

<b>JOB HAZARD ANALYSIS</b>	<b>1. JOB TITLE:</b> Importing Trail Tread Material by Helicopter, Operations	<b>2. DATE:</b>	<input checked="" type="checkbox"/> <b>NEW</b> <input type="checkbox"/> <b>REVISED</b>
<b>3. TITLE OF WORKER(S):</b> Trail Supervisors, Maintenance Worker Leaders, Maintenance Workers, Laborers.	<b>4. NAME OF ORGANIZATION:</b> Rocky Mountain National Park	<b>5. LOCATION:</b> ROMO- all trails	<b>ANALYSIS BY:</b>
<b>6. DEPARTMENT:</b> Maintenance--Trails	<b>10. SUPERVISOR:</b>	<b>APPROVED BY:</b>	<b>REVIEWED BY:</b>

**11: REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT:**

Persons working in, under, or around helicopter must wear Nomex clothing (flight suit or fire nomex), hardhat or flight helmet, eye protection (for blowing dust), hearing protection, gloves (nomex or leather), leather boots. High visibility clothing preferable for some situations.

<b>7. SEQUENCE OF BASIC JOB STEPS</b>	<b>8. POTENTIAL HAZARDS</b>	<b>9. RECOMMENDED ACTION OR PROCEDURE</b>
Preparing for work: general.	Injury or property damage as a result of lack of knowledge, communication, or poorly maintained equipment.	- <b>Our most important achievement is for every employee to conclude each and every day without personal injury or damage to property.</b> -Employees are provided adequate orientation, equipment and training as per their duties and responsibilities. -Employees participate in and support an environment where all valid safety concerns can be raised and addressed, without judgement or reprisal.
	Injury or property damage as a result of lack of PPE.	-Helicopter Managers and Crew Members and supervisors are responsible for providing workers with adequate PPE and related training. Refer to block 11.
	Injury or property damage as a result of lack of communication.	-Helicopter Managers and supervisors will conduct and document a pre-project/operation safety meetings to discuss safety issues, project, and other related topics. -Helicopter Managers, Helispot Managers, and/or Pilot will also conduct, whenever appropriate, 'tailgate' safety meetings with crews to provide project orientation, assign work, and avoid miscommunication.
Preparing helibase and helispots for operation	Helibase and/or helispot not adequately set up	Follow recommended protocol for: 1. Touchdown Pad dimension and Safety Circle Diameter <ul style="list-style-type: none"> <li>• Type I- 30' x 30' Pad and 110' Safety Circle</li> <li>• Type II- 20' x 20' Pad and 90' Safety Circle</li> <li>• Type III- 15' x 15' Pad and 75' Safety Circle</li> <li>• 8:1 Slope Limit (8' elevation limit in 100' length)</li> </ul> 2. Adequate Approach-Departure Paths <ul style="list-style-type: none"> <li>• Multiple approaches?</li> <li>• Into prevailing wind?</li> <li>• Free of obstructions?</li> <li>• Adequate minimum width is same as Safety Circle</li> <li>• Avoid Full Performance approaches and take-offs</li> </ul> 3. Pad adequate <ul style="list-style-type: none"> <li>• Solid surface or take actions to improve- cribbing in boggy areas, etc.</li> <li>• Dust abatement necessary?</li> <li>• Wind Indicator(s)</li> <li>• Fire extinguisher/ crash kit</li> </ul>

7. SEQUENCE OF BASIC JOB STEPS	8. POTENTIAL HAZARDS	9. RECOMMENDED ACTION OR PROCEDURE
Communications	Radio Communication are unclear or inadequate for safe mission.	All involved: Pilot, Helicopter Manager, Helicopter Crew Members, ROMO Dispatch, Flaggers, and other Ground Crew members are in constant and clear radio communication. If problems, stop mission until resolved.
Loading buckets or mega bags with tread material.	Know your weights! Of bucket/bag, tread material, Long line plus any extras (scale, shackles etc.). Total weight of everything must not exceed allowable payload according to load calculation for density altitude.	Get correct Load Calculation for all possible helispots and helibase Weigh everything ahead of use. Do not Guess! Start small or light with tread material until you can adequately judge what each bucket weighs. If in doubt, go less. Be aware of increasing temperatures and increasing altitude and its effect on pressure altitude. Communicate with Pilot often on adjusting loads after refueling or for any changing conditions. Monitor tread material for ease of release from bucket. If material gets wet, often tougher to get out of bucket.
Marshalling buckets in and out from Helibase	Conditions change from previous pick. Pilot picks up bucket catching fingers in longline or between bucket and longline. Pilot has to set down the bucket unexpectedly. Bucket cable is kinked or wrapped around something. Pilot or ground crew getting tired or sloppy in actions.	Try to talk to pilot with any instructions before final approach (wind direction, speed, fuelling needs, etc.) Watch fingers while switching remote hook from one bucket to the next. Do not get directly under bucket. Watch longline and bucket for each load to make sure it is free and clear. Use correct hand signals to inform pilot at all times how load is doing. Watch for obstructions as bucket is picked up and leaves area. Follow flight of bucket/ship until clear of helibase. Be aware of pilot/ground crew fatigue and inattention especially after multiple flights
Marshalling buckets in and out from helispot (drop site)	Winds change or get variable. Drop site has moved from last alight. In area where it is difficult for pilot to spot you (heavy tree cover, etc.). Pilot has to set down the bucket unexpectedly.	Try to talk to pilot with any instructions before final approach (wind direction, speed, fuelling needs, etc.). If drop site is different from last drop, make sure pilot knows change (100 yards up trail, etc.). Have "attention getter" to aid pilot- smokes, flagging, movable object, etc. Have adequate open area for drop site. Allow pilot to bring in bucket before approaching. Do not get body or feet under bucket in case pilot sets it down. Once empty, move away and let pilot clear drop site. Prepare for next load or drop site.
Environmental Conditions change	Front comes in, winds pick up to upper limits, precipitation moves in, visibility decreases to less than 1 mile and less than 500' ceiling. Temperatures climb and change pressure altitude levels affecting load calculations.	Communicate any and all changes to pilot, helibase, and/or ROMO dispatch. If conditions make project unsafe, SPEAK UP and relay concerns to any and all involved. Nothing is more important than a safe operation.
Refueling of Helicopter	Possible ignition of fuel, fuel spillage	HECM or manager monitor fueling process, standing by with fire extinguisher. Have absorbent materials or socks available to contain or clean up fuel spills.
Situational Awareness	Fatigue, loss of concentration, physical tiredness leading to unsafe situations	Trade out duties and activities to keep fresh mentally and physically. Take breaks or call for breaks if watch out situations arise during operations. Delegate tasks or ask for help if not able to cover all responsibilities.

**JSA Instructions**

The JSA shall identify the location of the work project or activity, the name of employee(s) writing the JSA, the date(s) of development, and the name of the appropriate line officer approving it. The supervisor acknowledges that employees have read and understand the contents, have received the required training, and are qualified to perform the work project or activity.

**Blocks 1, 2, 3, 4, 5, and 6:** Self-explanatory

**Block 7:** Identify all tasks and procedures associated with the work project or activity that have potential to cause injury or illness to personnel and damage to property or material. Include emergency evacuation procedures (EEP).

**Block 8:** Identify all known or suspect hazards associated with each respective task/procedure listed in block 7. For example:

- a. Research past accidents/incidents.
- b. Research the Health and Safety Code or other appropriate literature.
- c. Discuss the work project/activity with participants
- d. Observe the work project/activity
- e. A combination of the above

**Block 9:** Identify appropriate actions to reduce or eliminate the hazards identified in block 8. Abatement measures listed below are in the order of the preferred abatement method:

- a. Engineering Controls (the most desirable method of abatement). For example, ergonomically designed tools, equipment and furniture.
- b. Substitution. For example, switching to high flash point, non-toxic solvents.
- c. Administrative Controls. For example, limiting exposure by reducing the work schedule.
- d. PPE (least desirable method of abatement). For example, using hearing protection when working with or close to portable machines (chain saws, rock drills, portable water pumps)
- e. A combination of the above.

**Block 10:** The JSA must be reviewed and approved by a supervisor.

**Block 11:** List all recommended and required PPE relevant for job/activity.

**Emergency Evacuation Instructions**

Work supervisors and crew members are responsible for developing and discussing field emergency evacuation procedures (EEP) and alternatives in the event a person(s) becomes seriously ill or injured at the work site.

Be prepared to provide the following information:

- a. Nature of the accident or injury (avoid using victim’s name).
- b. Type of assistance needed, if any (ground, air or water evacuation).
- c. Location of accident or injury, best access route into the work site (road name/number), identifiable ground/air landmarks.
- d. Radio frequency(s).
- e. Contact person.
- f. Local hazards to ground vehicles or aviation.
- g. Weather conditions (wind speed & direction, visibility, temp).
- h. Topography.
- i. Number of person(s) to be transported
- j. Estimated weight of passengers for air/water evacuation.

The items listed above serve only as guidelines for the development of emergency evacuation procedures.

**JSA and Emergency Evacuation Procedures Acknowledgement**

As supervisor I acknowledge that the following employees have participated in the development of this JSA, accompanying evacuation procedures and have also been briefed on the provisions thereof:

Supervisor’s Signature:

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