

Helicopter Use Plan

West of Devers Upgrade Project

Prepared for:

Southern California Edison

February 2020

REVISION 4

Helicopter Use Plan Checklist

Applicable Agencies:

- | | |
|--|---|
| <input type="checkbox"/> Bureau of Indian Affairs | <input type="checkbox"/> Coachella Valley Conservation Commission |
| <input checked="" type="checkbox"/> Bureau of Land Management | <input type="checkbox"/> Morongo Band of Mission Indians |
| <input type="checkbox"/> California Department of Fish and Wildlife | <input type="checkbox"/> Riverside County Regional Conservation Authority |
| <input checked="" type="checkbox"/> California Public Utilities Commission | <input type="checkbox"/> U.S. Fish and Wildlife Service |

Applies in the Following Areas:

- | | |
|---|--|
| <input checked="" type="checkbox"/> BLM Lands | <input checked="" type="checkbox"/> CV-MSHCP |
| <input checked="" type="checkbox"/> Morongo Reservation | <input checked="" type="checkbox"/> WR-MSHCP |
| <input checked="" type="checkbox"/> San Bernardino County | <input checked="" type="checkbox"/> Riverside County |

Applies to the Following Project Components:

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Transmission Line | <input type="checkbox"/> Subtransmission | <input checked="" type="checkbox"/> Telecom |
| <input checked="" type="checkbox"/> Substations | <input type="checkbox"/> Distribution | |
| <input checked="" type="checkbox"/> Construction Yards | | |

Addresses the Following Measures:

- MM T-7a: Final Helicopter Use Plan
- MM N-1a: BMPs for Construction Noise Management
- MM N-1b: Helicopter Noise
- MM WIL-1b: Wildlife Impact Avoidance and Minimization
- MM WIL-1c: Nesting Bird Management Plan

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Acronyms and Abbreviations

BLM	Bureau of Land Management
CAP	Congested Area Plan
CPUC	California Public Utility Commission
FAA	Federal Aviation Administration
gph	gallon(s) per hour
kV	kilovolt(s)
LZ	landing zone
PPE	personal protective equipment
Project	West of Devers Upgrade Project
PZ	pick zone
ROW	right-of-way
SCE	Southern California Edison

1 Project Information

Southern California Edison (SCE) proposes to construct the West of Devers Upgrade Project (Project) to increase the power transfer capability of the West of Devers 220-kilovolt (kV) transmission lines between Devers, El Casco, Vista, and San Bernardino substations. The Project is needed to facilitate the full deliverability of new electric generation resources being developed in eastern Riverside County, in an area designated by the California Independent System Operator for planning purposes as the Blythe and Desert Center areas. The Project, planned to be operational by 2021, would upgrade the existing West of Devers transmission line system by replacing the existing West of Devers 220-kV transmission lines and associated structures with higher-capacity transmission lines and structures and making telecommunication improvements.

1.1 Project Overview

The Project will upgrade the existing West of Devers system by replacing existing 220-kV transmission lines and associated structures with new, higher-capacity 220-kV transmission lines and structures, modifying existing substation facilities, removing and relocating existing subtransmission (66-kV) lines, removing and relocating existing distribution (12-kV) lines, and making various telecommunication improvements. In particular, the Project would:

- Upgrade substation equipment within SCE's existing Devers, El Casco, Etiwanda, San Bernardino, and Vista substations to accommodate continuous and emergency power on the upgraded West of Devers 220-kV transmission lines. Activities related to substation upgrades will take place within the existing, disturbed fence lines of the substations and are not addressed further in this Plan.
- Remove and upgrade the existing 220-kV transmission lines and structures primarily within the existing West of Devers corridor as follows:
 - Segment 1 would be approximately 3.5 miles long and extend south from the San Bernardino Substation to the San Bernardino Junction. It would include the following existing 220-kV transmission lines: Devers–San Bernardino, Etiwanda–San Bernardino, San Bernardino–Vista, and El Casco–San Bernardino.
 - Segment 2 would be approximately 5 miles long and extend west from the San Bernardino Junction to Vista Substation. It would include the following existing 220-kV transmission lines: Devers–Vista No. 1 and Devers–Vista No. 2.
 - Segment 3 would be approximately 10 miles long and extend east from the San Bernardino Junction to El Casco Substation. It would include the following existing 220-kV transmission lines: Devers–Vista No. 1, Devers–Vista No. 2, El Casco–San Bernardino, and Devers–San Bernardino.
 - Segment 4 would be approximately 12 miles long and extend east from the El Casco Substation to San Gorgonio Avenue in the City of Banning. It would include the following existing 220-kV transmission lines: Devers–Vista No. 1, Devers–Vista No. 2, Devers–El Casco, and Devers–San Bernardino.

- Segment 5 would be approximately 9 miles long and extend east from San Gorgonio Avenue in the City of Banning to the eastern limit of the Reservation Trust Lands of the Morongo Band of Mission Indians (Morongo Reservation) at Rushmore Avenue. It would include the following existing 220-kV transmission lines: Devers–Vista No. 1, Devers–Vista No. 2, Devers–El Casco, and Devers–San Bernardino.
- Segment 6 would be approximately 8 miles long and extend east from the eastern boundary of the Morongo Reservation to Devers Substation. It would include the following existing 220-kV transmission lines: Devers–Vista No. 1, Devers–Vista No. 2, Devers–El Casco, and Devers–San Bernardino.
- Remove a portion (approximately 2 miles) of the existing San Bernardino–Redlands–Timoteo and San Bernardino–Redlands–Tennessee 66-kV Subtransmission Lines from within the existing West of Devers right-of-way (ROW) and reconstruct as follows:
 - The relocated San Bernardino–Redlands–Timoteo 66-kV Subtransmission Line would be approximately 2 miles long and would reconnect to the San Bernardino–Redlands–Timoteo 66-kV Subtransmission Line inside Timoteo–Substation.
 - The relocated San Bernardino–Redlands–Tennessee 66-kV Subtransmission Line would be approximately 3.5 miles long and would reconnect to the San Bernardino–Redlands–Tennessee 66-kV Subtransmission Line at Barton Road.
- Remove a portion of the existing Dental and Intern 12-kV distribution circuits within the West of Devers ROW and relocate the circuits as follows:
 - The relocated Dental 12-kV Distribution Circuit would be approximately 1.5 miles long and would reconnect to the existing Dental 12-kV circuit.
 - The relocated Intern 12-kV Distribution Circuit would be approximately 2.25 miles long and would reconnect to the Intern 12-kV circuit.
- Install telecommunication lines and equipment for the protection, monitoring, and control of transmission lines and substation equipment.

1.2 Lead Agencies

Lead agencies have discretionary approval over the Project and are responsible for reviewing aspects of the measures documented in this Plan. The California Public Utilities Commission (CPUC) is the state lead agency responsible for compliance with the California Environmental Quality Act (CEQA). The Bureau of Land Management (BLM) is the federal lead agency responsible for compliance with the National Environmental Policy Act (NEPA). Identified materials or documentation will be provided to the CPUC and the BLM per the requirements of the mitigation measure.

1.3 Mitigation Measures

MM T-7a: Prepare and implement a final helicopter use plan. SCE and its contractor shall prepare and obtain approval of a Final Helicopter Use Plan prior to using helicopters to transport personnel, materials, or equipment for the deconstruction of existing project facilities or construction of new or

replacement project facilities. The Final Helicopter Use Plan shall draw upon protocols and methods used on previous transmission line projects and shall be submitted to CPUC and BLM for approval.

The Federal Aviation Agency (FAA) has jurisdiction over U.S. airspace, aircraft, aircraft operations, airports, and pilots. To the extent that they do not conflict with any FAA requirements, the following shall apply to helicopter use and be incorporated in the Final Helicopter Use Plan.

- All aircraft and pilots shall be in full compliance with applicable FAA requirements and standards.
- On the prior day, helicopter flight information shall be provided to CPUC/BLM monitors regarding the specific sites to be used for helicopter picks and the destination of the materials or assemblages being lifted out.
- Daily flight notifications shall be issued by e-mail prior to commencement of any project flight activity. Information provided in the e-mail shall include pilot name, contact number, aircraft type, aircraft registration number, aircraft color, work/flight area, beginning time, estimated completion time, and scope of work. This information will be provided to CPUC/BLM monitors as well.
- The specific facilities, towers, poles, and spans requiring deconstruction or construction using helicopters shall be identified.
- The yards to and from which helicopters would fly (fly yards) shall be identified and shall be of sufficient size to ensure safe operations, given the other activities occurring at the yards and the vicinity.
- Fly yards shall be sufficiently far from occupied residences to not create an unacceptable level of noise or dust.
- The means used for dust and noise control and for safe refueling shall be specified for each fly yard.
- Flight paths that minimize flights near schools, hospitals, nursing homes, and other sensitive group receptors shall be identified and followed.
- Except in an emergency, helicopters shall land or hover near the ground only in areas previously approved for landing, and all dust control and biological and cultural resource protection requirements shall apply.
- External loads will be secured by appropriate rigging, including boxing, netting, choking, and cabling, or other suitable means. Only qualified riggers shall prepare and attach external loads to helicopters, and rigging shall be appropriate to the nature of the load, including the use of devices as necessary to prevent materials being lost in flight. Where appropriate to reduce load in-flight spinning and movement, drag chutes will be attached to loads. The need for drag chutes will be determined by the pilot and rigging personnel, where appropriate. At locations where rigging is to occur, a sufficient supply of appropriate rigging and containment materials in good repair shall be on hand at all times.
- All aircraft are to be configured with weight sensors such that, when preparing to haul external loads, the pilot is able to determine the weight of the load being lifted.

- Yards or landing zones shall have a designated qualified individual managing the movement of aircraft in and out of the yard or landing zone when flight activity is high.
- Appropriate protocols for communication among pilots and between pilots and the ground shall be developed and implemented.
- A GPS-based data system shall be installed in each aircraft
 - The system shall identify for the pilot all project-approved project flight paths and those areas where overflights are restricted (such as seasonally restricted bird nesting areas and sensitive residential or institutional areas) and shall be updated as often as any flight restrictions are implemented or lifted.
 - The system shall automatically record and preserve flight data sufficient to identify the aircraft's flight path, including altitude above ground. The system shall be capable of providing the information required with regard to flight path and aircraft identifier and provide a location "ping" no less frequently the once every 3 seconds. These data shall be collected daily and maintained by SCE or its contractor for a period of no less than six months and made available to CPUC or BLM upon request.

The Helicopter Use Plan shall be submitted to CPUC and BLM for review and approval at least 60 days prior to the use of helicopters on the project. Once the Helicopter Use Plan is made final, a copy shall be provided as a courtesy to each jurisdiction through which the Project passes.

MM AQ-1c: Control helicopter emissions. Helicopter emissions shall be reduced by the following methods and measures:

- Helicopter idling will occur only when necessary for safe operation and emergency readiness purposes.
- Helicopter operators shall use the smallest practical and available helicopter for each lift operation.
- Fugitive dust from helicopter rotor wash will be reduced through the implementation of the following measures:
 - The helicopter staging areas, that are not on existing paved airfields or other large paved sites, shall be treated with soil amendments (e.g., water, tackifiers, soil binders) that shall be applied at a frequency necessary to create and maintain surface soil crusts where rotor wash creates fugitive dust emissions;
 - Enough land area shall be obtained for each helicopter staging area not located on existing paved airfields or other large paved sites, so that rotor wash does not create visible fugitive dust emissions outside of the controlled staging area or ROW.
 - Helicopter operations will take flight paths (i.e. elevation above ground) that will eliminate dust emissions from rotor wash when travelling between the helicopter staging area and the work sites.

- The helicopter work sites shall be watered prior to helicopter visits. Alternatively, other soil stabilizers shall be applied at a frequency necessary to create and maintain a surface soil crust while helicopter visits are occurring at the work site.

MM N-1a: Implement best management practices for construction noise. SCE shall employ the following noise-control techniques, at a minimum, to reduce construction noise exposure at noise-sensitive receptors and to avoid possible violations of local rules, standards, and ordinances during construction:

- Construction noise shall be confined to daytime, weekday hours (7:00 a.m. to 6:00 p.m.) or an alternative schedule developed by SCE based on its coordination with the local jurisdiction...
- Construction traffic and helicopter flight shall be routed away from residences and schools, where feasible.

MM N-1b: Implement a helicopter noise control strategy. As part of the final Helicopter Use Plan, SCE shall include a helicopter noise control strategy that identifies the established helicopter flight corridors and minimum transit elevations above ground level to avoid noise-sensitive receptors on the ground. The noise control strategy shall prohibit helicopter hovering (greater than 15 minutes) within 250 feet of residences in any vertical or horizontal direction.

MM WIL-1b: Minimize noise and vibration impacts... To minimize disturbance to wildlife nesting or breeding activities in surrounding habitat, project-related helicopter use shall be avoided or managed to the extent feasible from February 1 to August 31. Unnecessary noise (e.g., blaring radios) shall be avoided...

MM WIL-1c: Prepare and implement a Nesting Bird Management Plan... The NBMP shall identify acceptable work activities within nest buffers (e.g., pedestrian access for inspection or BMP repair) including conditions and restrictions, and any monitoring required. The NBMP shall include pictorial representation showing buffer distances for ground buffers, vertical helicopter buffers, and horizontal helicopter buffers for nests near the ground and nests in towers...

Reporting. Throughout the construction phase of the project, nest locations, project activities in the vicinity of nests (including helicopter traces), and any adjustments to buffer areas shall be updated and available to CPUC monitors on a daily basis. All buffer reduction notifications and prompt notifications of nest-related non-compliance and corrective actions will be made via email to CPUC monitors. The draft NBMP shall include a proposed format for daily and weekly reporting (e.g., spreadsheet available online, tracking each nest). In addition, the NBMP shall specify the format and content of nest data to be provided in regular monitoring and compliance reports. At the end of each year's nest season, SCE will submit an annual NBMP report to the CPUC, BLM, CDFW, and USFWS. Specific contents and format of the annual report will be reviewed and approved by the CPUC and BLM in consultation with CDFW and USFWS.

1.4 Scope of Work

Project-related helicopter activities for the construction of the transmission lines will include the delivery of personnel, equipment, and materials from approved project material yards to approved structure sites. Helicopters will be based out of local airports and airfields located within the vicinity of the ROW and travel to approved material yards, work areas, and access roads. The use of mobile fueling equipment in approved yards and work areas will be operated in accordance with proper spill containment requirements identified in the Project Stormwater Pollution Prevention Plans, Hazardous

Materials and Waste Management Plan, and Emergency Response Plans. Dust-control measures will be implemented to assure that fugitive dust is minimized, to the extent feasible, during helicopter operations, in accordance with the Project Fugitive Dust Control Plan. Helicopter use will not occur at night.

If a structure is located in terrain inaccessible by a crane, a helicopter may be used for the installation of some or all the structures. Helicopters also will be used for installation of aerial safety markers.

In the event that helicopter-based structure construction is deemed necessary, the following will apply:

1. Structure sections will be assembled at the construction staging yards or approved project disturbance areas and hauled by helicopter to the designated structure sites and lowered into place.
2. Structure site and foundation preparation equipment and materials will be ferried to the site by helicopter or delivered by vehicle.
3. SCE may temporarily stage materials and/or assemble structure sections at previously approved structure and wire pull sites that are road-accessible.
4. SCE will provide California Public Utility Commission (CPUC) monitors with a list of the areas to be used for this temporary purpose and identify the material or assemblages to be staged at each site and at the structure sites where the materials or assemblages will be used.

Summit Helicopter and Wilson Construction Company have been subcontracted for helicopter support by Barnard Construction. Barnard's subcontractors will abide by the requirements of this Helicopter Use Plan. Barnard will identify the specific facilities, towers, poles, and spans requiring deconstruction or construction using helicopters, generally on the three-week look ahead and more specifically on the plan of the day, prior to flight operations. Summit Helicopter and Wilson Construction Company will provide aircraft and pilots in full compliance with applicable Federal Aviation Administration (FAA) requirements and standards. The aircraft will operate out of approved material yards, including the Mountain View Material Yard, Poultry Material Yard, Beaumont #2 Material Yard, Matich Material Yard, Grand Terrace Material Yard, and Devers Material Yard.

A copy of the approved Final Helicopter Use Plan will be provided to each jurisdiction through which the project passes.

1.4.1 Helicopter Landing Sites

Landing and fueling close to worksites is necessary to increase efficiency, reduce helicopter flight time, reduce emissions, reduce fugitive dust, limit noise and impacts to sensitive receptors and biological resources, and increase the overall safety of helicopter-assisted work on the project. Helicopter operations will be limited to approved Project disturbance areas, including staging areas, ground locations near conductor and/or optical ground wire pulling, tensioning, and splice sites. In addition, helicopters will land within SCE ROWs, including approved access, spur roads, and project related substations. Temporary staging of materials and assembly of tower sections outside of approved construction work areas shall not occur without prior approval of CPUC or BLM, as appropriate.

Helicopter work sites will be cleared by environmental monitors and all disturbance areas will be appropriately marked to avoid impacts to biologically and culturally sensitive areas. The total time within any given hour of the day that the helicopters will be used at one location outside of the staging

areas is expected to be approximately 15 minutes. Helicopters may travel back and forth between sites and staging yards multiple times within the hour.

Enough land area shall be obtained for each helicopter staging area not located on existing paved airfields or other large paved sites, so that rotor wash does not create visible fugitive dust emissions outside of the controlled staging area or ROW. Helicopter landing zones shall be no less than twice the overall length of the helicopter, in this case 66 feet.

Fly yards and landing zones will have a designated qualified individual managing the movement of aircraft in and out of the material yard or landing zone when flight activity is high. The approved fly yards are a sufficient size to ensure safe operations, given the other activities conducted at the yards and the vicinity. Helicopter landing sites and fly yards will be sufficiently far from occupied residences to avoid an unacceptable level of noise or dust.

Helicopter emissions will be reduced by the following methods and measures:

- Helicopter idling will occur only when necessary for safe operation and emergency readiness purposes.
- Fugitive dust from helicopter rotor wash will be reduced through implementation of the following measures:
 - The helicopter staging areas, that are not on existing paved airfields or other large paved sites, shall be treated with soil amendments (e.g., water, tackifiers, and/or soil binders, as appropriate) that shall be applied before takeoff and landings, at a frequency necessary to create and maintain surface soil crusts where rotor wash creates fugitive dust emissions.
 - Helicopter operations will take flight paths (i.e., elevation above the ground) that will eliminate dust emissions from rotor wash when traveling between the helicopter staging area and the work sites.

Helicopter noise will be reduced by implementing a noise control strategy, which prohibits helicopter hovering (greater than 15 minutes) within 250 feet of residences in any vertical or horizontal direction. Construction noise will be confined to daytime, weekday hours (7:00 a.m. to 6:00 p.m) or an alternative schedule developed by SCE based on its coordination with the local jurisdictions. Upon receipt of approval from local jurisdictions for work outside standard construction hours, alternative schedules will be made available to the CPUC prior to implementation. Construction traffic and helicopter flight will be routed away from residences and schools, where feasible.

1.4.2 Project Equipment

Summit Helicopter and Wilson Construction Company will supply light-duty and medium-duty helicopters. Table 1 provides a proposed equipment list. Additional light and medium-duty aircraft may be used based upon availability.

Table 1. Proposed Equipment List – Aircraft <i>Barnard Helicopter Use Plan</i>				
Type	Tail Number	Color	Size	Fuel Burn
MD-530FF	N67FF	Grey/Black	Light Duty	32 gph
MD-530FF	N972BW	White	Light Duty	32 gph

Table 1. Proposed Equipment List – Aircraft <i>Barnard Helicopter Use Plan</i>				
Type	Tail Number	Color	Size	Fuel Burn
MD-500D	N105JL	Grey/Black	Light Duty	24 gph
SK-58DT	N9VY	Orange	Medium Duty	100 gph
AS-350B2	214GH	Black	Light Duty	43 gph
MD-500E	425WC	Blue/Yellow	Light Duty	26 gph
MD-530FF	530PH	White	Light Duty	32 gph
Note: gph = gallons per hour				

Helicopter operators will include the smallest practical and available helicopter for each lift operation.

1.4.2.1 GPS-based Flight Tracking System

Cylinder-shaped horizontal and vertical default buffer distances will be established for helicopter construction activities, in accordance with the distances established in Table 4 of the Project Nesting Bird Management Plan (see figures in Appendix D). The environmental compliance team will monitor helicopter tracks (flight patterns and durations) daily to ensure compliance with established helicopter buffers and document non-compliances accordingly. SCE will retain helicopter track data and provide the tracks to the agencies upon request. The Aviation Communication Plan in Appendix B describes the GPS-based data system requirements that shall be installed in each aircraft.

The species-specific default buffers provided in the Project Nesting Bird Management Plan will be adjusted based on site-specific, nest-specific observations in the field. Vertical species-specific default buffers account for the effects of rotor wash from the smaller helicopters proposed for Project use, which typically cause a down draft of 15 to 18 miles per hour (mph) at up to 150 feet.

1.4.3 Aviation Safety Plan

The Aviation Safety Plan sets forth the scope of work, aviation personnel assigned to the project, and safety references, policies, and procedures to be used throughout the project. Barnard’s subcontractors and shared airspace users will abide by the safety requirements of this Helicopter Use Plan.

Helicopter training will be conducted for personnel assigned to work with helicopters in advance of helicopter operations on the project. The number of aircraft needed to support the project will vary based on schedule needs. This training will be conducted by the helicopter pilot or a specialist from Summit Helicopter or Wilson Construction Company. All training will be documented and copies will be available on the Project document control software, Procore.

External loads will be secured by appropriate rigging, including boxing, netting, choking, and cabling, or other suitable means. Only qualified riggers shall prepare and attach external loads to helicopters. Rigging shall be appropriate to the nature of the load, including the use of devices as necessary to prevent materials being lost in flight. When necessary to reduce load in-flight spinning and movement, drag chutes will be attached to loads. The need for drag chutes will be determined by the pilot and rigging personnel.

Acceptable load weights, calculated by the pilot and based on the current aircraft and pilot capability, will be given to the ground personnel responsible for building the external loads. Built loads shall be weighed and the weight communicated to the pilot prior to attachment to the helicopter. In addition, all aircraft will be configured with weight sensors/engine torque meters such that, when preparing to haul external loads, the pilot is able to determine that the weight of the load being lifted is within the safe working load of the aircraft.

An Aviation Safety Plan is contained in **Appendix A**.

1.4.4 Aviation Communication Plan

The Aviation Communication Plan outlines how reliable communication will be established and maintained throughout the project. The Aviation Communication Plan is attached as **Appendix B**.

1.4.5 Aviation Risk Matrix/Job Hazard Analysis

An Aviation Risk Matrix identifies certain risks associated with helicopter operations engaged in powerline work and offers suggested mitigation measures to help reduce the likelihood of an accident or incident. A Risk Matrix is attached as **Appendix C**.

1.4.6 Congested Area Plan

A Congested Area Plan (CAP) is required by the FAA if helicopter operations are taking place in any congested area accessible by the non-participating public.

Helicopter external load operations will not be conducted over homes, businesses, or public areas without mitigation measures in place to exclude any non-participating public from entering the area. Flight operations will be minimized near schools, hospitals, nursing homes, and other sensitive group receptors. Except in an emergency, helicopters shall land or hover near the ground only in areas previously approved for landing, and all dust control and biological and cultural resource protection requirements shall apply. The noise control strategy shall minimize helicopters hovering within 250 feet of residences in any vertical or horizontal direction. CAPs will follow the FAA guidance contained in 8900.1, Volume 3, Chapter 51, Part 133 External Load Operations, Section 6. CAPs will be filed with the FAA and copies will be submitted on Procore. Approved CAP's will be made available to the CPUC prior to implementation.

1.4.7 Flight Paths

Helicopter flight paths will, at minimum, maintain the necessary elevation to avoid hazards and impacts to noise sensitive receptors, dust sensitive receptors, and environmentally sensitive areas while in transit.

Helicopter flight paths will generally be a direct path from a material yard to the construction site(s) identified on the Plan of the Day, ensuring to avoid all buffers of environmentally sensitive areas. Flight activities will be minimized near schools, hospitals, nursing homes, and other sensitive group receptors, to the extent feasible.

Flight activities associated with the scheduled work activities will be communicated with Southern California Edison Air Operations, as required.

1.4.8 Traffic Control Plan

For the safety and welfare of the general public, project aircraft will avoid, when possible, ferrying materials and equipment over roads and other crossings. However, ferrying of material and equipment over roads and crossings may be required on the project. Under these circumstances, appropriate traffic control measures and permits will be implemented, as necessary, at the road or crossing. Depending on the type and size of road and/or crossing, flaggers, signs, traffic control, and local law enforcement and or California Highway Patrol will be used to ensure that public safety is not compromised. The communication requirements for coordinating road closures are outlined in Appendix B, the Aviation Communication Plan. Approved traffic control plans and associated permits will be made available to the CPUC prior to implementation.

2 References

Barnard Companies, Inc. 2018. *Emergency Response Plan*. West of Devers Upgrade Project Riverside and San Bernardino Counties, California. Prepared for Southern California Edison. Version 1. January.

California Public Utilities Commission (CPUC). 2015a. *Final Environmental Impact Report (FEIR) Southern California Edison's West of Devers Upgrade Project*. SCH #2014051041. December.

California Public Utilities Commission (CPUC). 2015b. *Nesting Bird Management Plan*. West of Devers Upgrade Project. August.

CH2M HILL Engineers, Inc. (CH2M). 2017. *Hazardous Materials, Waste Management, and Soil Management Plan*. West of Devers Upgrade Project Riverside and San Bernardino Counties, California. Prepared for Southern California Edison. Final. September.

CH2M HILL Engineers, Inc. (CH2M). 2018. *Fire Management Plan*. West of Devers Upgrade Project Riverside and San Bernardino Counties, California. Prepared for Southern California Edison. Final. March.

Southern California Edison (SCE). 2017a. *Storm Water Pollution Prevention Plan (SWPPP)*. Prepared for Construction Activities at: Southern California Edison (SCE) West of Devers Upgrade Project EPA Jurisdictional Area. Prepared by Geosyntec Consultants. May.

Southern California Edison (SCE). 2017b. *Storm Water Pollution Prevention Plan (SWPPP) per SWRCB Order No. 2009-0009-DWQ Amended by 2010-0014-DWQ and 2012-0006-DWQ for West of Devers Upgrade Project Colorado River Basin Regional Board Jurisdictional Area*. Prepared by Geosyntec Consultants. August.

Southern California Edison. 2017c. *Storm Water Pollution Prevention Plan (SWPPP) per SWRCB Order No. 2009-0009-DWQ Amended by 2010-0014-DWQ and 2012-0006-DWQ for West of Devers Upgrade Project Santa Ana Regional Board Jurisdictional Area*. Prepared by Geosyntec Consultants. August.

Appendix A

Aviation Safety Plan

AVIATION SAFETY PLAN

Project Description and Emergency Contacts			
Project Number	A17-3742		
Project Start / End Dates	Start: October 1, 2018	Complete: 2022	
Project Location	Corridor Between Devers and Vista Substations		
Scope of Work	<p>The project will consist of removing and replacing approximately 48 corridor miles of existing 220-kV transmission lines with new double-circuit 220-kV transmission lines, between the existing Devers Substation (near Palm Springs), El Casco Substation (Riverside County), Vista Substation (in Grand Terrace), and San Bernardino Substation. Helicopters will be used to fly people and material to many of the structures for the associated work within this package to improve efficiencies in production and minimize the environmental impact of the project.</p> <p>Barnard Construction has contracted with Summit Helicopter and Wilson Construction Company to provide helicopter support for this project. Summit Helicopter and Wilson Construction Company will provide aircraft and pilots in full compliance with applicable FAA requirements and standards. The aircraft will operate out of designated fly yards. Each fly yard will be approved for use by the CPUC, cleared by Environmental, and prepared for use (cleared) by civil contractors. Once prepared, these yards will be utilized as the work progresses.</p> <p>All provisions contained in this manual must be followed to ensure the safety of the workers.</p>		
FOR ALL EMERGENCIES CALL: 911			
Summit Helicopter Emergency Contact number: (818) 890-0903 Wilson Construction Emergency Contact number: 503-263-6882			
For all incidents, injuries, property damage, near-misses, work-induced illness or chemical over-exposures, the following personnel MUST be immediately contacted upon scene stabilization, but in all cases within one hour:			
Project Personnel	Name	Phone Number(s)	Email
Summit Contract Manager	Bill Nichols	(727) 858-8079	bnichols@welkaviation.com
Summit Project Environment, Safety, and Health Point of Contact	Michael Peters	(503) 866-2428	mpeters@summithelicopter.com
Company Safety Manager	Robby Lenzer	(503) 396-0518	rlenzer@summithelicopter.com
Director of Helicopter Operations	Ron Stewart	503-758-5079	rstewart@wilsonconst.com

Local Hospital Facilities:

Crew Foreman will be responsible for identifying the nearest hospital facility for their crew each day. This location will be reviewed with the crew during their tailboard safety meeting and noted on the tailboard sign-in sheet.

- Loma Linda University Medical Center (Venomous Snake Specialty Center)
11234 Anderson Street, Loma Linda, CA 92354
Phone – (877) 558-6248 Emergency - 911
- Arrowhead Regional Medical Center
400 N Pepper Avenue, Colton, CA 92324
Phone (909) 580-1000 Emergency - 911
- Desert Regional Medical Center (Anti-Venom Available)
1150 N Indian Canyon Drive, Palm Springs, CA 92262
Phone – (760) 323-6511 Emergency - 911

Daily Work Procedure

Crew will review this document and all crewmembers will sign off that they have reviewed and will comply with the contents therein. A meeting will be held prior to any work activity where all project personnel will review this Aviation Safety Plan. This will allow all crewmembers to ask any questions and assure the Project Leadership that all personnel understand the breadth and scope of the plan. A sample of the Daily Tailboard Form is on page A-5 and will be utilized to document daily briefings.

1. Crew will conduct a Daily Tailboard at the Jobsite.
2. The pilot and foreman will conduct the job briefing and will document the briefing on the Summit/Wilson Tailboard Sheet. All participating employees will sign off on the Tailboard Sheet indicating that they understand the work tasks for the day.
3. Safety of Flight will be determined by Summit/Wilson Pilot in command.
4. Safety of Work determined by Barnard foreman.
5. Crew, Materials, Tools & Equipment transported to LZ by Barnard crew members.
6. Helicopter arrives after LZ is set up and secured and watered.
7. Crew will confirm line outage and status of lines and equipment with Barnard and/or SCE. Do not proceed with any work activity without line outage and status of lines and equipment authorization. All crewmembers will be informed as to the status of the line and no work will be performed until the line status information is clearly disseminated to the crew.

Helicopter line work shall only be performed by line workers that have been trained in the work activity they are being asked to perform and have demonstrated proficiency in performing the task.

If at any time before or during the performance of the work, the helicopter line worker, the supervisor, or the pilot feels that dangerous or unsafe conditions exist that could affect the safety of the operation;

they are required to suspend the helicopter operations until those concerns have changed, have been addressed, and corrected. These concerns could include, but are not limited to, the following:

- Inclement weather conditions
- Insufficient clearances
- Exceeding helicopter load limitations
- Structure or conductor damage that causes safety concerns
- Any other conditions that would adversely affect the safety of the operation

General Briefing

- Tailboard briefings will occur daily or more often if the scope of work changes sufficiently to warrant.

- Review assigned duties and tasks.

- Discuss anticipated site conditions.

- Review required personal protective equipment (PPE) and ensure all crewmembers have what they need.

- Review stop work authority.

- Review any Job Hazard Analysis.

- Discuss any biological hazards present on-site.

- Discuss any concerns pertaining to crewmember fatigue.

- Discuss emergency procedures and communication plans.

- Review location of any fire extinguishers, first aid kits, sat phones, etc.

- Review location and use of spill containment.

- Review lessons learned from previous days.

- Confirm Everyone is comfortable with the work plan for the day.

- Other _____

- Other _____

WORK METHODS REFERENCES

Task References - Detailed	
Fueling	Work Methods 300
External Load	Work Methods 400
EHL & HEC	Work Methods 600
Wire Pulling	Work Methods 700

EMERGENCY EQUIPMENT

<input checked="" type="checkbox"/> Emergency Eyewash	Located on fuel service vehicles.
<input checked="" type="checkbox"/> First Aid Supplies	Located on aircraft and fuel service vehicles.
<input checked="" type="checkbox"/> Fire Extinguishers	Located on aircraft and fuel service vehicles.
<input checked="" type="checkbox"/> Spill Containment/Clean-up	Spill kits located on fuel service vehicles.
<input checked="" type="checkbox"/> Pilot's PPE	Flight Helmets, Nomex Clothing, Nomex Gloves, Boots.
<input checked="" type="checkbox"/> Mechanics PPE	Head Protection, Hearing Protection, Eye Protection, FR Clothing, Boots.
<input checked="" type="checkbox"/> Fuelers PPE	Head Protection, Hearing Protection, Eye Protection, FR Clothing, Boots.
<input type="checkbox"/> Other:	
<input type="checkbox"/> Other:	

COMMUNICATION

Safety Data Sheet (SDS) Location:

SDS sheets are located on fuel trucks and at Company hangar facilities

Method of notifying affected Summit Helicopter/Wilson Construction employees:

Personnel that may come in contact with chemicals or substances for which SDSs are kept on file are trained in the location, contents, and mitigation measures contained in SDSs.

Pilot Responsibility and Authority

It is important to understand a pilot's legal responsibility for safety. Pilots are licensed professionals and, as such, have *command* of the helicopter. Federal Aviation Regulations (FARs) document the following rules:

- **FAR 91.3a** – The pilot in command of an aircraft is directly responsible for, and is the final authority, as to the operation of that aircraft.
- **FAR 91.8** – No person may assault, threaten, intimidate, or interfere with a crew member in performance of the crewmen's duties aboard an aircraft being operated.

Personal Protective Equipment

Hard Hats

It is critical that all head protection be equipped with straps that will prevent them from blowing off during helicopter work activity. Fly helmets must be used by the helicopter line workers and all support personnel while the helicopter is operating to prevent gear from coming off and contacting the helicopter rotor blades. Hardhats, even with chin straps, may not be worn while riding on the helicopter skid.

Eye Protection

When working near helicopters, all personnel should wear safety glasses equipped with side shields to prevent debris from blowing into their eyes from the rotor wash caused by the helicopter.

Hearing Protection

Since helicopters produce a high level of mechanical noise during operation, all helicopter line workers and support personnel should always wear hearing protection when working near helicopters.

Inspections

Prior to transporting any workers to a work location, a thorough inspection shall be performed by the line crew to identify any hazardous conditions that would affect the safety of the workers. If any condition is discovered during the inspection that might jeopardize safety or cause concern for the activity to be safely performed, the condition must first be corrected, or safeguards put in place that would eliminate or control the hazard, before transporting the worker. If the hazardous condition cannot be corrected or eliminated, an alternate method of accessing the work location shall be used.

Harnesses

All harnesses used for supporting line workers from a helicopter shall meet all requirements by the FAA and Federal U.S. Occupational Safety and Health Administration regulations covered in *Code of Federal Regulations* 1926 subpart M (fall protection). They shall be properly fitted and attached to the helicopter load line with approved connections that allow for an easy connect and disconnect.

Tools

Helicopter line workers shall not carry any tools on their tool belts unless the tools are secured. Tools carried on the tool belt should not impede the workers movement or pose a hazard of hanging-up on the structure while being placed on or removed from the structure.

Pre-Job Briefing

When helicopters and line crews are working together, a tailboard or pre-job briefing is required. One portion is conducted by the pilot-in-command of the helicopter, and one portion is conducted by the person-in-charge of the line work activities (foreman or supervisor).

All workers involved with helicopter operations or who will be working near helicopter operations must be present during this pre-job briefing or be briefed prior to working near helicopter operations. This includes safety, bio, or inspection personnel. The pilot's pre-job briefing portion should cover all aspects of the flight operations, followed by the person-in-charge's pre-job briefing, covering all aspects of the line work to be performed.

- **Pilot-in-Command Pre-Job Briefing**

The Pilot's pre-job briefing should include, as a minimum, the following items as they pertain to the flight operations for the work to be performed:

- Risk assessment
- Work objectives
- Terrain
- Weather conditions
- Landing zones
- Individual responsibilities for:
 - Foreman (supervisor)
 - Pilot
 - Landing zone crew
 - Ground personnel
 - Line workers
- Hazards
- Review of awareness items
- Emergency planning
- Affirmative action in the event of an accident or helicopter down
- Communication requirements
- Equipment and rigging

- **Foreman Pre-Job Briefing**

The person-in-charge of the line work activities pre-job briefing should include at a minimum:

- Circuits that will be worked on and their voltage class
- Line energized or de-energized:
 - Energized:
 - Distances that must be maintained (minimum approach distances)
 - Where on the structure workers can safely be placed
 - De-energized:
 - Clearance points on the circuit
 - Where grounds are to be installed

- Fault duty of the circuit
 - Personnel work assignments
 - Any hazards that are present and how those hazards will be dealt with:
 - Is there damage on any of the structures, conductors, or insulators?
 - Are there bird guards or overhead ground wires on any structures that would pose a concern?
 - Are there any energized circuits on the structure or nearby that would be of concern?
 - Are there any tall structures or trees nearby that would be of concern?
 - Are the clearances adequate to safely insert the worker?
 - PPE that will be required to safely perform the work
 - Loads and weights they will be dealing with
 - Emergency rescue plan and assignments
 - Affirmative action in the event of an accident or helicopter down
 - Contact information in the event of an emergency

Helicopter Safety

All Employees

Employees shall notify Summit Helicopter/Wilson Construction, the pilot, or other crew members, and the job supervisor if they observe any work practices that are considered unsafe or in violation of safety rules or regulations.

General Requirements

Working near a helicopter exposes workers to risk and hazards that are outside of the normal hazards associated with line work. It is important that all personnel be aware of these hazards and take appropriate measures to protect themselves and others from these hazards. This section will cover the hazards associated with this type of work and the measures to take to protect from them.

Landing Zones

Landing zones (LZs) should be as close to the worksite as conditions will allow.

When selecting the landing zone, make no compromises as to the suitability of the site in an effort to place the landing zone as close as possible to the work location.

- Temporary staging of materials and assembly of tower sections outside of approved work areas shall not occur without prior approval of CPUC or BLM, as appropriate.
- The yards to and from which helicopters will fly shall be identified and approved prior to use and shall be of sufficient size to ensure safe operations.

Summit/Wilson is responsible for identifying LZs that have not been previously approved for construction use. Barnard is responsible for obtaining CPUC/BLM approval to use new work areas as LZs. CPUC/BLM approval for all new LZs, not previously approved for construction, will be obtained prior to

their use. The LZ(s) should also be jointly inspected by the helicopter pilot and the person-in-charge prior to their use to confirm that they are suitable to ensure the safety of the helicopter and all involved personnel. The pilot will have the final say in approving the proposed landing zones during this joint inspection, and if the pilot feels that a landing zone is not suitable, an alternative previously approved landing zone will be located that the pilot feels is suitable. If it is not previously approved, then it will be identified and submitted for approval.

Landing zones require at a minimum, two times the width of the helicopter rotor blades.

The following items should be considered when selecting the LZs:

*Note specific information about any of the items listed below and any hazards that may be associated with their presence:

- Nesting bird buffers (GPS files to be provided by Barnard Environmental/CH2M HILL Engineers, Inc. [CH2M])
- Trees
- Fences
- Loose debris on the ground
- Dry grass or weeds
- Livestock nearby
- Adjacent pole or tower lines
- Line crossings
- Communication structures
- Slope of the terrain
- Large rocks present
- Wind direction
- School located nearby
- Near or easily accessible to public (Will guards or barricades be needed to keep people clear?)
- Houses, businesses, or roads that will be in the flight path
- Does the landing zone permit take-off and landing into the prevailing winds?
- Is the selected landing zone relatively level? Is it possible to use hilltops or ridges?
- Is the ground relatively stable and does it provide good footing for the ground crew and equipment?
- Will a water truck be needed to wet down the LZ to control the dust in the area?
- Does the landing zone permit access for support vehicles if needed?

Approaching and Departing the Helicopter

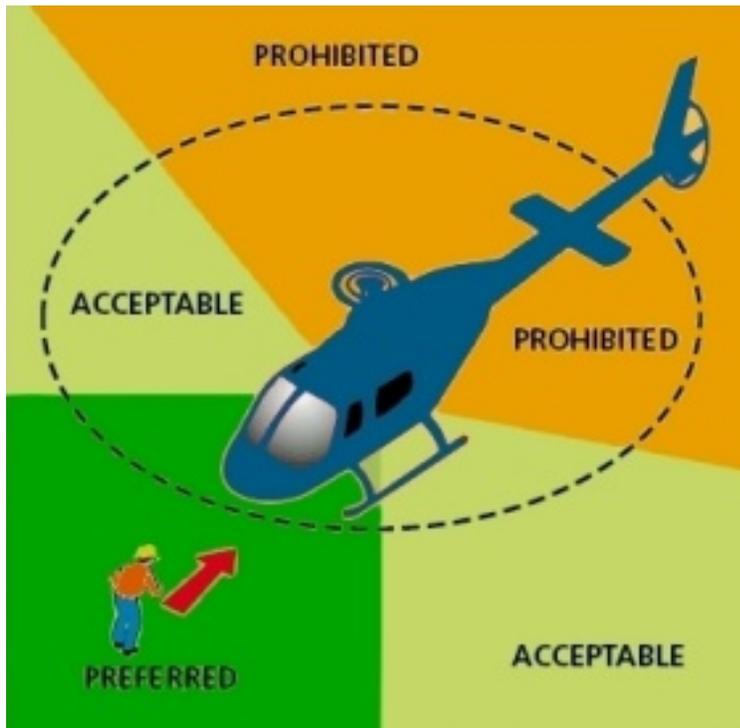
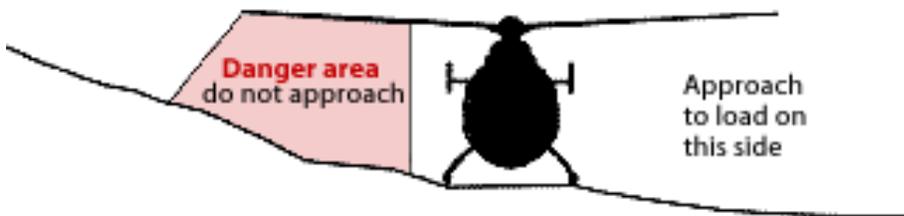
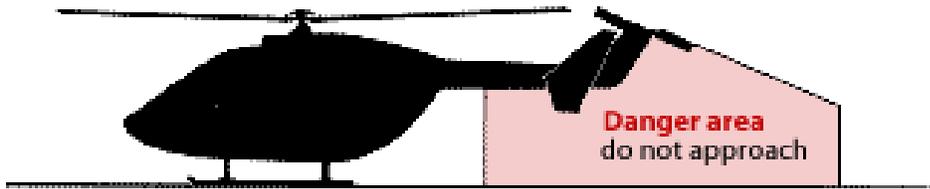
Most accidents involving helicopters occur when people approach the helicopter improperly and are hit by the rotor blades. Flying debris is also a cause of injuries when people are too close to a helicopter and aren't wearing appropriate eye protection. Keep all unnecessary personnel at least 100 feet back from the helicopter at all times.

Approaching and Departing

The following rules apply whenever approaching a helicopter while the rotors are turning:

1. The helicopter pilot is in charge of the flight operations involving the helicopter. Always follow the pilot's instructions.

2. Wait at the end of the designated landing zone and face the front of the helicopter. When the pilot lands in the center of the LZ, everyone should be easily visible to the pilot.
3. Approach and leave the helicopter only after the pilot has given you the OK to do so.
4. Always approach and leave the helicopter from the area within 180° in front of the doors where the pilot can see you.
5. Never approach the helicopter when the main rotors are turning unless signaled to do so by the pilot.
6. Always wear approved eye protection and hard hat with chin strap in place.
7. Walk under main rotor blades with caution and in a crouched position with your head low.
8. On sloping or irregular terrain, approach the helicopter from the area with the greatest clearance from the rotor blades (the low ground).
9. Never walk up a slope when departing from a helicopter.
10. Do not assist the helicopter crew in any way unless specifically asked to do so.
11. Personnel shall not lift their arms or carry objects above waist level and must always carry objects in a horizontal plane when approaching or working near a helicopter.



Note: NEVER slam the doors on the helicopter.

Boarding the Helicopter

Personnel boarding a helicopter shall be aware of and observe the following rules:

- Personnel cleared to board the helicopter shall wait for the “safe to board” signal from the pilot before approaching the helicopter.
- Personnel cleared to board shall approach within the pilot’s normal field of view unless otherwise directed by the pilot.
- Personnel approaching the helicopter in motorized vehicles/or equipment shall never drive under the rotor blades.
- Personnel shall exercise extreme caution when seated at the front seat of the helicopter to ensure they do not touch the helicopter controls or interfere with the pilot in any way.
- Personnel shall ask the pilot where to sit (preferably during pre-flight briefing) when boarding large helicopters where the pilot is separated from the passengers.
- Personnel shall wear seat belts and/or shoulder harnesses at all times while on board operating helicopters.
- Personnel on board the helicopter shall securely latch their doors before take-off and the pilot will ensure that all doors are latched correctly.

Fueling

All workers other than those involved with the fueling operation shall remain clear of helicopters and fuel trucks during fueling operations. The following rules shall apply:

1. Helicopters will be refueled at Project construction yards, helicopter staging areas, construction work areas, or at local airports.
2. In designated refueling areas, spill prevention measures will be used to prevent chemicals from contacting the ground.
3. Safety precautions will be used during refueling of helicopters to prevent fuel and spill prevention equipment from interfering with the operation of the helicopter.
4. Absorbent pads and trays will be readily available in all designated refueling areas.
5. Smoking, open flames, or other sources of ignition shall only occur in designated areas, in accordance with the West of Devers CPUC approved Fire Management Plan.
6. Fueling systems must be securely bonded to the helicopter before and during fueling operations to lessen the possibility of static electrical discharge.
7. Fueling will not be permitted with passengers onboard the helicopter
8. There must be at least one 20-pound dry chemical fire extinguisher, rated for B and C type fires, at each fueling location.

9. Spilled fuel must be cleaned up immediately, in accordance with the West of Devers CPUC approved Hazardous Materials Management Plan. Discontinue all fueling operations until after clean-up and/or wash down.
10. Fueling operations must be conducted with proper Project Storm Water Pollution Prevention Plan best management practices in place, at least 100 feet from riparian/riverine areas and sensitive habitats and at a minimum of 50 feet from any building or 100 feet from any other aircraft.

Note: Fueling can only be performed by Summit Helicopter/Wilson Construction employees that are trained and qualified for fueling.

COMMUNICATIONS

Good communications must be maintained at all times between the helicopter pilot, landing zone personnel, supervisor, and the helicopter line worker. The helicopter must be equipped with a 2-way radio that is capable of operating on a radio frequency used by the line crews, landing zone coordinator, and supervisor.

Direct communication between the pilot and line workers may be in the form of hand signals, head signals, radio communications, or direct verbal communication. For some helicopter line work activities, special radio communications equipment may be necessary to ensure the safety of the operation.

The following lists the communications methods that are approved for use for the various purposes shown:

- Cellular Phones. Cellular phones may be used for the following purposes:
 - Contacting Emergency Services
 - Communicating with line switching center
 - Notifying headquarters of an accident
- 2-Way Radios. 2-way radios can be used for the following purposes:
 - Communicating with air traffic control
 - Communicating with line switching center
 - Communicating with all personnel involved in the helicopter operation, including:
 - Pilot
 - Landing zone
 - Line workers
 - Supervisor

Head Signals

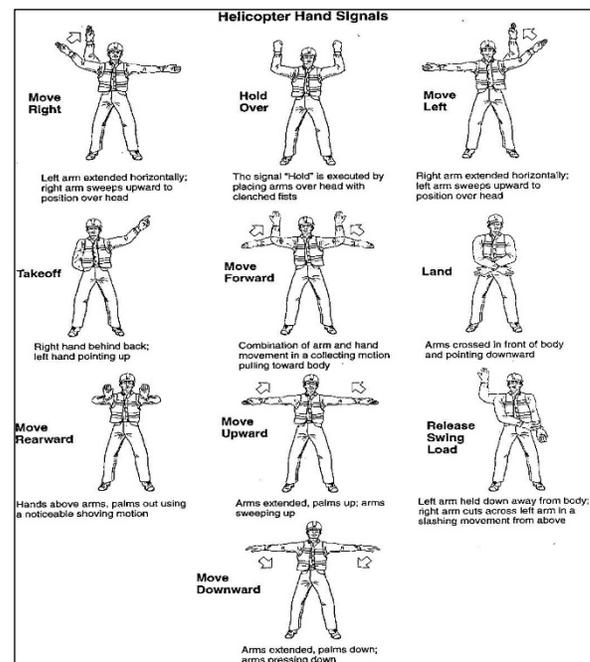
In some instances, none of the previous means of communication are appropriate because the line worker won't have the free use of their hands or radio communications. When this form of communication is needed, it should be covered during the tailboard and the signals reviewed so that they are clearly understood.

Hand Signals

Helicopter hand signals are a universally approved method of communication when working with helicopters. They are accepted for the following applications:

- Communication between the pilot and the landing zone coordinator
- Communication between the helicopter line worker and the pilot
- Communication between the ground worker at the work site and the pilot

The following helicopter hand signals are approved for use and should be agreed to and understood by all personnel involved in the helicopter operations before work begins.



Responsibilities and Duties

All personnel engaged in helicopter line work activities have special assignments and duties for which they are responsible. This section covers what those assignments and duties are for each work classification.

Pilot-in-Command

The Pilot-in-Command is responsible for the following items:

1. Reviewing the Summit Helicopter/Wilson Construction Work Methods and Procedures Manual.
2. Knowing the approved forms of communications used by line workers for this type of work method and fully understand the head and hand signals.
3. Providing a detailed pre-job briefing of the flight operation to all workers.
4. Documenting HEC long line inspection daily.
5. Checking to verify release system is operational and working correctly;
6. Securing or removing loose equipment from the cabin.
7. Checking that the radio is operating correctly and on the correct frequency to communicate with the line crew and landing zone crew.

8. Checking that proper release is obtained to begin flight operations.
9. Completing a communications check between the aircraft and the line worker as applicable:
 - Head signals
 - Hand signals, and/or
 - Radio
11. Completing an equipment and aircraft safety check.
12. Stopping operations if any condition exists that is, in their opinion, unsafe or an unreasonable safety hazard.

Aircraft Fueler/Ground Support

The helicopter crew member responsible for refueling the helicopter is responsible for the ensuring the following duties:

1. Fire extinguishers are available and in proper working condition.
2. The fuel truck is located in a safe location that will not interfere with the landing or takeoff of the helicopter.
3. The fuel nozzle and the aircraft are properly bonded during fueling.
4. That no smoking or open flames are present within 100 feet during the fueling operation.
5. That no smoking or open flames get any closer than 50 feet of the fuel truck at any time.
6. Watches to make sure no civilians approach or enter the landing zone.
7. Removes or installing doors as appropriate.
8. Installs rigging to helicopter as appropriate.
9. Provide support as requested by the pilot.
10. Act as guards to keep the landing zone clear of unauthorized personnel when required.

Foreman

The person-in-charge of the line workers is responsible for the following:

1. Providing a detailed pre-job briefing of the work to be done by all workers.
2. Coordinating all work activities pertaining to the line work.
3. Maintaining communications with the line control center or inspector for the Utility as appropriate.
4. Reporting any accidents or emergencies as appropriate.
5. Stopping operations if any condition exists that is, in their opinion, unsafe or an unreasonable safety hazard.

Appendix B
Aviation Communication Plan

Aviation Communication Plan

Good communications must be maintained at all times between the helicopter pilot, helicopter line worker(s), landing zone coordinator, ground personnel, traffic control personnel, and other aircraft in the area. Additionally, when operating in or near controlled airspace, the helicopter pilot must be in contact with air traffic control and other aircraft operating in the area.

Pre-flight Communication

On the prior day, helicopter flight information shall be provided via the Plan of the Day to CPUC/BLM monitors regarding the specific sites to be used for helicopter picks and the destination of the materials or assemblages being lifted out.

Daily flight notifications shall be issued by e-mail prior to commencement of any project flight activity. Information provided in the e-mail shall include pilot name, contact number, aircraft type, aircraft registration number, aircraft color, work/flight area, beginning time, estimated completion time, and scope of work. This information will be provided to CPUC/BLM monitors as well.

Aircraft Communication Equipment

Aircraft shall be equipped with the following radio communication equipment:

- VHF AM Radio – 118.000 megahertz (MHz) to 138.975 MHz. Used for communication with other aircraft and air traffic control.
- VHF FM Radio – 138.000 MHz to 174.000 MHz. Used to communicate with ground personnel.
- UHF FM Radio – 403.000 MHz to 512.000 MHz. Used to communicate with ground personnel.
- Auxiliary FM Jack – The aircraft has an auxiliary FM radio jack that allows the connection of a portable, handheld radio to be connected to the aircraft audio panel. This allows the use of customer radios that operate on frequencies outside the standard VHF and UHF bands.
- Aircraft Intercom – The aircraft shall have a functioning intercom/interphone system to allow communication between the pilot, passengers, and line workers carried outside the helicopter, such as on the skid or platform.
- Cellular Phones – Cellular phones may be used for the following purposes:
 - Contacting Emergency Services.
 - Contacting FAA Flight Service or Company dispatch for flight following.
 - Communicating with line switching center.
- A GPS system shall be installed in each aircraft:
 - The system shall identify for the pilot all project-approved construction work structures and those areas identified by Barnard/CH2M where overflights are restricted (such as seasonally restricted bird nesting areas and sensitive residential or institutional areas).

- Barnard/CH2M will provide Summit/Wilson with the locations of active nest points, and the corresponding vertical and horizontal helicopter buffer distances (radius) for ground and tower nests. The data will be updated and resubmitted daily, with modifications from the Barnard/CH2M nesting bird management team.
- The GPS-based data system in each aircraft shall automatically record and preserve flight data sufficient to identify the aircraft’s flight path, including altitude above mean sea level (MSL). The system will record flight tracks and aircraft elevation once every three seconds. These data shall be collected daily and submitted to Barnard/CH2M for a period of no less than 6 months and made available to CPUC or BLM upon request.
- Summit/Wilson will provide the daily GPS flight path tracks to Barnard/CH2M in GPX format, and the helicopter data will then be incorporated into a Geographical Information System (GIS) system for storage, analysis, and display. The flight paths can be made available to the CPUC and BLM upon request.

Project Frequencies

Barnard Construction – Air to Ground

Tag	RX	DPL	TX	DPL	Spacing
BC F-1	464.5000	612	469.5000	612	12.5
BC F-2	464.5000	612	464.5000	612	12.5
BC F-3	464.5500	612	464.5500	612	12.5
BC F-4	451.8000	612	456.8000	612	12.5
BC F-5	469.7125	612	469.7125	612	12.5
BC F-1	461.6125	612	461.6125	612	12.5

Summit Helicopter/Wilson Construction – Air to Ground

Tag	RX	CTSS	TX	CTSS	Spacing
SHC F-1	151.700	100	151.700	100	12.5
SHC F-2	151.7600	103.5	151.7600	103.5	12.5
SHC F-3	151.5275	107.2	151.5275	107.2	12.5
WCC CH 1	151.505	73.4	151.505	73.4	12.5
WCC CH 2	151.625	73.4	151.625	73.4	12.5

Project – Air to Air

Tag	TX/RX	
SCE	130.675	Project Air to Air – “Victor”
“02”	123.025	CTAF Air to Air

Helicopter Communication

All aircraft on the project will monitor and make position reports on the project “Victor” frequency. Personnel involved with fueling or helicopter rigging operations will coordinate on one of Summit/Wilson’s designated FM frequencies.

Traffic Control Communication

All personnel involved in traffic control involving street closures, highway/freeway closures or waterway closures shall be in constant 2-way radio communication at all times. At least one person (Primary Contact) from each entity providing security for the closure, such as law enforcement, outside traffic control vendor or customer traffic control personnel, shall also be on that same project frequency. The Primary Contact can then relay closure-specific information to their respective personnel on their own radio frequencies; who can then relay their status on the project frequency. This reduces the amount of chatter associated with the closure itself and the number of radios needed for large closures.

Wire Pulling Communication

There shall be constant 2-way radio communication, on a project-specific frequency, between the pilot and puller operator during helicopter involvement in the pulling operation. Other personnel associated with the pulling operation should also be on the wire pull frequency. Communication during the pull, while the helicopter is involved, shall be limited to the pilot and puller operator, although anyone can cease pulling at any time for safety reasons by using the phrase "Hold the Pull" at which time the pilot will stop pulling and say, "Chopper Held" and the puller operator will say "Puller Held." All other radio traffic relating to non-pulling communication should be done on another frequency.

HEC, Platform, or Skid Transfer Communication

Using a helicopter to transfer line workers between the ground and structures or structure-to-structure is safe and efficient. It is very important to have good communications between the pilot and line worker during these operations. This communication can be in the form of: radio communications, hand signals, and/or head signals. The form of communication that will be used for each task must be agreed to before starting flight operations and both the pilot and line worker must understand the signals that will be used.

The following communication points and information between the pilot and line worker are important to ensure that the operation is performed safely when making these transfers.

When removing the line worker on a structure, the pilot must know:

1. The location where the line worker will be picked up from and taken to next.
2. The location where the worker will be placed next, on either the ground or structure.
3. The location where the worker will be placed on the ground or structure.
4. Any obstacles at or surrounding the landing site.
5. The conditions of the transfer location such as: winds, slope, dust, etc.
6. When the worker is on the ground or on the structure and their safety is attached.
7. When it is safe for the helicopter to lift away from the ground or structure.

HEC, Platform, or Skid Work Communication

The pilot must maneuver the helicopter to the work location and hold a position that allows the line worker on the platform or skid to attach the bond from the helicopter to the conductor. Once the bond is installed, the pilot will assume a position that allows the helicopter line worker to easily access the work area.

It is essential for this work that the pilot and line worker have constant communication with each other. The only way this can be accomplished is direct, radio communication either through FM radios or aircraft intercom/interphone. Head or hand signals alone do not provide the level of communication needed for these operations.

Communication for performing work off the helicopter includes the following crew coordination tasks:

1. Approach to the structure or conductor
2. Structure/conductor clearance
3. Bonding on to the structure/conductor
4. Coordination during the transfer/work task
5. Bond removal
6. Departure from the structure/conductor
7. Any other safety need for communication

Communication necessary for safe operations are outlined in the Summit/Wilson Work Methods and Procedures Manual for each specific work task.

Appendix C
Aviation Risk Matrix

Table C-1. Aviation Risk Matrix

Barnard Helicopter Use Plan

All Aircraft Operations	Authority	The pilot in command is the absolute authority for the aircraft operation.
Effective Communication	Miscommunication Between Different Workgroups Receiving Incorrect Clearances to Work Line Incorrect Aircraft Movement Aviation Electronics Failure Leading to Loss of Radio Communication	<ul style="list-style-type: none"> • Daily Job Plan Briefings each morning and anytime there is a change in job scope. Pilot, essential crew members, and ground personnel will attend and sign in on the Tailboard Form. • Be very detailed with all Tailboard discussions and write details on the tailboard document. • As required, personnel working adjacent to LZ/PZ and aircraft will maintain positive communications. • Radio frequencies will be kept clear of nonessential traffic. • Discuss hand and head signals in case of radio malfunction and Lost Communication. • Job Superintendent and Pilot in Command will be the originators of communication and disseminate information to others involved in the work evolution.
Emergencies	Aircraft Accident	<ul style="list-style-type: none"> • Designated person will call 911. • Personnel will comply with tailboard briefing on all emergency actions.
Safety	Personnel Injury	<ul style="list-style-type: none"> • Designated person will call 911 to have trained medical personnel respond to emergency. • Closest Hospital will be outlined on Safety Plan.
General Aircraft Safety	General Aircraft Hazards	<ul style="list-style-type: none"> • Noise protection should be worn within 100 feet of operating aircraft. • Chin straps shall be worn on hard hats and eye protection will be worn by any workers receiving external loads. • Personnel shall have visual contact with the pilot and have approval to approach prior to moving toward the aircraft. • Clothing shall consist of protective wear with no loose or dangling items.

Table C-1. Aviation Risk Matrix <i>Barnard Helicopter Use Plan</i>		
All Aircraft Operations	Authority	The pilot in command is the absolute authority for the aircraft operation.
Personnel Safety	General Personnel Safety and LZ Safety	<ul style="list-style-type: none"> • LZ/PZ shall be marked in accordance with Pilot’s requirements. • No unauthorized personnel shall be permitted within the confines without the approval of the pilot or Summit Helicopter/Wilson Construction ground personnel. • During aircraft operations, no personnel shall approach aircraft without visual contact and approval of the pilot. • Personnel shall only approach aircraft head-on toward the front and never toward the tail and tail rotor. • Personnel must be aware of ground slope and the decrease of allowable head space between the ground and overhead turning rotors.
Personnel Safety	Deployment of Personnel	<ul style="list-style-type: none"> • Unless addressed in the pre-job safety brief, passenger flights shall not be conducted. Only authorized personnel that have attended the pre-job aircraft safety brief shall be permitted to ride in aircraft. Personnel shall be moved only to and from pre-inspected, pilot approved LZ/PZs. Final authority for passenger operations shall lie with, and at the discretion of, the pilot in command.
External Loads	Flight Hazard to Personnel or Property on the Ground (i.e., Road, Congested Area or Lines)	<ul style="list-style-type: none"> • Aircraft shall be operated in accordance with Federal Aviation Regulations. • Aircraft shall be operated at not less than the altitudes specified in the Federal Aviation Regulations (FARs) to include the maintaining of adequate clearance from trees along the flight path both vertically and horizontally.

Table C-1. Aviation Risk Matrix
Barnard Helicopter Use Plan

All Aircraft Operations	Authority	The pilot in command is the absolute authority for the aircraft operation.
Equipment Inspection	Falls Equipment Damage Physical Rigging Failure	<ul style="list-style-type: none"> • All Personal Protective Equipment (PPE) (Fall Protection and all PPE) will be inspected daily for defects and damage. • Any PPE or Fall Protection that does not pass inspection by a Competent Person will be tagged “Out of Service” and other materials must be obtained. • All rigging shall be inspected daily for serviceability and suitability prior to operations by the appropriate and qualified personnel. • Rigging shall be laid out and connections checked prior to external load operations. • External load release mechanisms shall be tested prior to operations. • In the event of a failure, all operations shall cease until foreman and helicopter operation specialist have inspected and repaired, to serviceable conditions, all affected components.
External Load Operations	Passenger Prohibition	<ul style="list-style-type: none"> • No non-essential personnel shall be on board aircraft during the conducting of external load operations.
External Load Operations	Rigging Failure	<ul style="list-style-type: none"> • All rigging shall be inspected daily for serviceability and suitability prior to operations by the appropriate and qualified personnel. • Rigging shall be laid out and connections checked prior to external load operations. • External load release mechanisms shall be tested operations prior to operations. • In the event of a failure, all operations shall cease until foreman and pilot have inspected and repaired, to serviceable conditions, all affected components.
External Load Operations	Overhead Hazard	<ul style="list-style-type: none"> • No personnel will be allowed to stand under any load carried by the helicopter. All personnel designated as part of the working crew will keep the flying load in view at all times.

Table C-1. Aviation Risk Matrix <i>Barnard Helicopter Use Plan</i>		
All Aircraft Operations	Authority	The pilot in command is the absolute authority for the aircraft operation.
External Load Operations	Communications Failure	<ul style="list-style-type: none"> • Radio checks will be completed immediately prior to operations with all assigned personnel checking in. • Head and/or hand signals can be substitutes for radio communication in some cases. • Radio communication shall be required for wire pulling operations. • Lifting operations may be suspended until communications are re-established. Loads would then be returned to the fly yard and set back on the ground. Aircraft shall hold on the ground until communications are restored.
Environmental	Fuel Release/Oil Release/Impacts to Sensitive Resources/Noise Impacts	<ul style="list-style-type: none"> • Helicopter use shall be avoided or managed to the extent feasible from February 1 to August 31. • All vehicles shall be properly placarded and labeled. • Spill kits and dam containment material required in all fueling vehicles. • Utilize proper fueling procedures to prevent spills. • Communicate with project biologists in the event of any environmental concerns and or spills.
Flight Rules	Flight Hazard to Personnel or Property on the Ground (i.e., Road, Congested Area or Lines)	<ul style="list-style-type: none"> • Aircraft shall be operated in accordance with Federal Aviation Regulations, and crews shall employ the use of guard structures and/or flaggers as appropriate. • Aircraft shall be operated at not less than the altitudes as specified in the FARs to include the maintaining of adequate clearance from trees along the flight path, both vertically and horizontally. • External load operations (i.e., sling loads) shall be conducted in accordance with FAR Part 133. Sparsely populated area operations may be conducted after the area has been cleared and the load is flown in a manner posing no risk to person or property on the ground. Congested Area Plans may not be required for these operations due to the remote locations. • External loads will be secured by appropriate rigging. • Only qualified riggers shall prepare and attach external loads to helicopters. Rigging shall be appropriate to the nature of the load, including the use of devices necessary to prevent materials being lost in flight.

Table C-1. Aviation Risk Matrix <i>Barnard Helicopter Use Plan</i>		
All Aircraft Operations	Authority	The pilot in command is the absolute authority for the aircraft operation.
		<ul style="list-style-type: none"> When necessary to reduce load in-flight spinning and movement, drag chutes will be attached to loads. The need for drag chutes will be determined by the pilot and rigging personnel.
Deployment of Personnel	Flight Hazard to Personnel	<ul style="list-style-type: none"> Unless addressed in the pre-job safety brief, passenger flights shall not be conducted. Only authorized personnel that have attended the pre-job aircraft safety brief shall be permitted to ride in the aircraft. Personnel shall be moved only to and from pre-inspected, pilot approved LZ/PZs. Final authority for passenger operations shall lie with, and at the discretion of, the pilot in command.
Staging Area Security and Movement around Helicopter	Main Rotor, Tail Rotor, and Engine Exhaust Hazards Improper Entering and Departing of the Aircraft Loose Articles Around Helicopter, Unauthorized People/Equipment Around Helicopter	<ul style="list-style-type: none"> Follow LZ Safety Rules in Summit Helicopter/Wilson Construction’s Work Methods Manual. Maintain the LZ by watering enough to mitigate dust issues. Control vehicle access to the LZ, especially when aircraft blades are turning. Control access to the LZ, only personnel briefed on the Daily Tailboard should be in the LZ. Beware of rotor wash; keep LZ free of debris, loose articles; keep vehicle windows up and trailer doors secured, etc. All equipment, material, etc. should be carried at waist level in the LZ to keep out of contact with rotor blades.
Potential Difference	Difference in Potential Between Aircraft and Structure Potential Difference Between Supposedly De-energized Lines and Aerial Lineman on the Structures	<ul style="list-style-type: none"> Lineman will utilize wands and/or bonding clamps to equalize potential prior to transfer operations. Do not proceed with any work without testing and grounding. Testing of the line requires independent verification of testing results, per procedure.

Table C-1. Aviation Risk Matrix

Barnard Helicopter Use Plan

All Aircraft Operations	Authority	The pilot in command is the absolute authority for the aircraft operation.
Aircraft Rotor Contact with Wires	Aircraft Rotor Experiences Blade Strikes with Main or Tail Rotor Blades During Revolutions	<ul style="list-style-type: none"> • Helicopter will avoid rotors coming in the vicinity of wires during long lining. • Daily Job Plans prior to each day’s work evolution reviews rotor blade clearance limits. • Aircraft will always traverse line crossings at the lines structures, as they are the highest point. • Stop Work policy in place for all Pilots and Crewmembers. • Pilot and Crewmembers in communication at all time. • Pilots are highly experienced and well versed in powerline projects.

Appendix D

Helicopter Buffer Examples

Helicopter Buffers

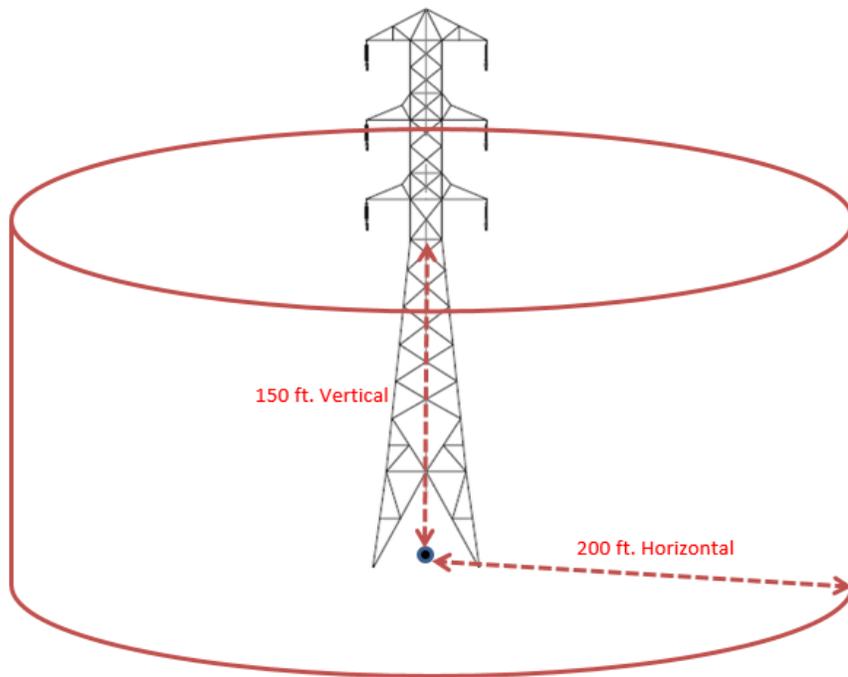


Figure 1. Example of Helicopter Buffer When Nest Is on the Ground

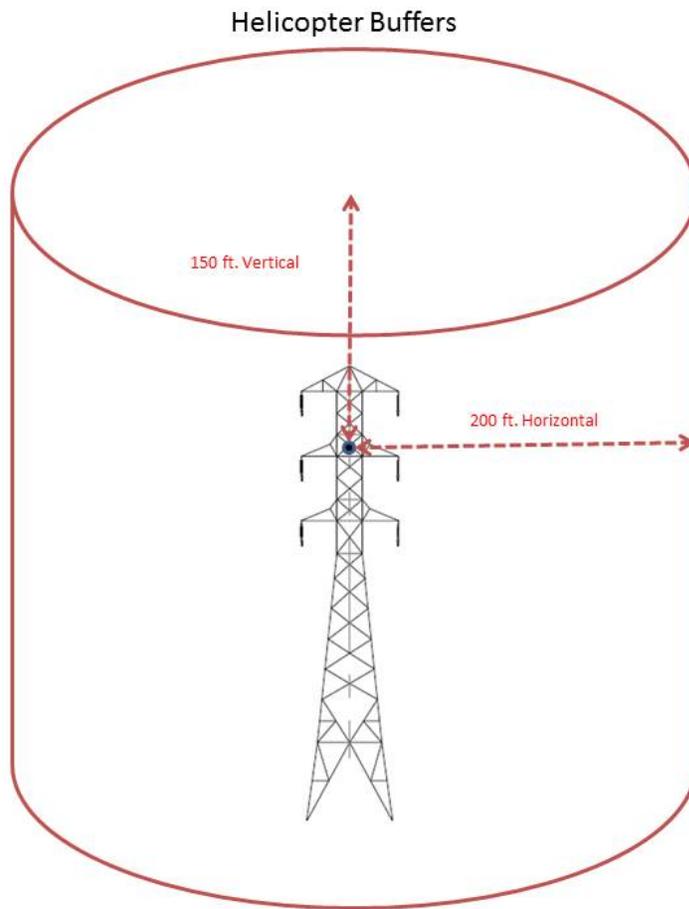


Figure 2. Example of Helicopter Buffers When a Nest Is Located Within the Tower