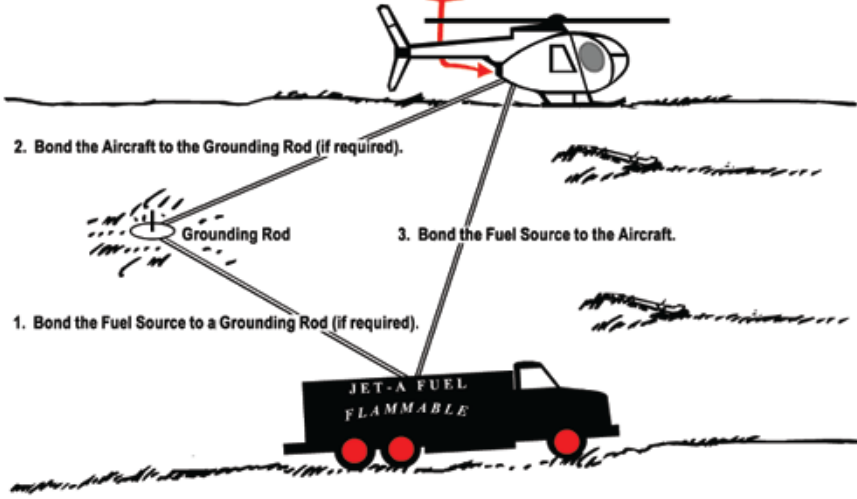
Exhibit 13-1: Correct Bonding Procedure

4. Bond the Fuel Nozzle to the Aircraft prior to opening Fuel Port.

2. Bond the Aircraft to the Grounding Rod (if required).

1. Bond the Fuel Source to a Grounding Rod (if required).

3. Bond the Fuel Source to the Aircraft.



(Perform Steps 1-4 in REVERSE Order When Finished Fueling)

NOTE: Bonding to grounding rod may not be required.

C. Rapid Refueling.

Hot refueling of helicopters is permitted if requested by the Government.

Review the procurement document for requirements prior to any hot refueling operations.

Government personnel shall not refuel Contract aircraft unless the pilot requests Government assistance due to an emergency situation; or when the Government provides the fuel servicing system and dispensing personnel.

IX. Vendor Fueling Operations.

A. Vendor Responsibility.

Vendors are responsible for maintaining equipment and conducting refueling operations in accordance with the procurement document and, when appropriate and when not in conflict with the procurement document, in accordance with the safety procedures stated in this guide.

B. Government Responsibility.

The government representative (for example, the Helicopter Manager, Helibase Manager) is responsible for ensuring that:

- Vendor equipment meets specifications and is correctly maintained in accordance with the procurement document; and
- Fueling operations are conducted in accordance with the procurement document and, when appropriate and when not in conflict with the procurement document, in accordance with the safety procedures stated in this guide.

C. Government Participation.

The government shall not participate in vendor fueling operations. Personnel shall maintain a distance of at least 50 feet from the fueling site until such time as the operation is completed. A "fire guard" (for example, a Parking Tender with fire extinguisher) may be posted at the edge of this 50-foot safety circle.

D. Vendor Service Truck Requirements and Specifications.

It is essential that the government representative ensures that all fueling operations involving a service truck are conducted in accordance with the procurement document. The following is provided as a guide only. For specific requirements, each individual procurement document must be consulted. Procurement documents usually contain the following requirements.

- An approved service truck is provided with each helicopter.
- The service truck is suitable for and capable of handling the terrain encountered (e.g. mountainous roads).
- The service truck meets the licensing criteria of each individual state in which they travel. This requirement can result in delays in arrival of the service truck if not anticipated in advance.
- For fire, the service truck tank capacity is usually required to be able to sustain 8 hours of flight (14 hours when a two or more Pilot crew is required). For projects, this requirement may be adjusted according to local need.
- The service truck is properly maintained, clean and reliable. Tanks, plumbing, filters, and other required equipment should be free of rust, scale, dirt, and other contaminants. A trailer used for storage and transport of fuel is usually required to have an effective wheel braking system.
- Spare filters, seals, and other components of the service truck filtering system are stored in a clean dry area. (A minimum of one set is usually required.)
- All tanks are securely fastened to the truck bed and has a sump or sediment settling area of adequate capacity to provide uncontaminated fuel to the filter.

Interagency Helicopter Operations Guide - June 2009
Chapter 13

- A 10-gallon-per-minute filter and pump is usually the minimum size acceptable. Filter and pump systems sizes should be compatible with the helicopter being serviced.
- The filter manufacturer's Operating, Installation and Service Manual is available with the service truck.
- Gasoline engine driven pumps have a shielded ignition system and a spark arrestor.
- Tanks erected for above-ground storage and tanks mounted on trucks are equipped with a sump drain valve at the lowest point.
- Only hoses designed for dispensing of fuel should be used. Hoses should be kept in good repair.
- The fuel nozzle should include a 100-micron or finer screen, a dust protective device and a bonding clip or plug. Except for Wiggin closed-circuit nozzles, no hold-open devices be permitted.
- An accurate fuel metering device for registering quantities in U.S. gallons of fuel pumped is provided. The meter shall be positioned in full view of the fuel handler while fueling the helicopter.
- The service truck has bonding cables, and, when required, grounding cables.
- Fire extinguisher is mounted in a manner to make it readily available at all times.
- Fire extinguishers should be provided as specified in the procurement document and in accordance with NFPA 10, Standards for Portable Fire Extinguishers.
- Each fuel servicing vehicle should have "NO SMOKING" signs with 3-inch minimum letters visible from both sides and rear of truck.
- Each vehicle be conspicuously and legibly placarded and marked according to the requirements in Section V.B to indicate the nature of the fuel.
- The first and third stage elements of a three-stage system and the elements of a single-stage system should be new and installed by the contract start or during the annual inspection; the separator element (teflon screen) of the three-stage system should be inspected and tested as prescribed by the manufacturer during the inspection; and the filter assembly must be placarded with that data.
- For three-stage filters, the bottom of the filter assembly should be mounted to allow room for at least a quart size jar to be inserted under the drain for draining and pressure flushing of the unit or may be drained overboard clear of the truck wheels and exhaust system; water sight gauge balls be visible.

- Depending on whether the system is a single- or three-stage (coalescer, water separator, monitor) systems, specific pumps and monitor systems are usually specified.

E. Fuel Servicing Vehicle Driver Qualifications:

Fuel servicing vehicle drivers shall comply with Department of Transportation Safety Regulation Part 390-399, and any duty limitations imposed by the helicopter procurement document (contract). Refer to the appropriate procurement document for specific requirements.

X. Government Fueling Operations.

There are situations, especially in Alaska, where the government is responsible for supplying fuel and a government-operated fueling operation must be set up to accommodate refueling needs. There may be other situations where the government, though not responsible for supplying fuel, must do so. An example would be an incident so remote, or where helibases have no road access, that the government is supplying fuel via aerial delivery.

A. General Guidance and Requirements.

- Prior to the start of operations, the manager of the refueling site (for example, Fueling Specialist) may utilize the Remote Fuel Site Reminders List in Appendix I to ensure that operations are set up and are being conducted correctly. Parts of the Reminders List may also be used by Helibase Managers to correctly locate fueling pads and to monitor vendor refueling operations.
- Minimizing ground time of both the helicopter and of the service truck in close proximity to other helicopters in the refueling area or on the helibase is important to minimize exposure and risk.
- Refer to Aviation Fuel Management Handbook for additional information.

B. Personnel Requirements at a Government-Operated Fueling Site.

The following personnel are required on a government operated fueling site:

- Two people are required to conduct the actual refueling of the aircraft (one may be the Fueling Specialist). One person operates the fuel nozzle; the other is required to be near the emergency fuel shutoff valve.
- Depending on the size of the operation, the fueling operation may also require the following:
- An Aircraft Base Radio Operator
- A Parking Tender

C. Personal Protective Equipment.

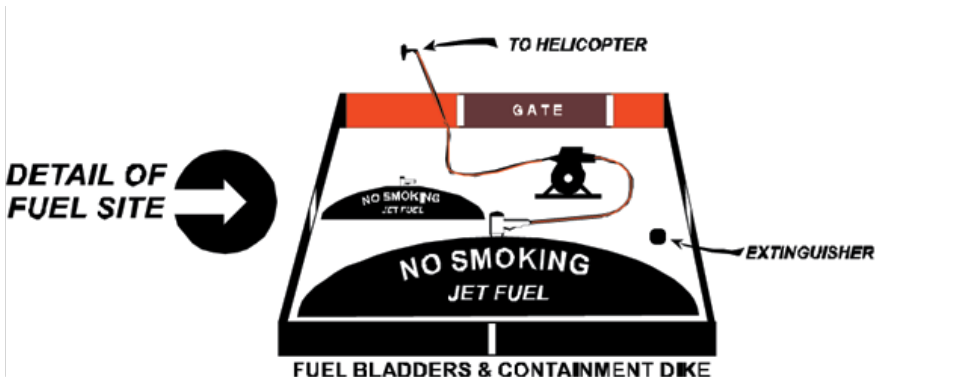
Government fuelers shall wear protective clothing as required in Chapter 9.

D. Fueling Site Layout.

Fueling sites should be laid out according to the following general guidelines: (See Aviation Fuel Management Handbook for additional information)

- The fueling site should be separate from the main area of helicopter operations.
- There should be a minimum of 140 ft separation between Type 1 helicopters if the aircraft are parked nose to tail and 200 ft of separation if parked side by side.
- There should be a minimum of 90 feet of separation between aircraft for Type 2 or 3 helicopters.
- The fueling equipment at a fixed fueling site (pump, fuel source) should be at least 25 feet outside the rotor disk of the nearest helicopter.
- The wind direction must be considered when setting up refueling points. Landing and takeoff directions must be selected to provide a direct or quartering head wind.
- Fueling activities generate a considerable amount of vapor. Because the vapor is an explosive hazard, the fueling activity should be situated to allow vapors to be dispersed by the prevailing wind.

Exhibit 13-2: Government Fueling Site Layout



E. Equipment Required.

Equipment at the typical fueling site consists of the following:

- A fuel source, which may consist of 55-gallon drum(s), three 500-gallon collapsible fuel bladders, permanent or temporary tanks, or a fuel tanker.
- Pump Assembly.
- Filter and separator unit. The filter and the separator must be compatible with the pump assembly.
- Hoses, fittings, valves and nozzles. Enough equipment must be available to support the refueling setup that is envisioned; for example a one-point, two-point, three-point or four point set-up.
- Support equipment. This equipment will include items such as fire extinguishers, grounding rods, waste pans, five gallon containers of water, and absorbent material.
- Fuel sampling kit.
- Fire extinguishers should be located at each refueling nozzle and at the pump and filter assembly.
- A waste fuel pan should be located at each refueling point to wash dirt off the nozzles. The waste fuel pan or barrel is required to limit fuel spillage. Fuel spills should be handled according to the procedures outlined later in this chapter.

F. Equipment Setup.

1. Distances.

- As stated, the fueling equipment (pump, fuel source) should be at least 25 feet outside the rotor disk of the nearest helicopter.
- The fuel source should be downwind of the aircraft exhaust to reduce the explosion hazard.

2. Pump Assembly

- The pump assembly and filter separator must be properly grounded and checked for leaks before operation.
- Fittings should be properly sealed and free of cracks.
- Sandbags should be used to elevate the fittings to facilitate pre-operational checks and detection of fuel leaks.
- Hose clamps should be checked for proper fit.

- All shutoff valves should be serviceable and properly in place.

G. Equipment Checks.

These checks should be made for fueling operations conducted by the government. Some, but not all, may be applicable per the procurement document for vendor fueling operations.

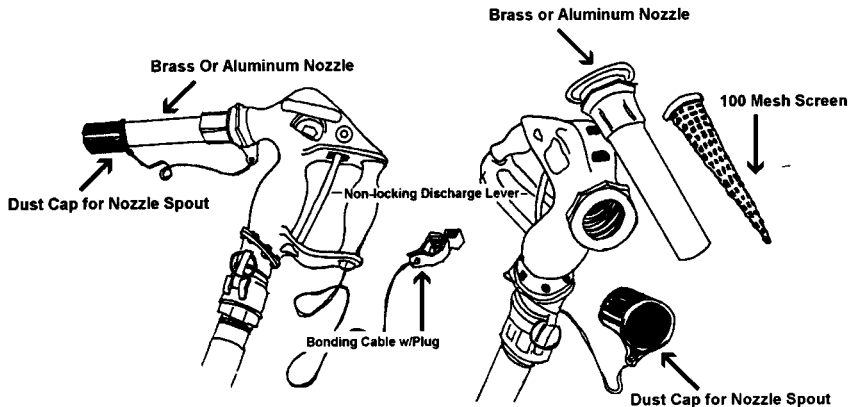
1. Aviation Fuel Nozzle Requirements. (See Exhibit 13-3.) If all of these items are not present and in good condition, discontinue the operation until corrected:

- A non-locking discharge lever
- A bonding cable with plug
- A brass or aluminum nozzle
- A 100-micron screen in nozzle
- A serviceable dust cap for nozzle spout
- For government-operated fueling operations, it is advantageous if each nozzle has all fittings needed to conduct both closed-circuit and open-port fueling.

WARNING: Static electricity builds up on an aircraft as the aircraft moves through the air. Static electricity also builds up on the refueling equipment when the fuel is pumped through the hoses. The aircraft, fuel nozzle, and pump assembly must be bonded to prevent sparks and explosions. Additionally, static electricity buildup is greater in cold, dry air than in warm, moist air.

- Each nozzle has two ground wires (not a procurement document requirement). One wire has an alligator clip on the end of it; the other wire should have a plug. These wires are used to bond the aircraft to a grounded 5-foot grounding rod (if available; not mandatory). The nozzle can be kept off the ground by hanging it on the grounding rod.

Exhibit 13-3: Fuel Nozzle Requirements



2. Nozzle Spout Screen. Check for cleanliness by:
 - Unscrewing nozzle spout and remove screen
 - Tapping screen and collecting contents (if any) for indication of filter by-pass debris or hose deterioration.

3. Portable Fueling Equipment Pressure Differential Gauge(s). When this gauge is installed, check the pressure difference between the inlet side of filter (high psi) and the outlet side (low psi). Perform the following test:
 - Recirculate fuel through the nozzle into the tank at maximum flow rate and note the difference. Some use two gauges, which requires that the operator perform mathematical calculations. Others use a single gauge, allowing a direct differential reading.
 - When pressure differentials are at, or exceeding the manufacturer's recommendations, there is cause for concern. It is a very good indication the filter is holding back water and/or particles. The following should be performed:
 - Sample fuel in tank
 - Replace the element
 - Recheck the pressure differential with new element in place.

4. Flow Rate. Per specification on pump rating, determine flow rate in gallons per minute (GPM):
 - Recirculate fuel through the nozzle and into the tank, and time the GPM.
 - Substantially reduced flow rates from the minimum specified may be a good indication of a restriction in the element caused by particulate or water contamination. The following should be considered:
 - The filter may need to be changed.
 - The pump may not meet specifications.
 - Remove filter element in the single cartridge Velcon or the monitor 3rd stage (inside the Teflon screen) and replace with new element.

CAUTION: When changing elements, do not touch elements with dirty hands or gloves. Use clean gloves. Leave new element in package until the last step of placing element in canister.

- Re-check the GPM flow.
- While recirculating check total system for leaks.

H. → Inspections and Quality Control.

Every possible precaution must be taken to maintain quality assurance for fuel. Items which must be checked and maintained on a daily, weekly, monthly, annual, or as-needed basis are covered in the discussion of Form HCM-3, Aircraft Fuel Facility Inspection Log (in Appendix A). Inspections must be performed on the required basis, unless this is not feasible due to the remote location and infrequent use of a fueling site. In that case, a combination daily, weekly, and monthly inspection shall be performed prior to each use of the fueling site.

1. Daily Inspections. Fuel site and equipment must be visually checked daily for leaks. If found, local procedures for hazardous materials spills should be followed. In addition, check for water or particulate contamination in the fuel source by:
 - Checking the bottom of storage facilities tanks for water, using water draw-off connections (sumps) and a visual test on a water-finding paste (allow the paste to remain in contact with the fuel for 30 seconds). Look for paste to change colors.
 - Checking for and removing any water from fueler tanks. A water check should also be performed after every reloading of the fuel container, washing of equipment, and after a heavy rain or snowstorm. Utilize the “clear and bright” test explained earlier in this chapter.

Interagency Helicopter Operations Guide - June 2009
Chapter 13

- Visually checking for particulates as explained earlier in this chapter.
 - Checking all three-stage and Velcon filter/separator manual water drains for water and other contaminants after each receipt of fuel, as well as on a daily basis. Draw off any accumulation of water.
 - Checking and recording all fueler and fixed filter and filter/separator differential pressures while under full flow conditions. A graph-type log may be used in plotting differential pressure daily. Any sudden change or decrease in pressure differential may indicate a ruptured filter.
 - Visually inspecting fueler and storage facilities, pumps, valves, and pipelines for leaks.
 - Checking and cleaning hose nozzle screens, and if breaks are found, replacing the screens.
 - Inspect all hoses for abrasions, separations, or soft spots. Weak hoses should be replaced.
 - Drawing off a sample daily from the downstream side of the filter. Sample should be collected in a clean, clear glass bottle and examined visually. Any visual water, dirt or filter fibers is not acceptable.
 - Checking that dust caps are in place.
2. Weekly Inspections. All of the daily inspections, plus:
- Inspect all fire extinguishers for broken seals, proper pressure, and recharge date. Recharge as necessary.
 - Check fuel flow rate GPM to nearest 1/10 gallon.
3. Monthly Inspections. All of the daily and weekly inspections, plus:
- Check the condition of bonding and grounding wires, grounding clips, jacks and bonds.
 - Check condition of pumps, motors, and valves.
 - Check fuel source and fueling facilities for general condition, safety and appearance.
4. Annual Inspections. All of the daily, weekly, and monthly inspections, plus:
- Check electrical continuity with an ohmmeter

I. Record Keeping.

See Appendix A, Form HCM-3, Aircraft Fuel Facility Inspection Log, for required record-keeping. The individual responsible for fueling and/or the fuel source will keep a record containing the following information:

- Condition (clean, clear, bright, etc.) of:
 - Tank sump sample
 - Filter sump sample
 - Nozzle sample
 - Flow rate in gallons per minute to the nearest 1/10 gallon
 - Filter change, reason and date

XI. Fuel Spills.

The information in this section is consistent with National Fire Protection Association (NFPA) Publication 407-90, "Standard For Aircraft Fuel Servicing," and should be utilized for both Vendor and government fueling operations.

Fuel spills are often the result of improper or careless operation of fueling equipment and lack of preventive maintenance of the fueling equipment. Close attention on the part of every person responsible for fueling is required to prevent fuel spillage. Personnel shall follow the guidelines listed below. See Chapter 12 for crash-rescue and firefighting procedures regarding fuel spills.

CAUTION: All fuel spills, regardless of size, should be considered a fire hazard.

Procedures for handling fuel spills are subject to the regulations and procedures established by the authority having jurisdiction.

WARNING: Report all spills immediately; do not attempt to hide the fact that a spill occurred. There are severe civil and criminal penalties if a spill is not reported promptly.

Each incident is somewhat unique, but certain general principles apply in all cases. Every fuel spill involves several variables:

- Size of the spill
- Terrain on which the spill occurred
- Equipment
- Weather conditions
- Type of fuel and its flammability

- Proximity to aircraft or personnel
- Aircraft accident involved
- Emergency equipment and personnel available.

A. Prevention.

Following good spill prevention practices will significantly reduce the chances of one occurring:

- Devote full attention to the fueling operation.
- Never leave any fuel nozzle unattended.
- Never tie or wedge the nozzle trigger in an open position.
- Frequently check the amount of fuel in the tank to prevent overfilling.
- Pumps, hand- or power-operated, shall be used when aircraft are fueled from drums. Pouring or gravity flow shall not be permitted.
- Kinks and short loops in fueling hose should be avoided.
- At remote fueling locations using portable fueling equipment, sandbags should be used to elevate the fittings to facilitate pre-operational checks and detection of fuel leaks.
- At remote fueling locations using portable fueling equipment, construct a berm around the fuel bladder to contain fuel in case of rupture for both temporary and semi-permanent systems.

B. Mitigation Procedures in the Event of a Spill.

If a fuel leak develops or a fuel spill occurs during aircraft servicing, initiate the following emergency procedures without delay:

WARNING: During any spill or leak, extreme caution must be exercised to avoid actions that could provide ignition sources for the fuel vapors. See Chapter 12, Fire Protection And Crash-Rescue, for procedures to follow to avoid ignition of a fuel spill resulting from a crashed aircraft.

- Maintain, keep current, and post a spill contingency plan (the procedures outlined below, with the addition of local, specific material, will suffice).
- Have absorbent material at the helibase or fueling location.

Interagency Helicopter Operations Guide - June 2009
Chapter 13

- If the leak continues, or the spill is a large one, all non-essential personnel should leave the area immediately until the hazard is neutralized, repairs are made, and the area is safe.
- Alert the airport fire crews or follow established emergency procedures applicable to a remote fueling operation, as outlined below.
- Stop the flow of fuel and the fueling operation immediately upon discovering leakage or spillage:
 - If fuel is leaking or spilling from a fuel servicing hose or equipment, the emergency fuel shutoff valve must be actuated immediately.
 - If the fuel is leaking or spilling from the helicopter at the filler opening, vent line, or tank seam, fuel delivery must be stopped immediately.
- If the spill occurs during open port ("hot) refueling operations, the Pilot will make the decision on moving or keeping the helicopter in place. If the latter, then all electrical power must be shut down and the helicopter evacuated.
- Before the helicopter is put back into service, it must be thoroughly checked for damage and for flammable vapors that may have entered fuselage areas.
- Small spills involving an area less than 18" in any plane dimension normally involve minor danger. However, personnel manning fire extinguishers during start-up procedures should stand by until the helicopter departs the area of the spill because engine exhaust could ignite the spill. These spills contain such a small amount of fuel that they may be absorbed, picked up, and placed in an approved container.

NOTE: New products to absorb fuel spills are available that will reduce or eliminate the need for hazardous material containers. These new products should be considered for most fuel spills.

- A fire guard should be posted for other small or medium static spills - not over 10 feet in any dimension nor over 50 square feet in area. The fire guard should have one or more fire extinguishers with at least a 20 B rating. Local regulations and procedures must be followed, but in most cases absorbent materials or emulsion compounds should be used to absorb the spilled fuel, especially if aviation gasoline (AvGas) or low flash point fuels are involved. The contaminated absorbent should be picked up and placed in an approved container to await disposal.
- Large spills - over 10 feet in any dimension or over 50 square feet in area - or smaller spills continuing to enlarge (non-static) should be handled by the fire department, or if in a remote location, by a ground engine. Anyone in the area of a large spill should move upwind of the spill at once.

NOTE: Aircraft fuels will damage some types of ramp surfaces. Spilled fuel should be picked up as quickly as possible if operating from a hard-surfaced ramp.

- All fuel spills occurring as a result of an aircraft crash or ground collision should be blanketed with foam, if available, to prevent ignition, and to prevent further damage to the equipment. See Chapter 12 for further information.

CAUTION: Wildland fire foams are not adequate suppressants for fuel spills. Foams must be approved for hydrocarbon fuels.

C. Fuel Spillage on Personnel.

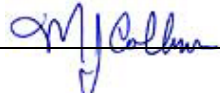
If the fuel handler's clothing becomes soaked with fuel, the individual should:


- Avoid ignition sources;
- Leave the fueling area immediately.
- The act of removing clothing creates static electricity. Wet the clothes with water before removing. If water is not available, the person should be grounded to prevent sparks when they remove their clothes.
- Wash fuel off skin with soap and water as soon as possible.
- Seek medical attention.

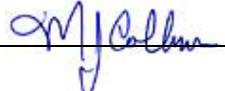
WARNING: Entering a warm room wearing fuel-soaked clothing can be dangerous. Chances of a fire starting because of static electricity are increased.

Attachment 6
San Diego Gas & Electric
Electric Standard Practice ESP 113.1
July 5, 2012

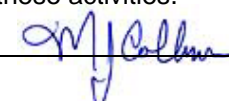
ELECTRIC STANDARD PRACTICE

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE JULY 05, 2012
SECTION GENERAL PRACTICES		
SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p><u>REVISION HISTORY</u></p> <p>This Electric Standard Practice has been revised by the SDG&E Fire Program Manager.</p> <p>1.0 <u>PURPOSE</u></p> <p>1.1 Southern California presents one of the most dangerous natural wildland fuel scenarios and explosive fire weather potential in the world. The period for active fire conditions can exist all year long depending on rainfall totals and other dynamic weather factors. The fall months and at times extending into early winter historically host the region's largest fires. Extended dry periods can bring us into or back into critical fire conditions essentially any time of the year. SDG&E facilities, equipment, and activities can present a potential wildland fire ignition risk which must be minimized to the extent reasonably possible. In the event a fire occurs, we must also be equipped to suppress small fires, thus potentially preventing a major fire. Most importantly, we must provide the resources and training necessary to keep our employees safe while working in the wildland areas. This plan is for all system Operations & Maintenance work and can be used for low complexity Construction projects when additional mitigation is not required (see 4.7 SDG&E PROJECT SPECIFIC FIRE PLANS). The intent of this document is to formalize procedures and routine practices that will:</p> <p>1.1.1 Assist SDG&E employees in their understanding of fire prevention and to improve their ability to prevent the start of any fire. The emphasis will be on wildland fires, especially during the critical times of the year when the fire risk is high.</p> <p>1.1.2 Set standards for certain tools and equipment to be present in our vehicles and on our work sites, when performing identified high risk work activities. This will assist with rapid response to small fires in the event one should occur.</p> <p>1.1.3 Incorporate State, Federal, and local requirements into our standard way of doing business to provide compliance with rules and regulations on a daily basis no matter where our work is taking place. This would include, but not be limited to: pertinent laws, Forest Standard Practice Regulations, and "Special Use Permit" or "Right of Way" fire related requirements.</p> <p>1.1.4 Define or reference restrictions mandated by "Red Flag Warnings", "Project Activity Levels", or other unique fire danger scenarios. Provide the means for determining when these restrictions are in effect, what activities they prohibit, the precise locations to which they apply; and identify the notification procedures for all affected employees and contractors. (See TMC 1320)</p> <p>1.1.5 Establish communication requirements when working in the wildland areas.</p> <p>1.1.6 Discuss procedure to identify when a Construction project specific "Fire Plan" is required and the process for developing the document. (See 4.7)</p> <p>1.1.7 Share some common sense practices, with regards to fire safety, that should be used in all activities to reduce the risk of fires and to prevent injury to employees as a result of fire.</p>		
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DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE JULY 05, 2012
SECTION GENERAL PRACTICES		
SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p>2.0 APPLICABILITY</p> <p>2.1 This applies to SDG&E field personnel who will work in the wildland areas of the service territory during the periods described that are conducive to wildland fire occurrence. This also includes Distribution and Transmission operating personnel who will be involved with field personnel in regards to safety, system reliability and/or restoration. Contractors performing work for SDG&E will be expected to comply with this Standard Practice as it relates to their activities as well.</p> <p>3.0 DEFINITIONS</p> <p>Wildland Areas: This term refers to any area within the SDG&E service territory that has wildland fuels available for ignition.</p> <p>3.1 Fire Threat Zone (FTZ): This is a CALFIRE developed rating of wildland threat based on a combination of potential fire behavior (fuel rank) and expected fire frequency. SDG&E has established practices within the FTZ on how SDG&E constructs facilities and also determines certain construction practices to be used within the FTZ. See attachment 1.</p> <p>3.2 SDG&E High Risk Fire Areas (HRFA): This area will be an assortment of GIS polygons that represent the zones of greatest concern within the SDG&E service territory, blending fuels, topography, wind, and system information. (The areas can change annually and the map will be labeled with the appropriate year, "SDG&E 20XX Highest Risk Fire Area" and is always a subset of the Fire Threat Zone). The HRFA helps to determine how SDG&E operates the electric system, as a function of weather conditions. See attachment 2.</p> <p>3.3 Fire Season: Fire season is no longer officially designated by the wildland fire agencies. California is considered to be in fire season on a year long basis. CAL FIRE adjusts their staffing patterns as fire conditions moderate or escalate and this can be used as an indicator of potential fire activity.</p> <p>3.4 Elevated Fire Condition: The SDG&E Fire Preparedness Plan uses a combination of live fuel moisture content information, other fuel condition data and input from Fire Coordination and SDG&E Meteorology to enter into what is termed "Elevated Fire Condition". This condition is usually achieved during the month of August or September and is curtailed later the same year, or early the next year, with the arrival of substantial rain.</p> <p>3.5 Elevated Wind Condition: This condition occurs when the combination of high wind and lower Relative Humidity's necessitate an increase staffing or staging, but not to the level of a Red Flag Warning.</p> <p>Red Flag Warning Condition (RFW): The National Weather Service will declare a RFW for;</p> <ul style="list-style-type: none"> • Wind- if the relative humidity is 15% or less with sustained winds equal to or greater than 25 mph, or frequent gusts equal to or greater than 35 mph for a period of 6 hours or more. • Dry Lightning- for a lightning event that is not accompanied by enough precipitation to significantly wet fuels that have been identified as critically dry. This is common within the inland and mountain zones. 		
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DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE JULY 05, 2012
SECTION GENERAL PRACTICES		
SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p>Project Activity Levels: This is a federal program designed to reduce the risk of fire starts during forest related work on high fire danger days and only applies to work on the Cleveland National Forest. (See 4.8)</p> <p>3.6 Pulaski: The Pulaski is an axe-like fire hand tool used primarily for cutting or grubbing forest fuels. See Section 4.3.1.</p> <p>3.7 McLeod: The McLeod is a fire hand tool used for raking and scraping forest fuels. See Section</p> <p>3.8 Backpack Pump: A backpack pump is a portable 5 gallon water pack with hose and nozzle used for extinguishing Class A fire and particularly wildland fires. They can be rubber collapsible packs or stainless steel canisters.</p> <p>3.9 Major Operations Work Area: It will be considered a Major Operations Work Area when work activities or staging of resources will be concentrated in and out of a staging facility or site, conducted over multiple days and generally involves multiple crews and resources.</p> <p>3.10 SDG&E Incident Commander (IC): The SDG&E IC will be the positively identified single point of contact for all SDG&E resources (people and equipment) on an emergency incident. The appropriate line authority will identify who the IC will be on moderate or complex incidents. "First-in" supervisor will generally be the IC on low complexity incidents. The IC will be responsible for integrating SDG&E resources into the larger incident structure by serving as the single point of contact for SDG&E to the overall incident.</p> <p>3.11 SDG&E EOC: The Emergency Operations Center (EOC) is activated to varying degrees, depending on the complexity of the incident. It is intended to be a support to the emergency management personnel and houses the Officer in Charge (OIC) in major incidents.</p> <p>3.12 Operations & Maintenance (O&M): O&M refers to post construction care and maintenance of SDG&E facilities.</p> <p>3.13 Low Complexity: This refers to projects that are routine in nature, involve few resources, and have no extraordinary fire risk present.</p> <p>3.14 Fire Box: A fire box can be placed in a staging area or worksite to supplement available fire suppression equipment when necessary due to excessive work activity. It generally contains additional handtools and/or backpack pumps as deemed appropriate.</p> <p>3.15 Fire Patrol: Also referred to as Fire Watch or Guard; is a designated person assigned specifically to assess and mitigate fire risk, observe for immediate detection of fire starts, have fire equipment readily available, and insure rapid extinguishment of fires. No special qualifications required.</p>		
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ELECTRIC STANDARD PRACTICE

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE JULY 05, 2012
SECTION GENERAL PRACTICES		
SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p>3.16 SDG&E Fire Coordinator (FC): The SDG&E Fire Coordinator serves as a conduit or liaison to the emergency service agencies, including fire and law enforcement, for the utilities on emergency incidents. The FC will help the emergency service agencies obtain their needs related to the utility and represent the utility needs to the emergency service agencies.</p> <p>3.17 Grass Cured: This is grass that is dry (generally yellow or light brown in color) and is at its highest danger for fire ignition and spread.</p> <p>3.18 Hazardous Areas: Any “wildland” or unincorporated area within SDG&E service territory identified by the State Division of Forestry as being particularly susceptible to the danger of fire during certain seasons of the year.</p> <p>4.0 PROCEDURE</p> <p>4.1 EQUIPMENT & FACILITY RISK:</p> <p>4.1.1 The nature of utility equipment operations and facilities can pose a fire risk. As a result there are laws and regulations governing utilities in this regard. The following Public Resource Code (PRC) sections exist to reduce utility specific risks involved with wildland fire. SDG&E is proactive, insuring compliance with each of these on a continual basis.</p> <ul style="list-style-type: none"> <input type="checkbox"/> PRC Section 4290 - Regulations Implementing Minimum Fire Safety Standards Related to Defensible Space Applicable to State Responsibility Lands. <input type="checkbox"/> PRC Section 4291 – Reduction of Fire Hazards Around Buildings. <input type="checkbox"/> PRC Section 4292 – Power Line Hazard Reduction, 10’ ground clearance around power poles with non-exempt hardware. <input type="checkbox"/> PRC Section 4293 – Power Line Radial Clearance Required, between vegetation and conductors, 4’ for 2,400-71,999 volts, 6’ for 72,000-109,999 volts, and 10’ for 110,000 and above. <p>4.1.2 Some departments are assigned the responsibility for compliance with these regulations. The SDG&E Vegetation Management Program, in the Construction Services Department, has an extensive tree pruning and removal program to provide adequate line clearance. They also treat all non-exempt power poles in the specified area to maintain the 10’ clearance required by PRC 4292. Personnel from Land Services, Facilities, and Fire Coordination work together to meet defensible space requirements, as well as other fuel hazard reduction measures where applicable. However, it is the responsibility of all SDG&E employees and contractors to support the company’s efforts to comply with these regulations.</p> <p>4.2 ACTIVITIES THAT POSE A FIRE RISK:</p> <p>4.2.1 The Control Centers, Dispatch Center, and Fire Coordinator will provide general information to SDG&E employees regarding general fire condition status. When working in the SDG&E FTZ on any warm and dry day and in particular during the “Elevated Operating Condition”, the following SDG&E related activities present a risk of fire ignition. Although not prohibited, extra caution is critical during the performance of any of these activities.</p>		
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ELECTRIC STANDARD PRACTICE

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE JULY 05, 2012
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SECTION GENERAL PRACTICES

SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY
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- 4.2.1.1 Working on energized electrical equipment or facilities located within the SDG&E Wildland Fire Area.
- 4.2.1.2 Any off-pavement vehicle use.
- 4.2.1.3 On-highway work activities that are located adjacent to particularly hazardous wildland fuel conditions.
- 4.2.1.4 Chain saw use of any kind.
- 4.2.1.5 Operation of generators, pumps, augers, compressors, two-cycle motors, or other equipment capable of producing sparks or ample exhaust heat to cause ignition.
- 4.2.1.6 Other tree removal equipment including but not limited to grinders, chippers, skidders, excavators, etc.
- 4.2.1.7 Grinding and welding
- 4.2.1.8 Blasting or other explosive work
- 4.2.1.9 Smoking

4.3 TOOLS AND EQUIPMENT:

4.3.1 When working in the FTZ identified on the attachment 1; the following tools and equipment will be carried on the vehicles described, when engaged in any of the work activities discussed above. If other fire risks are identified specific to your work project in these same areas, these standards should be applied as well. This does not apply to transient traffic driving on primary road beds through the wildland areas. These items will meet the California Forest Practice Rules; Public Resource Code Division 4, Chapter 6. Making this equipment available at your work sites will also meet the majority of the requirements mandated by the wildland fire agencies within the company service territory. Some additional project specific or weather specific requirements may be necessary and will be discussed later in this plan. Please note that if work project is over 50' from the vehicle location, the mandated equipment should be removed from the vehicle and staged at the work site.



Shovel



Pulaski



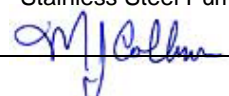
MCleod



Indian Pump




Stainless Steel Pump




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ELECTRIC STANDARD PRACTICE

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE JULY 05, 2012
SECTION GENERAL PRACTICES		
SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p>4.3.2 Passenger Vehicles (performing work in the wildland areas);</p> <ul style="list-style-type: none"> • 1 round point shovel with overall length of at least 46" • 1 serviceable fire extinguisher, minimum U.L. rated "2 BC"; rating found on fire extinguisher label (a "2" rated extinguisher will put out approx. 2 sq. ft. of combustible material and BC indicates it will work on flammable liquids and is non-conductive for electrical fires) <p>4.3.3 Trucks & 4 Wheel Drive Vehicles;</p> <ul style="list-style-type: none"> • 1 round point shovel with overall length of at least 46" • 1 axe or "Pulaski" (see picture above) • 1 (5) gallon backpack pump (see pictures above) or a "2 BC" rated extinguisher; rating found on fire extinguisher label (a "2" rated extinguisher will put out approx. 2 sq. ft. of combustible material and "BC" indicates it will work on flammable liquids and is non- conductive for electrical fires) <p>4.3.4 Heavy Machinery or Equipment (including tub grinders, whole tree chippers, drilling rigs, tractors, etc.);</p> <ul style="list-style-type: none"> • 1 round point shovel with overall length of at least 46" • 1 axe or "Pulaski" (see picture above) • 1 (5) gallon backpack pump (see picture above) or fully charged U.L. rated "4 BC" or larger fire extinguisher; rating found on fire extinguisher label (a "4" rated extinguisher will put out approx. 4 sq. ft. of combustible material and "BC" indicates it will work on flammable liquids and is non-conductive for electrical fires) <p>4.3.5 Chain Saw Use;</p> <ul style="list-style-type: none"> • 1 shovel within 25 feet of the chainsaw operation with unrestricted access to the tool. • or 1 serviceable UL rated 2BC fire extinguisher in their immediate possession. <p>4.3.6 Major Operations Work Area (fire toolbox should be located on site, accessible to all, sealed, labeled, and in addition to vehicle equipment requirements);</p> <ul style="list-style-type: none"> • 1 (5) gallon backpack pump (see picture above) • 2 axes or "Pulaskis" (see picture above) • 2 "McLeod " fire tools (see picture above) • Round point shovels 46" for each employee assigned to work site 		
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ELECTRIC STANDARD PRACTICE

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE JULY 05, 2012
SECTION GENERAL PRACTICES		
SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p>4.3.7 Optional Considerations for particularly Hazardous Areas where additional measures are warranted (discuss with Fire Coordinator if applicable);</p> <ul style="list-style-type: none"> • Water Supply, recommended 1500 gal. minimum (Tank, truck, or hydrant) • Fire Hose (and associated fire accessories) • Dozer or Tractor (capable of producing fire line in an emergency situation if safe to do so.) • Small Fire Engine or Patrol with 1 or 2 personnel equipped with pump, accessories and a Minimum of 150 gallons of water <p>4.3.8 Helicopter Operations; Primary helicopter staging areas will be treated similar to other staging areas as far as fire equipment. When working with Temporary Staging Access Pads (TSAP) adequate firefighting equipment shall be carried on the helicopter and made available to personnel working on the ground at those sites.</p> <p>4.4 FIRE PREVENTION & FIRE SAFETY CONSIDERATIONS:</p> <p>NOTE: The following Safety considerations will help to reduce the risk of fire start (Fire Prevention), as well as provide for the safety of company employees while working in the wildland areas (Fire Safety).</p> <p>4.4.1 Fire Prevention</p> <p>4.4.1.1 On projects in the SDG&E FTZ, conduct and document a formal "Tailgate Meeting" addressing the fire concerns as part of the "Tailgate Meeting". Have regular tailgate meetings for the duration of the project to include fire safety discussions. As usual, these documents must be retained at the district for three years, including formal Fire Plans when required.</p> <p>4.4.1.2 Smoke only in designated smoking areas or in a 10' clearing void of all grass and other vegetation.</p> <p>4.4.1.3 Idling or parking in areas of brush, grass, or vegetation litter is prohibited.</p> <p>4.4.1.4 Consider work hour restrictions where applicable, limiting exposure during the heat of the day and taking forecasted wind conditions into account as well.</p> <p>4.4.1.5 Use a "Fire Patrol" (person specifically dedicated to mitigate fire hazards, observe for immediate detection of fire starts, and coordinate rapid response for extinguishment) on high fire danger days (days that are warm, dry, and/or windy and present a likelihood for wildfire). Their duties would include: verification of compliance with the fire plan, observation of activities for fire prevention & safety, and checking the work area after the day's activities have been completed.</p>		
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ELECTRIC STANDARD PRACTICE

DEPARTMENT	DIVISION	EFFECTIVE DATE
TRANS. & DISTRIB. ENGINEERING	DISTRIBUTION ENGINEERING	JULY 05, 2012
SECTION		
GENERAL PRACTICES		
SUBJECT TITLE		
WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p>4.4.1.6 Provide vegetation clearance or reduction around particularly hazardous work activities or work areas. Use special mitigation, as appropriate, to reduce the hazard, following all environmental protocols. Clear 10' circle to mineral soil around compressors, generators, and other equipment when required to use them in the FTZ or provide a non-combustible ground cover 10' diameter minimum.</p> <p>4.4.1.7 Follow all special requirements associated with Red Flag Warnings (section 4.5), Project Activity Levels (section 4.6), and site specific Project Specific Fire Plans.</p> <p>4.4.1.8 Have all required tools & equipment off the vehicle and on-site or within 50' of the work location, readily available for use when vehicle is 50' or more from actual work site.</p> <p>4.4.1.9 Ensure exhaust systems are clear of vegetation and other combustible debris before operation of portable equipment.</p> <p>4.4.1.10 When it is possible, wet down adjacent vegetation when performing at risk work.</p> <p style="text-align: center;">CAUTION: DO NOT UNDER ESTIMATE THE ABILITY OF A FIRE TO QUICKLY SPREAD TO AN UNMANAGEABLE SIZE.</p> <p>4.4.2 Fire Safety</p> <p>4.4.2.1 Use proper Personal Protective Equipment (P.P.E); standard SDG&E requirements apply. When working within or adjacent to uncontrolled fire perimeter company issued fire resistant clothing should be worn. Respiratory protection (painter's mask or bandana) is recommended as well.</p> <p>4.4.2.2 When working on or adjacent to a wildland fire, positive communications must be maintained internally using SDG&E work protocols. It is critical that employees have the ability to communicate with fire agencies as well, both for reporting fires and for the exchange of critical information for the duration of an incident. Cross communication with the fire agencies is the responsibility of the SDG&E Incident Commander (single point of contact assigned to manage all SDG&E resources), the Fire Coordinator (FC), or the On-Site (pre-designated work supervisor for affected area) Supervisor in the absence of a Fire Coordinator or SDG&E Incident Commander.</p> <p>4.4.2.3 Know what the fire is doing at all times, observe personally or be in direct communication with a competent person (IC, FC, or On-Site Supervisor) who is monitoring fire activity.</p> <p>4.4.2.4 Work within the Incident Command System (ICS) while assigned to a fire incident. Understand the chain of command for the incident and who you are accountable to. Check in and check out when entering an uncontrolled fire perimeter after it is determined to be safe by the IC, FC, or On-Site Supervisor.</p> <p>4.4.2.5 Pre evaluate/designate safety zones (areas large enough to provide a safe retreat) and escape routes (safe access to these safety zones) when working in the wildland areas during high fire danger days.</p>		
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ELECTRIC STANDARD PRACTICE

DEPARTMENT	DIVISION	EFFECTIVE DATE
TRANS. & DISTRIB. ENGINEERING	DISTRIBUTION ENGINEERING	JULY 05, 2012

SECTION
GENERAL PRACTICES

SUBJECT TITLE
WILDLAND FIRE PREVENTION & FIRE SAFETY

4.4.2.6 Get proper rest and adequate water during extended fire activity to avoid fatigue and help prevent accidents and/or injuries. It is recommended that you receive an average of 1 hour rest for every 2 hours worked. An individual in hot, dry weather may require up to 1 to 2 gallons of water per day.

4.4.2.7 Exercise extreme caution when driving within a fire area and/or in smoky conditions. Be aware of falling rocks, trees, and other debris as well as road obstructions and other traffic. Keep driving speeds down when visibility is limited.

4.5 RED FLAG WARNINGS:

4.5.1 Red Flag Warnings (RFW); a joint effort between state, federal and local fire agencies, was brought about after a very catastrophic 1970 Southern California fire season. The intent is to pass along critical fire weather information to users and occupants in the wildland areas to bring about more prudent actions in all their wildland related activities. The National Weather Service (NWS) is responsible for declaring RFW and identifying the period of time to which they apply. There are currently two criteria established for RFW by the NWS (see definitions). The SDG&E service territory falls into multiple weather zones identified by the NWS and RFW requirements of this document will apply to each zone identified in a declared RFW including Imperial Valley when applicable. Currently SDG&E is operating under the direction of TMC1320 (aka DOP3013, ESP109), SDG&E Fire Preparedness, which addresses specifically the actions SDG&E will take with regard to Red Flag Warnings. The Operations Shift Supervisor (OSS) at Grid Operations will make notifications to company personnel; the following are field related considerations during a declared RFW.

4.5.1.1 All transmission and distribution lines within the SDG&E Wildland Fire Area will not be tested without patrol for the duration of the RFW.

4.5.1.2 A fireguard (*fire patrol*) will be assigned to any operation that could cause a fire. See Section 4.4.1.5.

4.5.1.3 All non-critical line clearance tree pruning and removal activities will cease. (Hand pruning activities are permissible)

4.5.1.4 All Blasting will be discontinued.

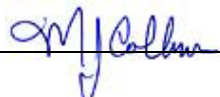
4.5.1.5 All grinding and welding will discontinue, except in enclosed buildings or within areas cleared of all flammable material for a radius of 15 feet.


4.5.1.6 Vehicular travel will be restricted to cleared roads except in case of an emergency. In no case will vehicles with hot exhaust systems be driven over or parked in grassy areas.

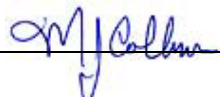
4.5.1.7 Smoking will not be permitted.

4.5.2 In addition to these requirements a good rule is; all non-critical "at risk" work should not be done during a RFW except for that work which creates a greater hazard if not accomplished.

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DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE JULY 05, 2012
SECTION GENERAL PRACTICES		
SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p>4.6 PROJECT ACTIVITY LEVELS:</p> <p>4.6.1 The United States Forest Service has a program it utilizes to reduce the risk of fire on National Forest land, particularly in the timber or mountain areas. It is referred to as Project Activity Levels (<i>PAL's</i>). Each day, at 4:00 p.m., the PAL level will be determined for the following day. It may be a different level for different geographic areas of the county. This information will be available by calling (619) 557-5262 (<i>U.S. Forest Service Dispatch</i>). Although the intent of the PAL system is to reduce the risk of fire start from timber harvesting activities, restrictions should apply to any potential fire starting activities. The Cleveland National Forest is collaborating with SDG&E to establish Project Activity Levels specific to utility Operation & Maintenance activities and the restrictions and/or appropriate mitigation for each level are detailed in Attachment 2. SDG&E work activities must comply with the guidance of this document or exceptions approved by an appropriate Forest Service Line Officer. The On-duty Fire Coordinator can be used to help discern PAL requirements on a case by case basis.</p> <p>4.7 SDG&E PROJECT SPECIFIC FIRE PLANS:</p> <p>NOTE: This fire prevention and fire safety standard practice will be sufficient for most routine work conducted by company employees and contractors performing work for SDG&E. On larger more complex work projects and major construction activities in the Fire Threat Zone, a project specific "Fire Plan" may be recommended. The Fire Coordinator should be consulted to review the magnitude of your project and determine if a fire plan is needed. A standard template is available from the Fire Coordinator that can be used to help determine;</p> <p>4.7.1 If a Project Specific Fire Plan is required for your particular work activity.</p> <p>4.7.2 What work activity restrictions will be necessary over and above those required of this plan</p> <p>4.7.3 What mitigations will be necessary to reduce fire risk potential, specific to that project.</p> <p>4.7.4 What special tools or equipment are required to be available at work site</p> <p>4.7.5 What involvement the company Fire Coordinator(s) needs to have in assisting with development and implementation of your Project Specific Fire Plan</p> <p>4.7.6 If an inspection by the jurisdictional fire department for the area of your project is required, recommended, or not necessary.</p> <p>4.7.7 Any additional site specific instructions or requirements.</p>		
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DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE JULY 05, 2012
SECTION GENERAL PRACTICES		
SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p>4.8 OTHER CRITICAL FIRE DANGER PROCLAMATIONS:</p> <p>4.8.1 The Fire Chiefs with jurisdictional responsibility for a given area have the authority to proclaim certain restrictions in extreme fire conditions or when they are experiencing a critical shortage of resources. These cases will be very rare and it will be incumbent on them to insure we are informed of any temporary changes in fire restrictions for a particular area. Upon notification we would be required to comply as appropriate.</p> <p>4.9 RECOMMENDED FIRE RELATED TRAINING:</p> <p>4.9.1 It is recommended that all field employees have basic fire safety training and T/D Compliance Training on an annual basis. Managers should assess individually whether an employees work activities would cause this training to be mandatory using the existing ESCMP training tracking system to monitor compliance. This can be accomplished in one hour at a routine safety meeting just prior to fire season. For those employees who are likely to be asked to work within or immediately adjacent to an uncontrolled fire area, the following additional training is recommended: Two hours of Fire Safety, Incident Command System Basic Training, and Basic Fire Behavior. For supervisors, managers, and company officers, who could be assigned as the SDG&E Incident Commander or EOC "Officer in Charge" on a major incident, additional advanced Incident Command System training is recommended. The Fire Coordinator will provide this training or assist with arranging qualified instruction. The fire coordinator may bring in additional qualified instructors, or qualify additional SDG&E employees as instructors, using the "train the trainer" approach to assist with this effort. Documentation of this training shall be done by the work supervisors and recorded in the employees training records.</p> <p>4.10 EOC AND CONTROL CENTERS:</p> <p>4.10.1 Service Dispatch, Electric Distribution Operations, Electric Grid Operations, & EOC play a vital role in any fire emergency. Communications with these groups, when applicable, is critical. Provide information updates and feedback to each of these groups as their areas of responsibility become affected. This should continue through the duration of the incident.</p> <p>4.10.2 Early notification to the EOC of potential activation is recommended when appropriate. Notification procedures are identified in ESP 113 FIRE COORDINATION and should be followed as prescribed.</p> <p>4.11 FIRE COORDINATION:</p> <p>4.11.1 SDG&E has established three permanent positions in the Fire Coordination group, (1) Fire Program Manager and (2) Fire Coordinators. They are essentially the company liaison to the fire services, both during an emergency and in the course of daily business. Back-up coordinators are available as well to cover off time for the primary coordinators and for when multiple incidents occur. Questions regarding this plan or other fire related inquiries should be made through the Fire Program Manager or Fire Coordination group. The Fire Coordination group would be a key contact for other fire related training as well.</p>		
ISSUED BY HAL MORTIER/GASPARE CIARAVINO	APPROVED BY  MICHAEL J COLBURN	

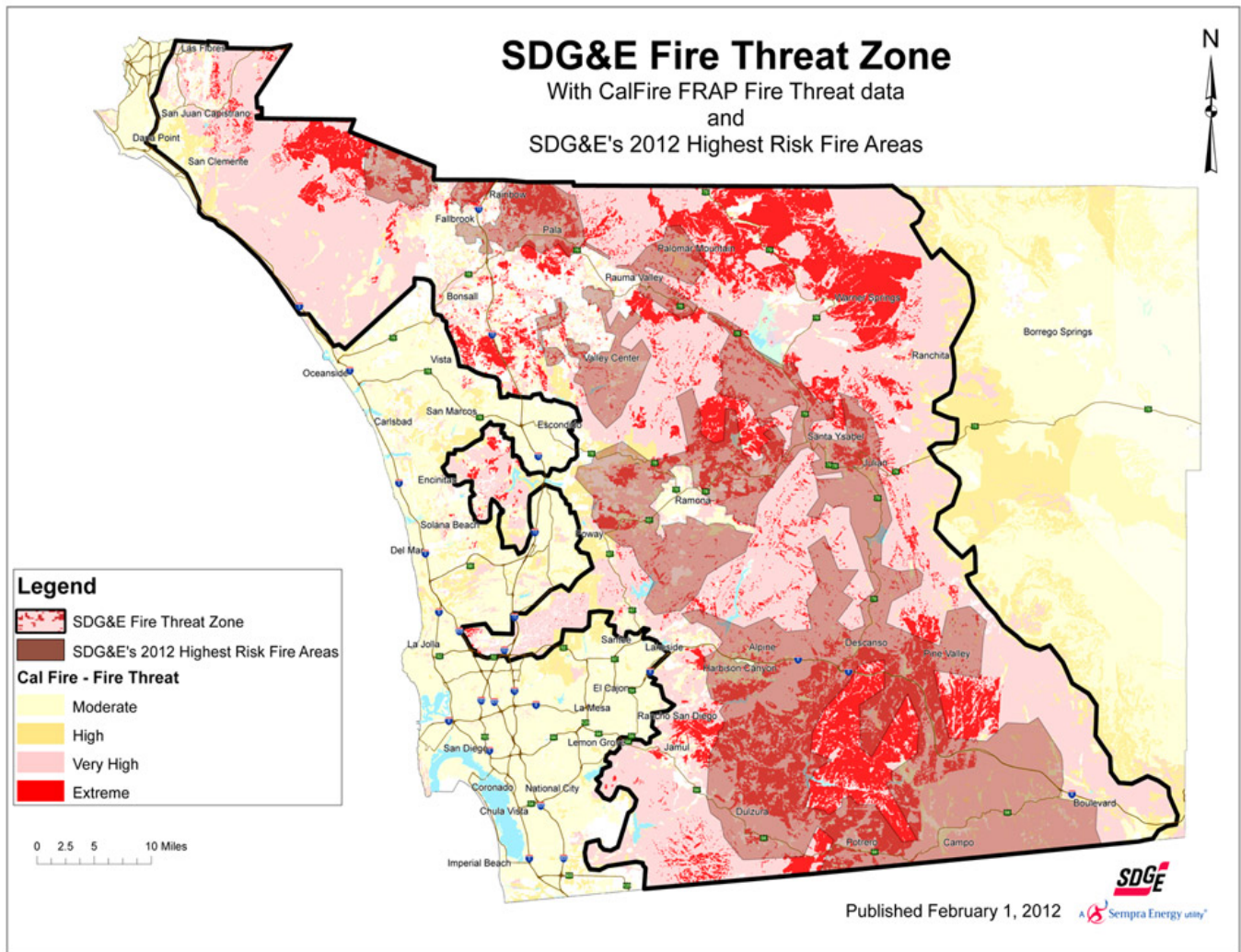
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SECTION GENERAL PRACTICES		
SUBJECT TITLE WILDLAND FIRE PREVENTION & FIRE SAFETY		
<p>5.0 REFERENCES</p> <p>5.1 State Forest Standard Practice Act (http://www.fire.ca.gov/resource_mgt/downloads/2009_Forest_Practice_Rules_and_Act.pdf)</p> <p>5.2 TMC 1320 (aka DOP3013, ESP109 – SDG&E Fire Conditions)</p> <p>5.3 ESP 113 – FIRE COORDINATION</p> <p>5.4 Power Line Fire Prevention Field Guide – 2008 edition (http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fppguidepdf126.pdf)</p> <p>6.0 ATTACHMENTS</p> <p>6.1 Attachment 1: Service Territory with SDG&E 2012 Highest Fire Risk Areas & FTZ</p> <p>6.2 Attachment 2: CNF Utility specific Project Activity Level guidance matrix (Under development, to be attached in next revision)</p>		
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ATTACHMENT 1



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<p>ATTACHMENT 2</p> <p>Under development, to be attached in next revision</p>		
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