BLM

Pardee Fire Fatality Factual Report July 8, 2013 Kamiah, Idaho





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In Memory of Dennis James Long 1947-2013

Dennis James Long was born in 1947 to Harry and Zelpha Long. He had one sister, Margret, and two brothers, Pat and Don. From an early age he loved the mountains. He spent much time with his father and brothers hunting in the Blue Mountains of Washington. They also took family trips up to the Craig Mountains and around the Black Pines cabin area where his folks



Figure 1. Dennis Long. Photo courtesy of the Long family.

homesteaded. Dennis graduated from Clarkston High School in 1967 and went on to college at Lewis-Clark State College in Lewiston, Idaho to study to be a diesel mechanic. He did well and was on the dean's list. From there he held many jobs in that field. His career gave him many opportunities and he met life-long friends. Dennis married Judy Ann Martin in 1974 and they had two daughters, Janie and Andrea. Many years later he was blessed with three grandsons, David, Alex, and Ryan. He enjoyed family trips and of course he

loved work. One of his biggest joys in life was just to take a ride through the mountains.



Figure 2. Memorial at fatality site.

Pardee Serious Accident Investigation Team

5/8/2014

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Executive Summary

On the morning of July 8, 2013, thunderstorms moved through the local Fire Protection District starting the Pardee fire on the east side of the Clearwater River near milepost 58 on US Highway 12.

Multiple resources were dispatched to the fire, including the Contract Dozer Operator.

While performing fire suppression efforts the Contract Dozer Operator preceded down a steep slope making return difficult.

The Heavy Equipment Boss later finds the Contract Dozer Operator unresponsive. Firefighters, qualified as Emergency Medical Technicians, provided immediate care. To reach emergency medical responders, additional firefighter personnel and local landowners joined efforts to carry the Contract Dozer Operator up steep and rugged terrain. Despite best efforts, emergency medical personnel were unable to resuscitate the Contract Dozer Operator. The coroner's report determined the cause of death was "severe Coronary Artery Disease."

During review of the medical incident, the SAI team found that all incident personnel involved in the medical emergency acted professionally and did everything they could to save "one of our own."



Figure 3. Looking from the side of the hill at the dozer.

Narrative

Monday, July 8, 2013

Between 0300 and 0845 hours, thunderstorms moved through the local Fire Protection District resulting in four reported fire starts. Around 0700 hours, the Pardee fire is reported on the east side of the Clearwater River. The Fire Warden calls the Area Manager and informs him of the fire start. The Incident Commander Type 5 receives a call at home.

At 0700 hours, the Contract Dozer Operator (victim) arrives at the office to purchase a timber sale for a local logging company.

At 0720 hours Engine 1 is dispatched to the Pardee Fire. The Fire Warden requests a helicopter from dispatch and is told that all helicopters are already committed to other fires. Helicopters normally available through the dispatch center were unavailable for assignment. The Fire Warden made additional contacts and located a helicopter available from a local agency and was approved for use through one fuel cycle. The pilot was not available until after 0900.

At 0800 hours Engine 1, with the Incident Commander Type 5, reports they can see the fire and are looking for access to the fire.

At 0815 hours the Incident Commander Type 5 meets the Landowner 1 at the bottom of Pardee Road and is led to the fire. As the sun moves over the ridge, Pardee fire activity increases. The dispatch center receives a call from a Law Enforcement officer reporting burning timber and increased smoke from the Pardee Fire.

At approximately 0930 hours the Contract Dozer Operator returns to the office to finish the timber sale purchase. While in the office he overheard conversations regarding fire activity and offered the dozer for hire on behalf of a local logging company. The Fire Warden gave verbal approval to "hire" the local logging company (dozer) for fire suppression on the Pardee Fire with the Contract Dozer Operator as the operator of the John Deere 750E dozer. The dozer and the transport were not inspected. The office issued the Contract Dozer Operator some personal protective equipment (PPE) including a yellow-long-sleeved flame resistant shirt, flame resistant trousers and a fire shelter. The Heavy Equipment Boss arranges a meeting time and location near the Pardee Fire to meet the Contract Dozer Operator.

At 0956 hours, the local dispatch center receives a request from the Incident Commander Type 5 for Smokejumpers.

At 1020 hours difficulties with air-to-ground frequencies are reported. Dispatch is able to hear the Incident Commander Type 5 and the helicopter pilot separately, but the Incident Commander Type 5 and the helicopter pilot cannot hear each other. Dispatch serves as a relay between these resources. A crewmember on Engine 1 is assigned to be the contact for aerial resources. At approximately 1030 hours, the Landowner 2 transports the Assistant Fire Warden to Drop Point 2 on the back of his All-Terrain Vehicle (ATV). The Assistant Fire Warden is at the Pardee Fire to provide "oversight" for fire operations. He continues down the fire line for a face-to-face briefing with the Incident Commander Type 5.

At 1043 hours, the Pardee Fire is reported at 20 acres.

At 1045 hours the helicopter arrives at the Pardee Fire.

At 1052 hours the Incident Commander Type 5 orders Single Engine Air Tankers and Air Attack.

At 1100 hours the Smokejumpers jump the Pardee fire and begin operations. The Jumper in Charge establishes radio communication with the Incident Commander Type 5 and is given direction to engage the fire. Information exchange during the briefing was limited. The Landowner 2 helps transport Smokejumper gear to the fire line. Incident Command System positions were not clearly identified to fire personnel because last names rather than position titles were used over the radio. This caused confusion with incoming resources not familiar with local fire personnel.

The Incident Commander Type 5 requests the Assistant Fire Warden to direct air operations. The Assistant Fire Warden is a supervisor on the local unit. Up to this point on the Pardee fire, he is performing "over site," an operational role outside the Incident Command System (ICS) structure.

At 1130 hours the Duty Officer requests a Type 1 Crew.

At 1200 hours the Contract Dozer Operator arrives at Pardee Junction and starts opening the road to Drop Point 2 following the Landowner 2 (see map).

Engine 2 is dispatched to Pardee Fire.

At 1215 hours the Incident Commander Type 5 is conducting operations near the bottom of the fire and the Assistant Fire Warden is conducting air operations from Drop Point 2 (top of fire).

At 1230 hours the Contractor Dozer Operator arrives at the fire wearing a long-sleeved plaid button shirt, suspenders, blue jeans and loafer slip-on type shoes. Although a formal briefing was not completed the Assistant Fire Warden and Heavy Equipment Boss strategize their plan. Tactics involve constructing direct and indirect line from Drop Point 2 down the ridge into a draw as far as they can go.

The Incident Commander Type 5 orders an Incident Commander Type 3, a Correctional Type 2 Crew along with water and PowerAde.

An agency dozer and an Initial Attack crew arrive in Kamiah and are en-route to the Pardee fire.

At 1300 hours the Incident Commander Type 5 establishes two divisions and expresses concern for potential of fire to threaten structures.

The Fire Warden orders a Type 1 helicopter through dispatch.

The Landowner 2 constructs disc line on his private property for fire protection.

The Contract Dozer Operator constructs a safety zone at a flat area on the ridge then continues line construction down the ridge, which has already been "painted red" with retardant.

The Heavy Equipment Boss identifies a stopping point at the "windfall" and instructs the Contract Dozer Operator to stop at that point. When he reaches the stopping point, the Contract Dozer Operator indicates that he could probably hook around the fire line and down into the river. The Heavy Equipment Boss expresses this would be futile. The Heavy Equipment Boss directs the Contract Dozer Operator to return to the safety zone to reassess their tactics and he begins to walk back up the dozer line. The Heavy Equipment Boss expected the Contract Dozer Operator to follow him back up to the safety zone. The Heavy Equipment Boss hears the dozer operating and realizes the dozer is not following him. He turns around and sees the Contract Dozer Operator. The Contract Dozer Operator constructing additional dozer line down approximately 400 feet past the windfall stopping point to a lone pine tree. The Heavy Equipment Boss walks down to speak with the Contract Dozer Operator. The Contract Dozer Operator conveys to the Heavy Equipment Boss that the steep rocky terrain would not allow for him to continue down the hill any further. The Heavy Equipment Boss contacts the Assistant Fire Warden and reports the dozer is in a location below the windfall stopping point and may have difficulty returning to the safety zone.

While the Contract Dozer Operator is attempting to return to the windfall stopping point, a low intensity fire burns through light flashy fuels crossing over and around the dozer line and burning into a corner of the windfall (Not classified as an entrapment per *Red Book*, p. 18-6).

At 1348 hours Air Attack arrives at the Pardee Fire.

At approximately 1500 hours the Incident Commander Type 5 and the Assistant Fire Warden brief the Division B face-to-face at Drop Point 2.

At 1530 hours the Incident Commander Type 3 arrives at the office and is briefed by the Fire Warden. He obtains weather, maps and a list of resources assigned to the Pardee Fire.

Resources on Division A anchor the bottom of the fire and continue flanking the fire uphill.

The Contract Dozer Operator terraces the hillside in an attempt to return to the windfall stopping point.

At 1600 hours the Heavy Equipment Boss reports to the Division B Supervisor that the dozer is overheating and the Contract Dozer Operator was periodically stopping to let it cool down.

At 1630 hours the Fire Warden orders a Type 2 Initial Attack (IA) crew.

At approximately 1640 hours, the Heavy Equipment Boss is serving as a lookout for the Contract Dozer Operator who is terracing the hill (building pads) to mitigate the steepness of the slope. His dozer continues to experience difficulty getting up the hill and overheats. The Contract Dozer Operator idles down his dozer an additional three times allowing it to cool.

At 1730 hours the Incident Commander Type 3 and the Correctional Type 2 Crew arrive at Drop Point 1.

At 1800 hours the Incident Commander Type 5 begins briefing the incoming Incident Commander Type 3.

During the times that the Contract Dozer Operator idles the dozer down, the Heavy Equipment Boss focuses on monitoring the fire's progression around the hill. Each time the dozer fires back up, the Heavy Equipment Boss returns to his lookout post to observe dozer operations. During one of the ten-minute periods that the dozer is idled down, the Heavy Equipment Boss does not hear the dozer idle back up and returns to check on the Contract Dozer Operator.

As the Heavy Equipment Boss approaches the dozer, he sees the Contract Dozer Operator positioned leaning back over the seat of the cab. His head and left arm are facing downhill and his right arm is draped above his head. The dozer was located precariously on the steep slope with the blade up, brake not set and still idling. The Heavy Equipment Boss turns the machine off and lowers the blade to secure the dozer.

At 1804 hours after determining the Contract Dozer Operator is unresponsive, the Heavy Equipment Boss radios the medical emergency to the Division B Supervisor who notifies the Incident Commander Type 5.

The position of the Contract Dozer Operator in the cab and the slope of the hill prevent the Heavy Equipment Boss from removing him. The Heavy Equipment Boss attempts to perform Cardiopulmonary Resuscitation (CPR) in the cab of the dozer.

The Incident Commander Type 5 clears the radio for a medical emergency and notifies dispatch. Fire personnel do not consistently document accurate time sequence of events.

At 1805, the Fire Warden is notified of the medical emergency. The Smokejumpers 1 and 2 (both Emergency Medical Technicians Fireline (EMTF) from Division A), the Type 2 IA crew and the Landowner 1 respond to the medical incident.

The Incident Commander Type 5, Division B Supervisor and the Assistant Fire Warden are at Drop Point 1. The Incident Commander Type 5 directs the Division B Supervisor to manage the medical emergency and has the Assistant Fire Warden manage fire operations. The Jumper in Charge is directed by the Incident Commander Type 5 to guide air operations for the medical emergency. The Jumper in Charge field programs EMS frequencies into his radio.

The Incident Commander Type 5, positioned at Drop Point 1, assumes the communication role between the Division B Supervisor and dispatch.

The Correctional Type 2 Crew is instructed to respond to the medical emergency by the Assistant Fire Warden.

At 1809 hours the dispatch center requests an ambulance from Lewis County.

At 1812 hours the Incident Commander Type 5 orders Air Ambulance from dispatch. The Jumper in Charge is identified as ground contact. The dispatch center gives Air Ambulance radio frequencies and ground contact information to Air Attack. Air Ambulance's estimate time of arrival (ETA) is at 1846 hours.

At 1825 hours the Smokejumper 1 reaches the incident site. He is assisted by the Landowner 1 in removing the Contract Dozer Operator from the cab of the dozer. They notice the Contract Dozer Operator is wearing a long-sleeved plaid button-up shirt, blue jeans and loafer type shoes. They remove him from the cab and the Smokejumper 1 checks for a pulse. The Contract Dozer Operator is not breathing and a pulse cannot be detected. The Smokejumper 1 administers CPR.

The Division B Supervisor arrives on an ATV with a 10-person medical kit. The Division B Supervisor communicates the Contract Dozer Operator's condition to Air Ambulance.

At approximately 1830, dispatch informs the Geographic Area Coordination Center (GACC) that the medical emergency is a contract dozer operator.

The Smokejumper 2 and the Type 2 IA crew arrive on the scene. The Smokejumper 2 assumes command of medical care and continues CPR.

The Correctional Type 2 Crew arrives at the incident.

The Smokejumpers, the Type 2IA crew and the Correctional Type 2 Crew assist with loading the Contract Dozer Operator onto the backboard and begin transporting him up the hill using a "conveyor belt" method. The steep terrain proved challenging. Each time the team would stop to rest, CPR was resumed.

The Landowner 3 (EMT) arrives at Drop Point 1, and the Landowner 1 transports her and medical supplies via an ATV down to the group. The Landowner 3 applies an oxygen mask to the Contract Dozer Operator and transport up the hill is resumed.

The local ambulance arrives at Drop Point 1 and ambulance personnel begin moving vehicles to allow the Air Ambulance to land.

At approximately 1850 the Air Ambulance arrives at the Pardee Fire.

Ambulance personnel assist with loading gear into an agency pickup.

The Air Ambulance and local ambulance personnel are transported to Drop Point 2 in an agency pickup driven by the Landowner 4.

At 1910 hours the firefighters reach Drop Point 2 with the Contract Dozer Operator and transfer care to Air Ambulance personnel.

At 1921 hours Air Ambulance medics cease resuscitation efforts and the Landowner 4 transports the Contract Dozer Operator from Drop Point 2 to Drop Point 1.

Resources not involved in the medical incident continue fire suppression efforts.

At 1949 hours the Incident Commander Type 5 transfers control of the Pardee fire to the Commander Type 3.

Although a formal After Action Review is not conducted, the Incident Commander Type 3 and individual crew leaders consult with firefighters regarding the medical incident.

At approximately 2000 hours the County Deputy Sheriff arrives and transports the Contract Dozer Operator from the Pardee Fire.

At 2130 hours select local resources are sent home.

July 10, 2013

At 2000 hours a Critical Incident Stress Management briefing was provided.

July 11, 2013

The contract dozer agreement is completed.

Investigation Process

The Bureau of Land Management Idaho State Director and the Idaho State Forester commissioned a Serious Accident Investigation (SAI) team to investigate the Pardee Fire fatality. A SAI is a deliberative process considering human, material and environmental factors.

The Pardee Fire Fatality SAI team received an inbriefing upon arrival that included preliminary findings and a sequence of events that had occurred with the fatality. Members of the SAI Team met with IDL fire management before conducting a site visit to examine the fatality location and complete photo documentation of the site.

All members of the SAI team participated in interviewing witnesses and personnel involved with the incident. Interviews were conducted in person and via telephone. SAI team members met periodically between interviews to reassess questions and share key pieces of information. Policy and agreements were researched and data was gathered to guide the investigation. Team members collected key points and information from interviews to construct a preliminary timeline outlining the events that occurred the day of the fatality.

Evidence gathered included PPE, photographs and training records. Chain of custody was maintained by the team.

The information contained in this report is not to place blame or be the basis for disciplinary action against employees. The purpose of this investigation is to identify and correct issues to prevent future injuries and to ensure that lessons learned are shared across agencies.



Figure 4. View from downhill.



Figure 5. Downhill track rests on rock ledge.

Findings:

No findings were directly attributable to the cause of death.

Cause of Death: The Idaho County Coroner identified the cause of this fatality as severe coronary artery disease.

Non Attributable Findings: (Non-Causal)

Finding 1: The dozer and transport were not inspected prior to use for the Pardee fire. Visible hazards would have found the dozer unserviceable (*See Appendix C: Photographs*). An agreement for the contracted dozer and transport was not in place prior to use on the fireline (*See Appendix B: No Contract Agreement in Place*). This factor is determined to be non-finding to the accident.

Finding 2: The Contract Dozer Operator was operating on the fireline without wearing his PPE. **This factor is determined to be non-finding to the accident.**

Finding 3: Command of the fire was not transferred to a more qualified and available person when the complexity exceeded Type 5 Incident Commander qualification levels. **This factor is determined to be non-finding to the accident.**

Finding 4: Not all resources on the fire had the appropriate Emergency Medical Services (EMS) frequencies. **This factor is determined to be non-finding to the accident.**

Finding 5: The local IDL fire protection district does not have a consistent approach to a medical plan. **This factor is determined to be non-finding to the accident.**

Incident Map



Pardee Fire Investigation Map



Appendices-

Appendix A-Timeline

Approximate Times	Event
	July 8, 2013
0300-0845	• Thunderstorms move through Fire Protection District.
	• Four new starts reported.
0630-0640	 Dispatch reports Pardee Fire start to Incident Commander Type 5.
0700	 Area Manager informed of the fire start.
0720	• Engine 1 dispatched to Pardee Fire.
	 A helicopter from a local agency is approved for one fuel cycle use.
	• Pilot is unavailable until after 0900.
0800	• Engine 1 looks for access to the fire.
0815	 Incident Commander Type 5 led to Pardee fire by local landowner.
0830	• Fire activity increases due to sun exposure.
0900-1000	 Burning timber and increased smoke is reported to dispatch.
	• Verbal approval is given to "hire" a local logging company to perform dozer operations on the
	Pardee Fire with the Contract Dozer Operator as the dozer operator.
	• A meeting time and location arranged for the Heavy Equipment Boss and the Contract Dozer
	Operator to meet near Pardee Fire.
	Dispatch receives request from the Incident Commander Type 5 for Smokejumpers.
1020	Difficulties with air-to-ground frequencies are reported.
4000	Engine 1 crewmember is assigned as ground contact for aerial resources.
1030	Assistant Fire Warden arrives at Pardee Fire.
1043	Pardee Fire acreage reported at 20 acres.
1045	The helicopter arrives at Pardee Fire.
1052	Incident Commander Type 5 orders Single Engine Air Tankers and Air Attack.
1100	Smokejumpers jump Pardee fire and begin operations.
	Incident Commander Type 5 assigns air operations to Assistant Fire Warden.
1200	Duty Officer requests Type 1 Crew.
1200	Engine 2 dispatched to Pardee Fire.
1215	Contract Dozer Operator arrives at Pardee Junction and starts opening road.
1215	Assistant Fire Warden conducts air operations from Drop Point 2.
1230-1300	 Incident Commander Type 5 orders Type 3 Incident Commander, Correctional Type 2 Crew, water and PowerAde.
	 Assistant Fire Warden and Heavy Equipment Boss discuss plan and tactics.
	• Heavy Equipment Boss and Contract Dozer Operator construct line down the ridge.
	• Agency dozer in Kamiah, ID and en-route to fire.
	Local helicopters unavailable to assist with suppression efforts.
	• Type 2 IA crew arrives in Kamiah and is en-route to fire.

Approximate Times	Event
1300-1500	Fire Warden orders Type 1 helicopter.
1300-1300	 Incident Commander Type 5 establishes divisions.
	Landowner 2 constructs disc line on his private property.
	Contract Dozer Operator constructs safety zone.
	 Heavy Equipment Boss identifies windfall-stopping point for Contract Dozer Operator.
	 Contract Dozer Operator constructs dozer line past windfall stopping point.
	 Heavy Equipment Boss reports to Assistant Fire Warden that the dozer may have difficulty
	returning to safety zone.
	Low intensity fire burns across and around dozer line.
	• Air Attack 362 arrives at Pardee Fire.
	 Incident Commander Type 5 and Assistant Fire Warden brief Division B Supervisor.
	 Incident Commander Type 3 arrives at Maggie Creek Field Office, is briefed by Fire Warden and
1530	obtains weather, maps and a list of resources assigned to the fire.
1550	 Resources on Division A constructing and burning out hand line to river.
	 Contract Dozer Operator continues efforts to return to windfall stopping point.
1600	Heavy Equipment Boss reports dozer is overheating.
1630	Fire Warden orders Type 2 Initial Attack crew.
1640	Dozer continues to overheat.
1040	Heavy Equipment Boss posting as lookout for Contract Dozer Operator.
1730	 Incident Commander Type 3 arrives at Drop Point 1, followed by the Correctional Type 2 Crew.
1800	 Incident Commander Type 5 begins briefing incoming Incident Commander Type 3.
1804	 Heavy Equipment Boss finds Contract Dozer Operator unresponsive and initiates CPR.
1004	 He radios medical emergency to Division B Supervisor.
	 Division B Supervisor notifies Incident Commander Type 5.
	 Incident Commander Type 5 clears radio for medical emergency and notifies dispatch.
1805	 Fire Warden notified of medical emergency.
1005	 Smokejumper 1 and Smokejumper 2 respond to the incident site.
	Landowner 1 responds to the medical incident.
	Division B Supervisor manages the medical incident.
	Jumper in Charge directs air operations for the medical incident.
	 Assistant Fire Warden manages fire operations.
	 Incident Commander Type 5 at Drop Point 1 communicating between the medical incident and
	Dispatch.
	• Correctional Type 2 Crew responds to the medical incident.
1809	Dispatch requests ambulance.
1812	Incident Commander Type 5 orders Air Ambulance.
1815	• Jumper in Charge identified as Air Ambulance ground contact.
1819	• Dispatch gives Air Ambulance radio frequencies and ground contact information to Air Attack.
	• Air Ambulance's ETA is 1846.
1825	• Landowner 1 and Smokejumper 1 remove Contract Dozer Operator from dozer cab.
	• Division B Supervisor arrives at the incident with a 10-man medical kit.
	• Smokejumper 1 administers CPR.

Approximate	Event		
Times			
1830	 Assistant Center Manager informs Northern Rockies Coordination Center (NRCC) medical emergency is a contract dozer operator. 		
	 Smokejumper 2 assumes control of medical care and continues CPR. 		
	 Correctional Type 2 Crew and Type 2 IA crew arrive at medical incident and assist with transporting Contract Dozer Operator up the hill. 		
	 Landowner 3 arrives with medical supplies and Drop Point 1 and is transported to medical incident. 		
1854	• Kamiah Ambulance arrives at Drop Point 1, followed by Air Ambulance personnel.		
1910	• Firefighters reach Drop Point 2 with Dozer Contractor and transfer care to Air Ambulance personnel.		
1921	Air Ambulance medics cease resuscitation efforts.		
	Landowner 4 transports Contract Dozer Operator to Drop Point 1		
1949	 Control of Pardee fire transferred Incident Commander Type 3. 		
2000	County Deputy Sheriff transports Contract Dozer Operator from Pardee Fire.		
2130	All local resources are released from Pardee Fire.		
	Tuesday, July 10, 2013		
2000	 Critical Incident Stress Management briefing provided at Kamiah office. 		
	Wednesday, July 11, 2013		
	Contract Dozer agreement completed.		
	Saturday, August 30, 2013		
1125	Pardee SAI team received coroner's report (Autopsy)		

Appendix B - Finding #1: No Contract Agreement in Place

Associated Policies:

IDL FMH 840, Fire Suppression Procurement Interagency Incident Business Management Handbook Northern Rockies Supplement, Acquisition Chapter 20 Chapter 1, Idaho Forestry Act, Title 38-133, Forestry, Forest Products And Stumpage Districts

Details: Formal agreements were not in place prior to hiring equipment. The Administrative Assistant discussed rates with the dozer operator/contractor representative. He accepted on behalf of the company. The operator did not have the serial number to complete the paperwork. He was supposed to bring it in later. A formal agreement was issued 4 days following the fatality. The following paperwork was not attached:

- General Clauses to Emergency Equipment Rental Agreement
- Vehicle/Heavy Equipment Safety Inspection Checklist, OF-296

Some confusion may stem from policy versus law; Idaho Department of Lands follows code <u>Idaho Code</u> <u>38.133</u> which implies the authority to <u>verbally hire</u> a contractor during exigent circumstances.

CHAPTER 1 - IDAHO FORESTRY ACT - 38-133 - The authority of the fire wardens respecting the control or suppression of forest fires, summoning help or making arrests for violation of this chapter or rules and regulations of the board may extend to any adjacent district or to any part of the state in times of great fire danger, providing that in case of conflict of authority resulting therefrom, the fire warden in whose district the fire is located shall have ultimate control. *In emergencies fire wardens may commandeer tools, supplies and equipment and may employ able-bodied persons or compel assistance of able-bodied persons and neither the state board of land commissioners, the director, or his delegates, fire wardens or deputy fire wardens, shall be liable to civil action for trespass committed in the discharge of their duties; provided, that in performing their duties they exercise reasonable care to avoid doing unnecessary damage.*

Result: Agencies lose ability to negotiate rates, even though they have been discussed, terms and conditions (clauses) have not been provided to the contractor (e.g. equipment is technically withdrawn) so they are unaware of expectations and business protocols.

Appendix C - Photographs

Photos page 1/3



Figure 1. Ground disturbance showing terracing efforts.



Figure 2. Dozer line looking up from the windfall stopping point.



Figure 3. Dozer line looking downhill just below DP2.



Figure 4. Ground disturbance showing terracing efforts.

Photos page 2/3



Figure 5. Yellow flame-resistant shirt and fire shelter.



Figure 6. Missing fuel cap: note retardant inside and on threads.



Figure 7. Broken exhaust.

Figure 8. Broken mesh on cage and missing fuel cap.

Photos page 3/3



Figures 8 and 9. Location where the dozer was found.



Appendix D - Environmental Conditions

Fuels and Topography

The Pardee Fire originated in Idaho County, Idaho on BLM land under fire protection of the IDL. The fire started on a steep south slope of the Clearwater River.

Elevations on the fire ranged from approximately 1120 to 2960 feet. Elevation at the point of origin was approximately 1600 feet.

The slope in the area of the fatality averaged 70-80%. By the early afternoon, the fire was well established. The vegetation type was primarily grass and forbs in the understory with Ponderosa pine and Douglas-fir in the overstory.

Ponderosa Pine (*pinus ponderosa*) is found in dry sites



Figure 10. Left Flank-Division A

on the western United States. It has very thick bark and high core moisture that dissipates heat it receives thus protecting the bole from lethal heat levels. Bud scales are insulated resulting in low foliage flammability. Aerial fire spread is reduced due to high branching habits, self-pruning, and low lichen growth.

Weather

The National Weather Service forecast for the fire area predicted warm and dry conditions for July 8, 2013:

0438 MDT -An unstable atmosphere and approaching cold front produced scattered showers and thunderstorms in the morning through early evening hours. Frequent lightning, gusty outflow winds and locally heavy rains were expected.

- Maximum temperature: 85° 95° F in the valleys, 70° 75° F on the ridges
- Relative humidity: 24 34% in the valleys.
- Winds: Upslope/up-valley, west 5-10 mph in the lower elevations and west up to 15 mph at the ridge top.