
Petroleum Risk Assessment and Risk Reduction Procedures

**Golden Meadows Exploration Project
Valley County, Idaho**

May 2012

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1 INTRODUCTION

Activities associated with the Golden Meadows Exploration Project require large quantities of fuel (on-road and off-road diesel, gasoline, Jet-A) to operate drill rigs and vehicles, fly helicopters, and conduct day-to-day operations. Due to the remote location, fuel needs to be delivered to the site on a regular basis on Valley County and National Forest System (NFS) roads through Boise National Forest (BOI) and Payette National Forest (PAF) lands. Fuel hauling activities to this area presents some risk of accidents and the potential for petroleum products spilling into local waterways. This document supplements Midas Gold, Inc.'s (MGI, project proponent) standard operating procedures (SOP) fuel transportation document, by assessing the potential causes of accidents and petroleum spills and identifying risk reduction procedures.

2 BACKGROUND

MGI proposes to conduct mineral exploration activities over three years after project approval in the Stibnite-Yellow Pine Mining District (District) in central Idaho as part of the company's Golden Meadows exploration project. The objective of exploration activities is to better define mineral deposit potential in the District. The project area is located about 38 miles east of McCall, Idaho, in the East Fork of the South Fork Salmon River (EFSFSR) drainage (Figure 1).

The project area is in remote, rugged, high-relief terrain on both private property, and public lands administered by the Krassel Ranger District of the PAF (Forest Service). EFSFSR is the major drainage in the area, which flows south to north. Tributaries of the EFSFSR in the project area include: Meadow Creek, Garnet Creek, Fiddle Creek, Midnight Creek, Unnamed Creek, and Sugar Creek.

3 SUMMARY OF PROPOSED FUEL TRANSPORTATION PROCEDURES

MGI has developed an SOP for fuel transportation. Fuel would be transported from Cascade, Idaho, to the temporary camp site near the former Stibnite town site. The camp site and petroleum storage area are on private land. Fuel would be stored in aboveground storage tanks (ASTs) (current capacity is 45,000 gallons and MGI plans to expand the storage capacity to approximately 55,000 gallons). The ASTs have secondary containment and are constructed, managed, and monitored in accordance with a spill prevention control and countermeasure (SPCC) plan as per 40 Code of Federal Register (CFR) 112.

The following routes provide fuel hauling access to the project site (Figure 1):

- From the Cascade: Warm Lake Road (FS 579) for 37 miles to Landmark, then north on Johnson Creek Road (FS 413) for 28 miles to Yellow Pine, and 14 miles on Stibnite Road

(FS 412) to the project sites. (This is the preferred route for transporting fuel during snow-free months.)

- From the Cascade: Warm Lake Road (FS 579) for 35 miles to Knox, then north on South Fork Road (FS 474/674) for 32 miles to East Fork Road (FS412), 16 miles east on East Fork Road (FS 412) to Yellow Pine, and 14 miles on Stibnite Road (FS 412) to the project site. (This is the only route for transporting fuel during the winter.)

Fuel convoys would generally consist of two to four 4,000-gallon tanker trucks, depending on fuel requirements at the site and the availability of transport trucks. No fuel trailer pups would be used. The trucks would be accompanied by a pilot vehicle and an emergency response truck. Convoys would normally travel on back-to-back days (one convoy each day on two consecutive days in a given week). Specific convoy procedures and accident mitigation measures are described in the SOP and presented below.

Johnson Creek is the preferred route for transporting fuel in large trucks during snow-free conditions because it is generally wider and further from adjacent waterways than the other roads. Johnson Creek Road is normally closed during the winter (approximately mid-December through mid-May), and the only open route to the site is the South Fork Road, which is plowed by Valley County. If future logistics, weather conditions, fish and wildlife protection needs, or other conditions dictate that snow removal take place on Johnson Creek Road throughout the winter, then the SOP would be revised accordingly.

During spring break-up conditions (usually late March to late May), when roadbeds are often slushy and soft, vehicle weight restrictions are imposed by the Forest Service on the South Fork Road and by Valley County on county roads (East Fork Road, Stibnite Road and Johnson Creek Road, if open). Since the 4,000-gallon trucks exceed the weight limit on these roads during this period, fuel would be transported in a single truck containing a 500-gallon tank using the South Fork Road route. A pilot car would accompany the truck. Specific procedures and mitigation measures are described in the SOP.

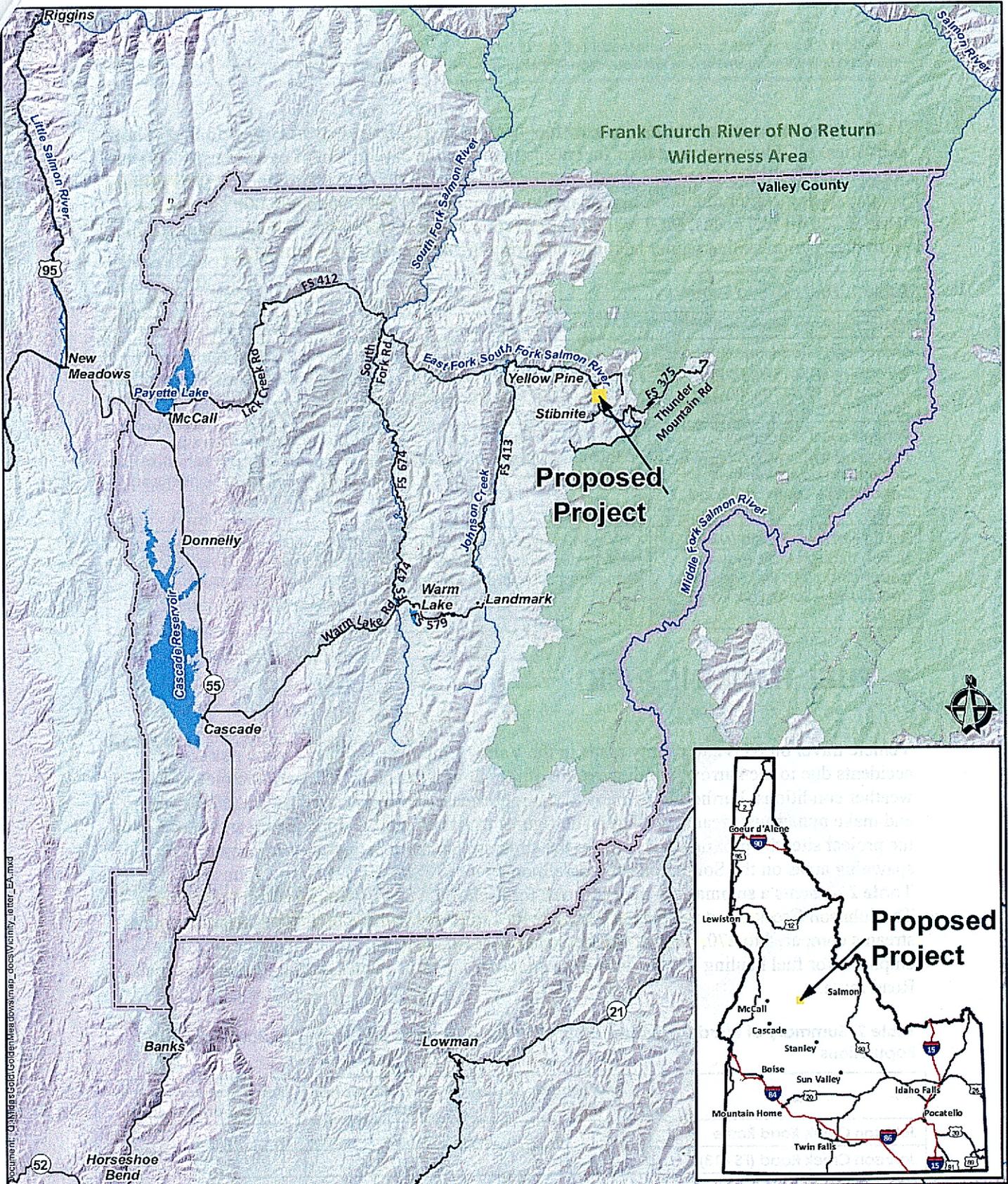


Figure 1. Location of Proposed Golden Meadows Project
 Midas Gold Inc., Golden Meadows Exploration Project

Data Sources: USGS; BLM; State of Idaho
 Geospatial Clearinghouse (INSIDE Idaho); US
 Census Bureau; Payette National Forest

Map Date: May, 2012
 NAD 83, UTM 11N, Horizontal and Vertical Units are Meters, North is UTM Grid North



Table 1 presents a summary of proposed fuel hauling routes, frequency of trips, and fuel volume deliveries. MGI has estimated their fuel needs based on the 3-year plan of operations (POO) at approximately 2000 gallons per day during the snow-free period and approximately 500 gallons per day during winter months. This equates to approximately 500,000 to 600,000 gallons per year. Based on fuel needs, MGI will attempt to conduct the majority of fuel hauling during the snow-free period so that winter hauling and spring breakup hauling are limited.

Table 1. Fuel Hauling Summary

Fuel Hauling Period and Route	Convoy Trips	Fuel Delivery to Project Site
Snow-free Period (June through November, may vary depending upon weather conditions) – Johnson Creek Road Route	Two convoy trips per week. Two to four fuel trucks per convoy (4000 gallons per truck).	16,000 to 32,000 gallons per week. Total of approximately 416,000 to 832,000 gallons over a 26 week period.
Winter Period (December through March, may vary depending upon weather conditions) – South Fork Road Route	Two convoy trips per month. Two to four fuel trucks (4000 gallons per truck).	16,000 to 32,000 gallons per month. Total of approximately 64,000 to 128,000 gallons based on four month period.
Spring Break-up Period (Mid-March through May, may vary depending upon weather conditions) – South Fork Road Route	One convoy per week. Limited hauling due to road weight restrictions, 500-gallon limit per truck.	1000 to 4000 gallons per week but will attempt to limit trips (10,000 to 40,000 gallons over a 10 week period).

4 FUEL HAULING RISK

Vehicle travel on NFS and county roads in the Valley County area present some risk for accidents due to the narrow, winding nature of these mountain roads and periodic inclement weather conditions. Furthermore, many of the routes described above travel parallel to streams and make numerous stream crossings. The figures in Attachment A illustrate the travel routes to the project site, the proximity of roads to the streams, and the location of anadromous fish spawning areas on the South Fork of the Salmon River (SFSR), EFSFSR, and Johnson Creek. **Table 2** presents a summary of miles of road for each route that is within 300 feet of a stream. The Johnson Creek Road route has 140,457 feet of roadway within 300 feet of the anadromous streams compared to 270,168 feet for the South Fork Road Route. As summarized in **Table 1**, emphasis for fuel hauling will be during the snow-free months, which uses the Johnson Creek Road route.

Table 2. Summary of Road Segments within 300 Feet of Streams Supporting Anadromous Fish Populations

Road	Total Length (feet)	Length within 300 feet of stream	Percent of Road within 300 feet of Stream
Johnson Creek Road Route			
Johnson Creek Road (FS 413)	133,458	75,479	57
Stibnite Road (FS 412)	83,845	64,978	78
Total	217,303	140,457	65

Table 2. Summary of Road Segments within 300 Feet of Streams Supporting Anadromous Fish Populations

Road	Total Length (feet)	Length within 300 feet of stream	Percent of Road within 300 feet of Stream
South Fork Road Route			
South Fork Road (FS474.674)	167,416	128,466	77
East Fork Road (FS 412)	82,845	76,724	93
Stibnite Road (FS 412)	83,845	64,978	78
Total	304,106	270,168	89

Traffic accident data for the routes described above are incomplete and do not allow for statistical evaluation of accident probability. Rather, the approach used here is to identify causes of accidents and then to describe procedures to be taken to minimize risk of accidents.

The following is a list of causes of accidents, based on a review of accident report summaries for rural and Forest Service roads:

Driver - Human Error

- Speed too fast for road conditions
- Following too close behind another vehicles
- Inattentiveness (distracted)
- Fatigue
- Miss-shifting gears on grades
- Failure to share road
- Inexperienced driver

Mechanical – Vehicle Factors

- Brake failure
- Structural breakdown (engine failure)
- Tire troubles
- No tire chain use in ice or snow conditions or miss-use of chains

Environmental -Weather and Road Conditions

- Snow and ice
- Flooding
- Soft shoulders
- Poor visibility (fog, snow storm, rain)
- Wildlife

5 TRANSPORTATION RISK REDUCTION MEASURES

5.1 Objective

The objective of these risk reduction measures is to develop a coordinated road use policy for the Golden Meadows exploration project and to minimize environmental and public safety risks related to transporting fuel to the project site. To reduce potential accidents, the following SOP will be conducted for fuel transport.

5.2 Standard Operating Procedures

- A fuel management plan has been created for the project that analyzes measures for minimizing the potential for fuel spills along the main routes into the activity area. The fuel management plan also outlines the times of year and the routes that will be used to deliver fuel into the project area. The fuel plan will be followed for all activities associated with fuel delivery.
- For non-winter conditions, the Johnson Creek Road route will be used:
 - From Cascade: Warm Lake Road (FS 579) for 37 miles to Landmark, then north on Johnson Creek Road (FS 413) for 28 miles to Yellow Pine, and 14 miles on Stibnite Road (FS 412) to the project sites.
- Road clearing and maintenance activities will be coordinated with Valley County as necessary.
- The Forest Service project administrator and Valley County sheriff dispatch will be notified a minimum of 48 hours in advance of the fuel convoy.
- Adequate support personnel will be scheduled, including a minimum of three 40-hour hazardous waste operations and emergency response (HAZWOPER)-trained spill responders.
- The day of the convoy:
 - Prior to the convoy leaving Cascade, a health and safety meeting will be conducted with the convoy staff. Topics to be discussed at a minimum include:
 - i. Anticipated road conditions and weather forecast.
 - ii. Roles and responsibilities of all participants.
 - iii. Communication plan protocols (including truck to truck radios, satellite phones, site communication when the convoy reaches Yellow Pine and notification protocol in event of accident or fuel release).
 - iv. Emergency response procedures and available equipment. Goals of on-site first responders, safety issues, and protocols.
 - v. Emergency numbers and call order.
 - vi. SPOT™ GPS Messenger operation (provides satellite tracking of convoy location and has emergency notification capabilities).
 - vii. Discussion of proper pace (speed), driver fatigue, scheduled, and unscheduled stops.

- Setup and confirmation of caches for spill response equipment will occur along portions of Johnson Creek Road and the Stibnite Road.
- Road signs will be established at the Landmark and the Yellow Pine ends of Johnson Creek Road indicating to the public that a fuel convoy is in progress and to use caution.
- During the convoy:
 - A safe speed of travel will be maintained. Speed will be determined by the convoy leader, will not exceed posted speed limits and will be based on road conditions.
 - Communication with management will occur by using the SPOT™GPS Messenger – signal check-in/OK at least hourly, and signal arrival (custom message) upon reaching the site camp, and upon safely returning to Cascade. The Forest Service project administrator will be notified upon safe return to Cascade.
 - A SPOT™GPS Messenger button will be used in an emergency to alert emergency responders.
 - Site security will clear all oncoming traffic before proceeding up or down Stibnite Road between the Yellow Pine guard station and the site. Convoy progress will be radioed to security according to established protocols.
- During winter, when Johnson Creek Road is closed, the route from Cascade to Yellow Pine and Stibnite using the South Fork Road will be used:
 - From Cascade: Warm Lake Road (FS 579) for 35 miles to Knox, then north on South Fork Road (FS 474/674) for 32 miles to East Fork Road (FS 412), 16 miles east on East Fork Road (FS 412) to Yellow Pine, and 14 miles on Stibnite Road (FS 412) to the project site.
- During winter, the following activities will also occur:
 - Convoy travel to the intersection of the South Fork Road and Warm Lake Road on the trip back to Cascade from the site must be accomplished during daylight hours. Every truck will carry properly sized chains for both steering and drive tires.
 - Road monitors will be placed at both ends of the South Fork Road while the convoy is operating. The monitors will notify traffic entering the road from both directions that a fuel convoy is in progress, and that if the convoy is encountered on the South Fork Road, they, not the convoy trucks, will be required to find a pull-out location to allow the convoy to pass. The monitors will also notify the convoy pilot car of any traffic on the road.
 - Site security (Yellow Pine and Sugar Creek guard shacks) will clear oncoming traffic before proceeding up or down Stibnite Road between the Yellow Pine guard station and the site. Convoy progress will be radioed to security according to established protocols.
 - It may be necessary to sand the road in advance of the convoy (3/8inch washed rock, no fine sand is allowed).

map?
pilot cars?

Pilot cars needed for passenger vehicles?

- If round-trip travel cannot be completed during daylight hours (e.g., due to a mechanical breakdown or other incident) it may become necessary to spend the night at the Yellow Pine camp. — accommodations?
- During the spring break-up period, fuel hauling will consist of two four-wheel drive vehicles – one small dump truck carrying a 500-gallon, double-wall tank with a lead pilot truck. Both trucks will be equipped with appropriate tire chains and radios to maintain communication with each other while traveling, and will make one round trip to deliver fuel to the site per day, 7 days per week. The pilot car will also carry a satellite phone and an assortment of spill response equipment (pads, booms, etc.) in case of emergency. At least two personnel (drivers and/or passengers) will have current HAZWOPER training and will be first responders in the event of an accident.

5.3 Additional Requirements to Reduce Accident Risk

1. **Driver Awareness Training and Safe Driving Course:** All fuel transport drivers will be required to have spill response, safety, and resource awareness training. In this program, drivers will be informed of the Idaho State Emergency Medical Service (EMS), first hazardous materials responder actions, and the importance of anadromous fisheries that must be protected. In addition, each driver will participate in a safe-driver training course that is specific for the MGI fuel convoy. The course will cover the SOP as well as discuss causes of accidents and how to minimize risk: — Drive route beforehand?

Driver - Human Error

- Safe speed based on road conditions, dry, wet, snow, and ice
- Safe distance behind other vehicles
- Inattentiveness
- Fatigue
- Shifting gears on grades
- Sharing the road

Mechanical – Vehicle Factors

- Brake failure
- Structural breakdown
- Tire troubles
- Chain use

Environmental -Weather and Road Conditions

- Snow and Ice
- Flooding
- Soft shoulders
- Night versus daylight driving conditions
- Wildlife

2. **Pilot and Emergency Response Vehicles:** A two-axle four-wheel drive vehicle equipped with an operating CB radio, 40-watt or 5-watt VHF radio, a satellite phone, a SPOT™ GPS Messenger system, a flashing cab light, and a "pilot vehicle" sign attached to the front of the

vehicle will be required for each convoy. Letter size for pilot vehicle signs will be at least 6 inches in height.

For both the pilot and emergency response vehicles, a qualified driver (or passenger) trained in spill response, safety, and first aid will participate in each convoy. The pilot vehicle will travel in advance of the fuel trucks at a distance not greater than 1 mile and not less than 1/4 mile. The pilot vehicle will advise oncoming traffic to park until the convoy passes and will regulate the speed of the transporting vehicle so that it does not exceed posted speed limits and safety conditions inherent to the road. The emergency response vehicle will follow in **between or behind** fuel trucks offering road use controls and quick breakdown or accident response.

Which is better?
Downstream?

3. **Required On-Board Spill Containment Equipment:** Pilot and emergency response vehicles will carry appropriate containment and first aid equipment. Each convoy (between the two vehicles) will carry at least one gallon of dry plug-n-dike; three oil sorbent booms; one bundle of sorbent pads; shovels; 96-inch by 96-inch piece of plastic sheeting; a bucket; a 55-gallon drum; and a small trash pump (or equivalent) and generator.
4. **No Weekend Use of Johnson Creek or South Fork Roads:** To minimize disruption to the traveling public, **no fuel convoys will be permitted into the project area after 9:00 a.m. on Fridays, and no transport on Saturdays or Sundays, unless permitted under special request by the Forest Service.**
5. **Equipment Checks:** Documented annual inspections of commercial transport vehicles are required in 49 Code of Federal Regulations [CFR] 396.17-23. Inspections will be conducted by a qualified U.S. Department of Transportation (DOT) inspector. Commercial transport vehicles will also be inspected at Knox or Landmark by the driver prior to accessing Johnson Creek or South Fork Road. Transport companies are required to document DOT annual inspections and Landmark vehicle inspections.

Table 3 presents a summary of accident causes and measures to reduce risk of accidents that are specific for this project. With implementation of the measures, the chances of accidents and the potential for spilling fuels into surface water is greatly reduced.

Table 3. Summary of Factors Leading to Accidents and Measures to Reduce Risk

Cause of Accidents	Measures to Reduce Risk
	Driver - Human Error
Speed too fast for road conditions	Convoy leader will set convoy travel speed based on posted speed limits and anticipated road conditions. A SPOT™GPS Messenger system will be used for each convoy and will provide GPS measured data on overall speed of convoy. This information will be reviewed by MGI management and is available to Forest Service to ensure convoys are traveling at appropriate speeds. Expected travel speeds will be discussed during pre-convoy meetings and there will be communication between trucks during the convoy to adjust travel speed as warranted. <i>define ahead of time</i>
Following too close behind another vehicles	Convoy trucks will maintain safe distances between trucks based on speed, road conditions, and stopping distances. Convoy leader will be responsible for ensuring safe separation between trucks. Separation distance requirements will be discussed in driver training and during the pre-convoy meeting.
Inattentiveness	Importance of attentive driving will be emphasized during driver training and at the pre-convoy meeting. Frequent radio communication between trucks will help maintain driver attention and alert them to potential road hazards including oncoming traffic, wildlife, etc.
Fatigue	Drivers will be DOT-licensed and adhere to driver log and driving time restrictions as set by DOT. Driving will be during daylight hours. The convoy lead will be responsible for assessing driver physical condition. Rest stops will occur during the convoy and the frequency of stops will be determined by the convoy lead as well as request by drivers.
Miss-shifting gears on grades	Drivers will be experienced in fuel truck hauling on NFS roads and will be familiar with the travel routes including locations of steep slopes that require downshifting (for vehicles with manual transmissions). Radio communication will be used to warn drivers of upcoming steep grades and also of any oncoming traffic that may require trucks to slow down or stop.
Failure to share road	The convoy pilot truck will warn oncoming traffic of the convoy and request that oncoming traffic pull aside (or wait) for the convoy. The convoy will be made aware of any oncoming traffic through radio communication with the pilot truck. Radio communication will be maintained between trucks and pilot vehicle. For winter operations, road monitors will be placed at both ends of the South Fork Road while the convoy is operating. The monitors will notify traffic entering the road from both directions that a fuel convoy is in progress, and that if the convoy is encountered on the South Fork Road, they, not the convoy trucks, will be required to find a pull-out location to allow the convoy to pass. <i>what if they can't find one?</i> The monitors will also notify the convoy pilot car of any traffic on the road.
Inexperienced driver	Fuel haul drivers will be experienced in fuel hauling on NFS roads (or similar roads).
	Mechanical - Vehicle Factors
Brake failure	Documented annual inspections of commercial transport vehicles are required in 49 CFR 396.17-23. Inspections will be conducted by a qualified DOT inspector. Commercial transport vehicles will also be inspected at Knox or Landmark by the driver prior to accessing Johnson Creek or South Fork Road. Transport companies are required to document DOT annual inspections and Landmark vehicle inspections.
Structural breakdown (engine failure)	
Tire troubles	
No tire chain use in ice	Tire chains will be required for snow or ice road conditions. The need for chains will be determined by the convoy lead.

Table 3. Summary of Factors Leading to Accidents and Measures to Reduce Risk

Cause of Accidents or snow conditions or miss-use of chains	Measures to Reduce Risk
Environmental - Weather and Road Conditions	
Snow and Ice	<p>Emphasis on timing of convoy trips will be during snow-free conditions with limited trips during snow/ice conditions. During winter, convoys will occur only when road conditions are deemed passable and safe. Weather forecast will be evaluated and incorporated into travel "go/no go" decisions. All trucks will be equipped with properly sized chains for both steering and drive fires. Drivers will be experienced in winter time travel on NFS type roads and also be experienced with tire chain operations.</p>
Flooding	<p>Convoys will not occur if there are flooding conditions on roads or the imminent threat of a flood.</p>
Soft shoulders	<p>The convoy lead will be responsible for knowing road conditions prior to convoy travel, including areas of road hazards such as soft shoulders and wash out areas. During the convoy, the pilot truck will be responsible for communicating to the fuel trucks locations of road hazards and if necessary placing flagging around the hazards.</p>
Poor visibility (fog, snow storm, rain)	<p>A scheduled convoy will be delayed if driving visibility is poor. <i>collaborate on stop happen - how much lower?</i></p>
Wildlife	<p>To minimize wildlife collision risk, the convoy will travel at posted speed limits or lower and travel during daylight hours. In addition, all convoy vehicles will be equipped with radio communication to warn other convoy members of wildlife near the travel route.</p>

out of 23

my show
wildlife Xing
- no blankets