The Sound of Rolling Metal

September 2nd, 2013

Weiser Ranger District

Payette National Forest

WEISER COMPLEX FLA

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Executive Summary

On September 2nd, 2013, a D-5 dozer rolled down a steep slope on the Payette National Forest north of Weiser, Idaho. The contract dozer was assigned to Division Whiskey of the Weiser Complex on the Weiser District. Line construction on Division Whiskey was originally planned to be used as indirect fire line, but with the onset of cooler weather, it became a contingency plan as crews were again able to engage the fire with more direct tactics.

At approximately 1200 the dozer began to construct line downhill from a point northeast of Drop Point 30 to straighten out line between some switchbacks in the road system. Around 1224, the dozer rolled 310 feet downhill, coming to rest near a large snag 450 feet below the road. Analysis of the scene later would show 7 points where the dozer hit the ground on its way down.

A Facilitate Learning Analysis (FLA) team was convened by the Regional Forester. Analysis was conducted through interviews, accident site visit, and examination of training and communications. The team was tasked with analyzing the circumstances of the accident, how strategic and tactical decisions and actions made sense to those involved at the time, contracting issues, communication deficiencies and the emergency medical response.

There are lessons to be learned from this accident, and the response to the medical emergency will illustrate the gain from preparing and staffing for such an event. Issues that came to light during this process center around communication and understanding between several different groups. Interviews conducted revealed differences in how contract dozer operators view the job they are hired for and what is expected from agency personnel.

FLA Team Members

John Allen - Forest Supervisor, Deschutes National Forest

Fritz Cluff - Fire Management Officer, Salmon-Challis National Forest

Wade Frisby - Heavy Equipment Operator, Vale District BLM

Tim Hoiness - Training and Safety, Central Oregon Fire Management Service

Tina Ledger - Incident Business Advisor, Retired

Jonathan "Hoby" Miller - Assistant Engine Captain, Payette National Forest

Billy Phillips - Smokejumper, Missoula Montana

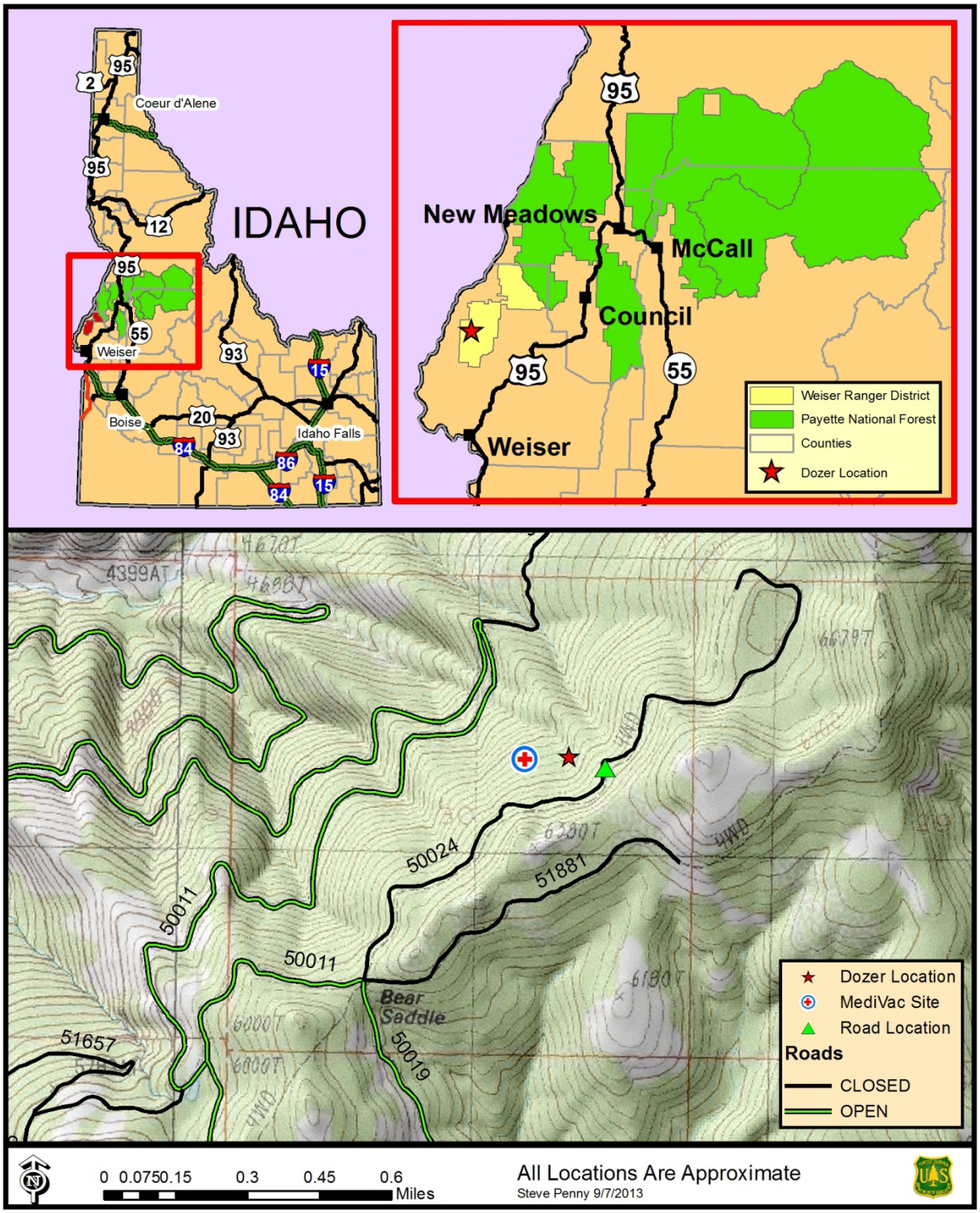


Figure 1 Vicinity Map

Aug 29
1200
Hells Canyon & Raft Fires were detected

T3 Team – full suppression strategy

Aug 31
0900
Hells Canyon & Raft resources reassigned to Weiser Complex

0900
In-brief of IMT2

Sept 1
0500
Transfer of command to IMT2

Sept 2

0600
Briefing at Incident Command Post (ICP) emphasized Medical Emergency Response Plan.

DIV W – Construct Indirect line on Bear Ridge

The Story

A note to the reader

This story is crafted to help bring the reader into the shoes of the parties involved. Names of people and equipment have been changed, but the story is based on perspectives and feedback received from affected individuals.

At 12:24 on September 2nd, 2013 a D-5 Dozer rolled 310 feet down a steep slope on the breaks of the Payette National Forest in Hell's Canyon. What led up to this accident and the medical response immediately after are told here.

As the sun came up and morning operations began, Laredo Contracting mobilized its equipment and personnel, looking forward to a productive day. "It seemed like a normal fire day", remarked a firefighter, but it had been a long fire season already and September brought with it no relief. For the first time since 2008 the National Fire Preparedness Level (PL) was sitting at PL 5, the highest possible. With large fires continuing to burn across the west, resource allocation was made in accordance with priorities based on threats to life, property, and natural resources. Some of the orders and planning that occurred on the Weiser Complex specifically aimed at potential needs should an accident occur, which would prove integral to this story. Weather was also a factor in altering the original plan for the day, and conversations among resources and leadership on Division Whiskey acknowledged that tactical operations would change.

Six hours earlier found the Incident Management Team (IMT) heading into day two of command on the Weiser Complex. While on another incident earlier in the summer the team ran through a scenario simulating a medical emergency and had been refining the plan to build a medical structure in order to effectively respond to a medical emergency. Emphasizing the medical plan in the morning briefing, resource and equipment needs for a medical response were being ordered by the Medical Unit to match the terrain and number of personnel on

0930
Dozer seat belt not working

1100
Seat belt repair completed.

1115
Dozer, HEQB, HEQB trainee, TFLD trainee left DP30 – mission to open an old road going northeast, find a suitable ridge for indirect line, and then construct line downhill providing an option for the switchbacks.

1130
Dozer Operator, HEQB, HEQB trainee TFLD trainee agreed on ridge location and feasibility of line construction.

1200
Updated IMT Medical Plan distributed to Command and General Staff

the Weiser Complex.

As change to a cooler weather pattern was expected to move over the fire area on this day, plans for the line construction commonly referred to as the "Catcher's Mitt" moved to that of a contingency plan as crews were able to return to more direct attack. That morning, Clint, the Heavy Equipment Boss (HEQB) met with Bob, HEQB trainee, to discuss how each viewed their working relationship. This was Bob's first shift as a HEQB trainee. Clint would stay in the shadows and allow Bob to run the operation. Clint told Bob that if at any time he had questions or needed assistance, he would be available to help out. The operation progressed well that morning and led to a section of dozer line being completed to Drop Point (DP) 30. Joe, who was driving the dozer, agreed to switch roles and have transport driver Eric run the dozer for the afternoon's operations. Eric was a qualified dozer operator with years of experience working on construction and logging sites. The next task was to open an old road from DP 30 to the east for approximately 1 mile and punch line down a spur ridge into the East Fork of Sturgill Creek providing an indirect line between the switchbacks in the road system.

Beginning of dozer line, note large rock

During the switch of operators at 0930, Eric noticed that the seatbelt in the Laredo Dozer was not functioning properly and an agency dozer began working their way toward the area to fill in as Joe and Eric worked to fix the seatbelt. Before the agency dozer arrived in the area, however, the seatbelt was fixed and the Laredo Dozer was in a position to begin the operation. Bob, Clint, Eric, and Task Force

1205
Dozer begins line construction

1211
Dozer stuck on a rock, worked its way free, became stuck and worked itself free again and began constructing line.

"If you were going to get injured, this was the fire to do it on"

Leader (TFLD) trainee Max looked down the ridge from the road and pointed out the plan to Eric. Bob recognized the steepness of the slope off the road and asked Eric about it. "Yeah, I can go down that…no problem" said Eric without hesitation. Max also wondered about the feasibility of "putting line down the steep slope" but recalled he had seen dozers work in similar topography on other fires. "He was comfortable, more so than I was" said Bob, but along with Clint and Max he deferred to the expertise of the dozer operator, as none of them had experience running that type of equipment.

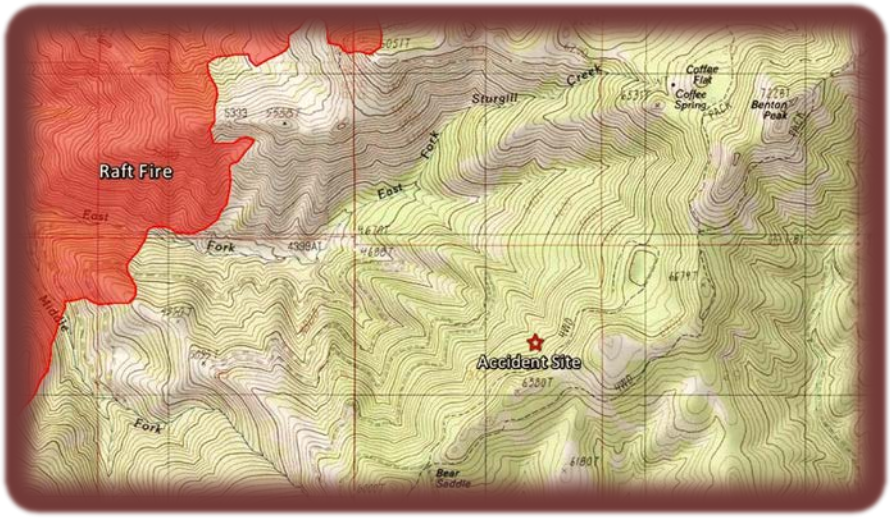
Rock embankment encountered leaving road

Once Eric took the dozer off the road down the slope, he almost immediately became hung up on a rock. Max recalled thinking the dozer looked "pretty jacked up" and appeared unstable, but then he seemed to restabilize and continue down the hill in a couple of controlled slides. Whether it was rock debris from the initial hang-up or another rock further down the hill is unclear, but Eric became high centered again. At this point Eric was on a lesser slope. "He was skidding, but

Final resting position of the dozer

looked fine" thought Bob. Bob, Max, and Clint then walked around the top of the road to gain a better vantage point for the operation. Less than a minute later they heard the sound of rolling metal as the dozer gained speed down the hill. This was the first indication to all as to what had occurred. The time was 1224.

"We have a medical emergency on Division Whiskey, clear this frequency. Activate Life Flight." There had been complications using hand held radios to communicate outside the division, so a mobile radio was needed to make the initial call to Communications. Bob called his Superintendent to request Life Flight, while Max radioed the DIVS trainee to clear the command



Division Whiskey on the Raft Fire

frequency for emergency traffic. Operations ultimately requested Life Flight at 1225. "I'm headed down" said Bob and he bailed off the road following the minutes old dozer line to get to the dozer, which had come to rest about 450 feet below. He covered that ground in three minutes and found the dozer on its side and quickly confirmed it was stable as he opened the door to see the operator unconscious and hanging in the seatbelt. In order to keep the door open, Bob had to prop it up with his Pulaski. There were other actions in process and more help en route, so Bob talked to Eric in a reassuring voice to communicate that medical was "on the way." As if on cue, the Emerald Hot Shots were approaching DP 30 to begin their assignment on Division

1224
Dozer rolled downhill for 310'

TFLD trainee radioed DIVS trainee who called ICP-Communications requesting command frequency be cleared for emergency traffic

1225
Operations orders Life Flight

1227
HEQB trainee first to scene, reported Operator unconscious

1236
Emerald IHC EMT's and Supt. On scene. Supt assumed command of scene.

1241
Emerald EMT's cut operator out of seat belt, begin to place on a backboard inside the cab and extract him.

1245
Emerald EMTs have operator out of the cab.

1248
Sage IHC responded and along with additional Emerald IHC began to clear a helispot and path for patient transport

1250
Paramedic Bishop and EMT Smith arrive on scene.

Line OSC2, DIVS W arrived on road above the scene and began coordinating through air attack.

1251
Paramedic Johnson and EMT Larson arrive on scene.

Whiskey for the day when they heard the initial call. "The transmission sounded like it was on a handheld so we knew we were close" Frank, Emerald Interagency Hotshot Crew (IHC) Superintendent, would later recall.

Medical personnel attend to operator

Twelve minutes after the initial call, three Emerald Hotshots (two of them being EMT's) arrive on scene with a backboard, litter and ropes. They got to work to extricate Eric from the cab of the dozer. Later accounts of this process aligned, and comments seemed to uniformly say "how did they do that"? The need for Advanced Life Support was evident, and stabilizing Eric for possible neck or back injury was going to need to be addressed with knowledge that critical care could not be conducted within the cab. Having no medical background, Bob turned the scene over to the Emerald Hotshots, with Frank in charge, and began to scout for a helispot for Life Flight. Bob did not have the medical background of the Emerald IHC responders, but felt he could have provided better initial info to them

Foreground: Life Flight helicopter on final approach to helispot; Background: Payette NF helicopter clears scene after leading Life Flight in

1255
Moved patient to more level ground

Lifeflight is 10 minutes out

1304
Life Flight arrived south of the scene

1314
Payette NF helicopter approved helispot

Life Flight lands to stage

if he had.

Paramedics soon arriving on scene would reaffirm that sentiment, as they found the EMT's ability to provide assistance due to their knowledge of terminology and familiarity with equipment quite helpful (note: Paramedics and Line EMT's are primary medical resources on the fire, not assigned in a suppression role). Shortly after the Paramedics and Line EMT's arrived on scene, the decision was made to move Eric about ten feet away from the dozer for treatment on flatter ground with more workspace. At this point Life Flight was approximately ten minutes out from the accident site. Given the terrain and slope of the area, the location of a suitable helispot within close proximity to the accident site was remarkable. This is yet another fortunate factor in this response, and it is significant in that it eliminated the need for an Emergency Helicopter Extraction (EHE). Bob had found a location requiring only a 450 foot traverse, with no more than 100 feet of elevation gain. When Life Flight was ordered for the accident, a request was also made for approval of EHE using a Payette NF Helicopter. The need to transfer Eric from the EHE to Life Flight would have added to the transport time to the hospital in Boise. Incredibly, the Payette has an approval process and the Helitack Crew routinely train for EHE operations. If needed, both Emerald and Sage Hotshots were equipped with low angle rescue gear. However, In the Emerald IHC's estimation, it would have taken

Accident responders carry patient to helispot

"Adequate patient care could not be achieved without Paramedics"

1322
Life Flight launches to helispot

1330
Payette NF helicopter leads Life Flight to helispot

1338
Life Flight landed at helispot

Patient transported to helispot

1346
Patient care transferred to Life Flight

1356
Life Flight lifted off for hospital.

1427
Life Flight arrived at St. Alphonsus Hospital in Boise.

"hours" to set up low angle gear and move the patient up to a road, and about 40 minutes to get to the lower road for ground transport to a suitable helispot for Life Flight.

The accident scene as it appears at this point in the story requires a reset. 4 medics (two paramedics and two line EMT's) were on scene with the patient within 27 minutes, along with at least five additional EMT's who were part of suppression resources (including the initial response from the Emerald Hotshots). Nine additional members of the Emerald Hotshots, along with half of the Sage Hotshots arrived on the accident scene just before the medics and "built a freeway" from the dozer to the helispot for transport. Larson, one of the Line EMT's is Helicopter Manager (HMGB) qualified and helped to scout the route to the helispot and completion of the helispot construction due to the fact that there was enough Advanced Life Support (ALS) and supporting EMT's to manage the scene.

Life Flight on the ground just prior to lift off

As Life Flight was nearing the fire area, ground resources at the helispot and other areas of the fire worked to make contact. F2 is the common name for the frequency and is a standard within Idaho for Air Ambulance air to ground communication. For a wildland firefighter, not having communication with aircraft is significant. The situation was quickly remedied, as Air Attack was over the accident scene and

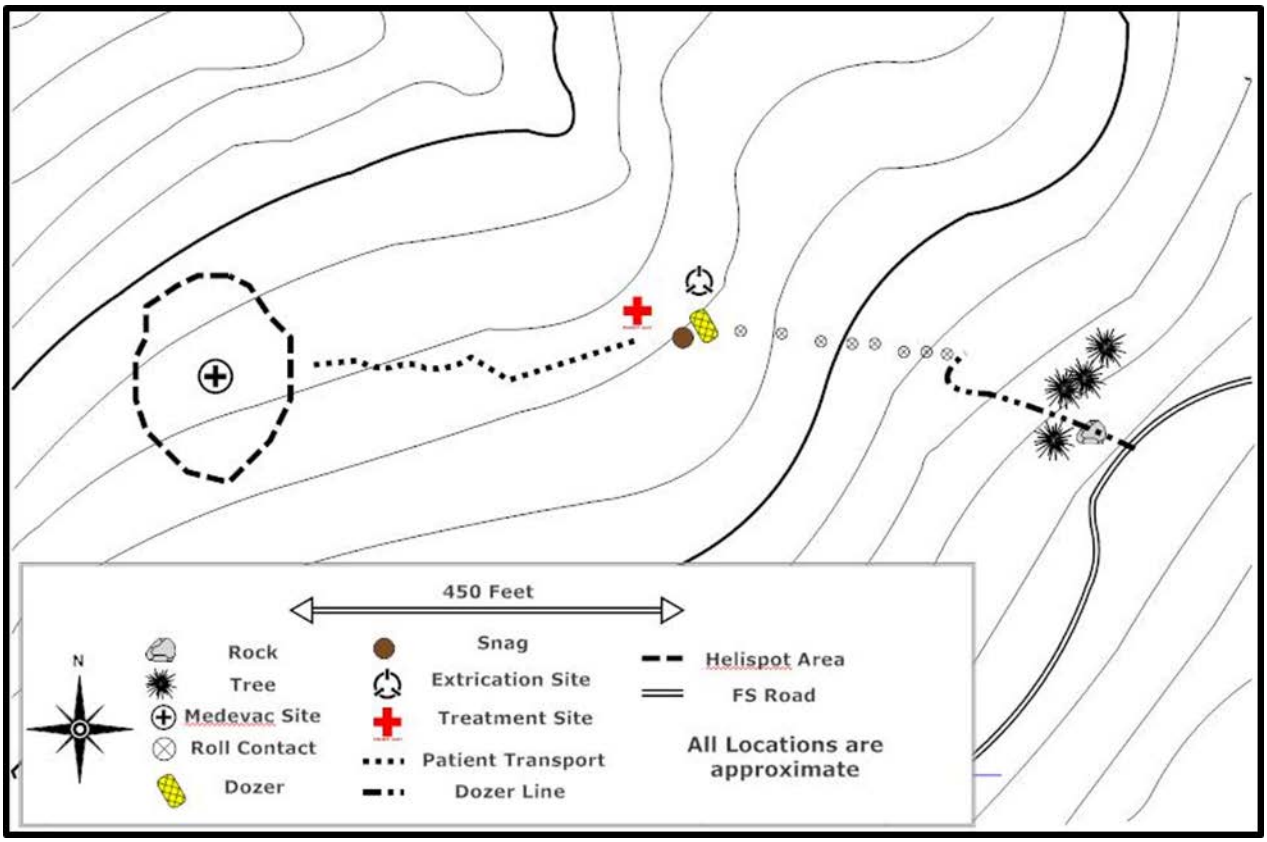
"Ordering paramedics with kits is still very difficult, there still needs to be more done to standardize the process"

made contact with Life Flight via an air to air frequency. During the FLA interview process this subject came to light many times, and one responder commented "I've been involved in three air ambulance rescues and never have been able to talk to the helicopter. It is too bad we can't figure this out". As it was, Life Flight was actually heading to an incorrect GPS coordinate, and although in proximity to the accident location due to topography there was some confusion as to where they were headed.

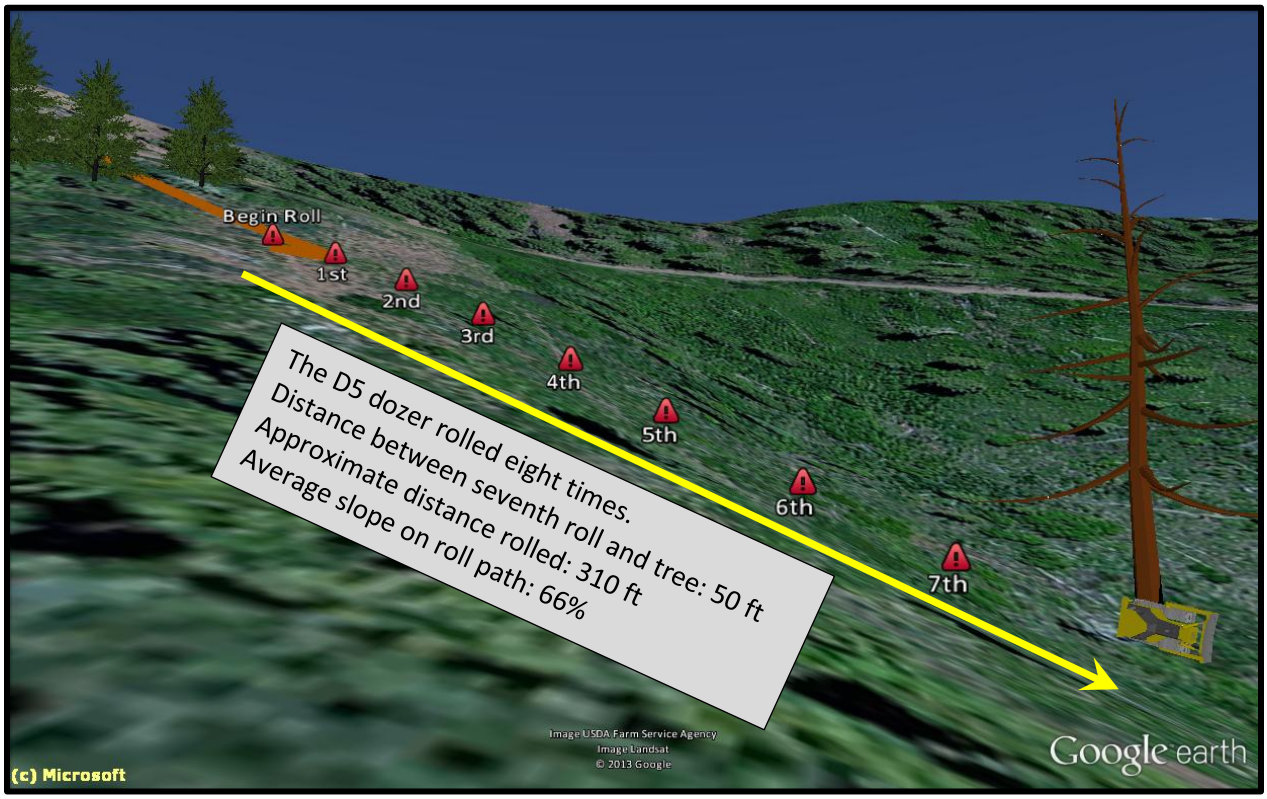
In the end communication links were established through relays and the pieces fell into place. Because the helispot construction was not yet completed Life Flight was directed, again via air to air frequency from Air Attack, to land nearby and wait. Because a Payette NF Helicopter was launched as the EHE option, it had also arrived in the area just ahead of Life Flight and served as a communication link between ground resources and Life Flight. Additionally, the Payette NF Helicopter approved the helispot as suitable for Life Flight to land. Upon completion of the helispot, Life Flight was launched, the patient was transported to the helispot and after transfer of care was en route to St. Alphonsus Hospital in Boise, arriving at 1427, 2:03 after the accident occurred.

In this story the chain of care and fortunate availability of ALS on scene made for a quick and successful medevac. There are many pieces of this scenario where a broken link could have taken it in a much different direction, some of which can be traced back to well before the dozer incident took place. Major factors in successful medical care were the initial response by EMT's who are part of suppression resources. In any fireline accident, it is not likely that ALS will be the first to respond. Not only does this provide an initial assessment from a trained person, it provides for better transfer of care for arriving ALS. Knowledge of medical terminology, needs, and equipment also aids in this process. Primary medical personnel, whether EMT or Paramedic, come with regular practice of skills so a wealth of agency EMT's among suppression resources does not replace this.

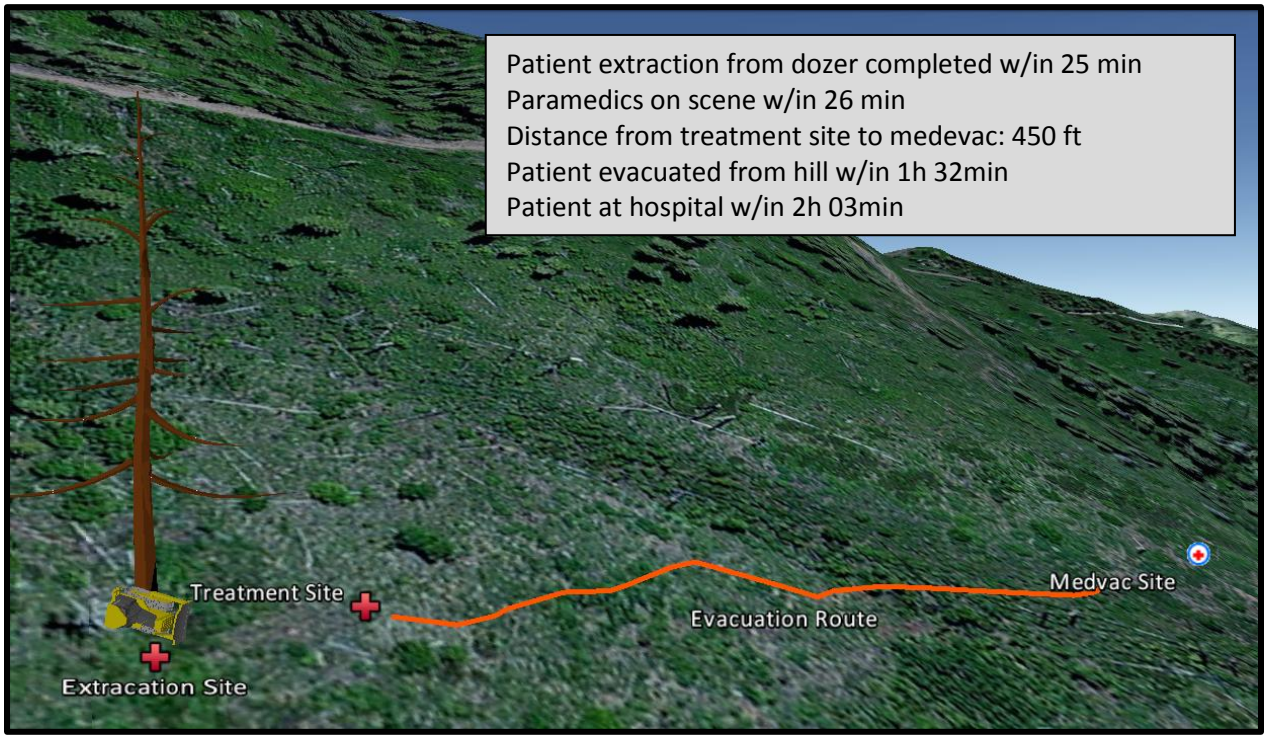
Aerial View Diagram



Accident Diagram



Response Diagram



Lessons Learned From the Participants

Medical Response

The medical response to this incident was continually highlighted by many personnel as an amazing effort. As one respondent noted "A lot of stars were in alignment, we had the right people and equipment in the right place and at the right time". Another noted that "this was the most medically staffed division he had ever seen in his Forest Service career." "If you were going to get hurt on a fire this was the one to do it on." "Most fires you can't find medical personnel to save your life". The IMT agreed that having completed a medical emergency simulation while on another fire earlier in the year was a big advantage for them during the medical event.

Even with the successful extraction and treatment of the Dozer Operator there are a few items that many personnel felt were worth sharing as lessons learned.

1. Paramedics were critical to the survival of the injured dozer operator.

2. The EMT's and paramedics mentioned that medical personnel need to be ordered in teams of two, and when responding to an incident they need to ensure that they come prepared to take care of themselves, by having food, water, Personal Protective Equipment (PPE), etc.

3. There are still problems, as identified in conversations with respondents and the Medical Unit Leader, with the ordering process for EMT's and paramedics. While standards for ALS and BLS medical kits have been established though the National Wildfire Coordinating Group (NWCG), ordering for these functions remains difficult due to the need for physician sponsors, prescriptions, etc. This causes confusion and frustration when trying to order personnel in medical functions because replacing items used can be difficult or impossible. Along with the cumbersome ordering process many paramedics are unable to fly with their kits so mobilization is lengthy or not possible.

4. The final item that was continually mentioned by respondents was frustration over inaccurate GPS coordinates which caused minor delays in Life Flight's response to the helispot. The IMT did publish on the cover of their IAP the mapping standard that the team uses, which is NAD83 and a format of Degrees Decimal Minutes. No one specifically identified the cause of the confusion but many felt it is important to note for continuous improvement.
5.

Hotshot Crews

The work of the Emerald and Sage Hotshots was critical to the successful care and extraction of the dozer operator. They came to the scene of the accident trained, ready, and equipped to handle the situation, and jumped in and engaged. Both hotshot crews came with low angle rescue equipment to assist with patient transport if needed. Although this was not the first option for extraction it was a welcome option should the Life Flight or EHE options fall through. One thing that was mentioned regarding the low angle rescue equipment was that it was good to have as a backup but using it likely would have taken hours to extract the patient to one of the roads for transport. Not all crews are trained or equipped for Low Angle Rescue, but having this as an option during medical emergencies in steep remote terrain was regarded as a very good thing.

Emergency Helicopter Extraction

Consistent feedback from tactical personnel was the need for EHE trained helicopter crews on all incidents. Given the remoteness of many fires the Federal Agencies operationally engage and given the difficulty of ground extraction, it was noted EHE should be pursued further. The Payette National Forest Helitack Crew has the proper equipment and training for the use of EHE and the Forest has a pre-identified process for the approval of the operational procedure. A Payette helicopter was assigned to the fire and although EHE was not used the helicopter was mobilized to the accident with Forest Supervisor approval to use EHE as an option for extraction should the Life Flight helicopter be unable to land. Multiple responders stated, “Even though EHE was not used it was a very nice option to have for this incident”.

Air Attack

During the entire medical emergency Air Attack was overhead. Air Attack provided a critical link in relaying information back to the Incident Command Post (ICP) as well as assisting with airspace coordination. Air Attack provided aerial support in staging the EHE helicopter, communicating with Life Flight, and communications with ground personnel.

Life Flight

The single issue identified during every interview was related to the inability to make radio contact from the ground to the Life Flight helicopter. There was frustration, dismay, and resignation felt at all levels surrounding this failure. This was despite the fact that no one felt this contributed to any negative outcomes, as it was overcome relatively quickly. Comments from personnel relating to the inability to contact Life Flight via radio included: “We were here

on this same piece of ground five years ago for the Snake One Fire, and had the same issue (ICT2). "It has been three years since Deer Park and we are still having the same issue" (HEQB). "I have been involved with three air ambulance rescues and can never get in contact with them…it's too bad we can't get that figured out" (TFLD trainee).

During in brief the forest requested that any air evacuations were operated through their dispatch and this was quickly implemented during the accident. It appears that there was good communication from the forest service dispatch to the county dispatch confirming frequencies from the incident communication plan. There was also confirmation with Life Flight's dispatch of those frequencies. Although there was confirmation of the correct frequency, there were barriers communicating with both Life Flight and their dispatch about frequencies. Both were only able to identify that they were using "channel F2", but unable to identify the actual frequency. There is also an inability for the helicopter to program FM frequencies and appears this may have led the pilot to believe that he did not have communication on F2 with incident personnel.

The incident communication plan had the matching "Air Ambulance" frequency in it. One discrepancy that was discovered is that the frequency has a transmit tone that was not included in the plan. It is unclear whether individuals on the ground had the tone programmed and what role this played. There were differing opinions amongst IMT members as to whether or not having the transmit tone programmed in would have affected the ability to communicate with Life Flight.

It is worth noting that individuals at all levels, actually expected such a failure based on previous experience and planned for it. The Medical Unit Leader for the incident stated that he typically makes contact with the local authorities to communicate their pre-planned responses and ensure correct frequencies, but hadn't gotten around to it yet for this incident. One suggestion was made during the review to email the IAP with the Communication Plan and Medical Plan to local air ambulance services.
The availability of agency aircraft to communicate via victor frequency was key to overcoming the communication difficulty. The local dispatch center stated that this is a common backup plan for establishing communication with Life Flight. Without this in place it would have been much more likely to have contributed to delayed care for the patient

Critical Incident Stress Management

All personnel involved in the dozer roll over were offered Critical Incident Stress Management (CISM) support by the IMT. A CISM Team Lead was on the fire in another capacity. He completed sessions with many respondents in addition to setting up sessions for others that required more assistance. The CISM sessions were helpful for those involved, but for the

Emerald Hotshots more was needed due to their level of involvement and the number of medical emergencies the crew had responded to during the fire season. As the Emerald IHC Superintendent stated "CISM was a big help. We have been dealing with a lot of significant injuries this year. This accident was the last straw. I needed a break."

Contractor

While contract equipment is an integral part of the fire programs mission there still exists a number of barriers that were discussed. Contract dozer operators are only involved in fire operations intermittently during the summer months, and therefore it was identified that there is still a language barrier between fire personnel and contractors. The typical "fire jargon" is not as representative to many contract dozer operators and this causes the potential for communication problems between DIVS, TFLD, HEQB and the contractor.

Currently contract dozer operators are only required to complete RT-130 and a fire shelter deployment prior to working on fireline operations. Some felt that more training in fire operations would help bridge the communication gap but also give the operators a better understanding of critical items like, line location, fire behavior, and overall chain of command.

A more complex item identified deals with risk management and contractors. The federal agencies have identified gaps in risk tolerance between leadership (both fire leadership and line officers) and the ground personnel involved in fire operations. This gap may be magnified and larger between contractors and leadership, due to less stringent fire safety training, and exposure to the federal firefighting safety culture.

Heavy Equipment Bosses

While there were many aligned chance occurrences leading up to the accident, there were a few key interactions that led directly to the decision to go ahead with the dozer starting line construction. These occurrences affected where and how the dozer went about constructing line. The TFLD trainee, HEQB, and HEQB trainee all discussed the feasibility of using the dozer to construct line on the ridge. They perceived that the line was steep and possibly not doable, but they felt they had seen dozer line in similar terrain, and that they would rely on the operator's assessment of whether or not it was doable. Alternatives were discussed amongst leadership regarding whether the operator was uncomfortable with downhill line construction, but not shared with the operator. The HEQB trainee shared that he would be sure to provide alternatives with operators in the future. He also indicated that he would not rely solely on anyone's self-assessment of their own skills and abilities.

After the accident, a perspective shared by the qualified DIVS was that there should have been a better "ramp" built off the road to decrease the gradient of the initial piece of line off the road. When this was shared, the other dozer operator from the same contractor replied, "I was under the impression that we should do the least disturbance possible."

The qualified HEQB commented that one thing he would change is scouting line better in the future. It is worth noting that several areas encountered by the dozer were large rock "drops" of four feet or more. In fact just prior to the initiation of the dozer's roll, the operator appeared to be maneuvering side slope to avoid a drop-off. There were also several areas of solid rock covered with a thin layer of soil which were capable of causing the dozer to lose traction. When the soil conditions are considered with the steepness of the slope on which the dozer was operating, it makes one wonder the impact of a more thorough evaluation of conditions. The average slope up until the rollover was 78% with a max of 95% just off the road.

> *"I kind of assume that for a person to get to the HEQB level they have walked in my shoes"*
> - Contract Dozer Operator

> *"I don't know how to operate a dozer, so I rely on the operators comfort level when implementing line construction"* – HEQB trainee

Federal Firefighting Recommendations

The following recommendations are nationwide across all federal fire management agencies in scope and merit a more comprehensive assessment than this FLA can provide.

Standardization for Ground Contact with Air Ambulance

As already mentioned in this document, the inability to establish communication between the incoming Life Flight helicopter and resources on the ground is viewed as an issue that had potential to alter the outcome of this event. In conversations with parties involved with this incident and among the FLA team this failure is considered the norm. Due to the continuation of this, resources have begun to plan for no direct communication. The problem does not seem to be due to a lack of attention to the issue, as a standard frequency for the State of Idaho was in use and provided in the Incident Action Plan (IAP) prior to the need for a medical response. Other standards on a local unit or zone level have also been established elsewhere with the same result. With crews and IMT's from out of the area on large incidents, it can be difficult to maintain continuity with local, zone and state level standards in this regard.

RECOMMENDATION:

Although perhaps beyond the reach of the wildland fire agencies, establishing a national standard practice for field communication with Air Ambulance services and federal fire agencies is advocated. This would need to identify not only a standard for communication, but also discover what issues are causing the variety of current standards to fail.

Standardization for Ordering and Delivery of Paramedic Kits

The NWCG has developed guidelines for Emergency Medical Kit orders, but much of the Paramedic Kit items depend upon the incoming Paramedic's medical director approval for use. The incident ordering manager for the Weiser Complex spoke of the difficulty in getting Paramedics ordered, partly due to the inability to fly commercially with personal Paramedic kits because of the instruments and drugs included. Paramedics the FLA team spoke with were proud to show their kits to us, and it was evident that they prefer to use their own equipment as they are familiar with the location of needed items and have a preference for different makes and size of instruments.

RECOMMENDATION:

Assess reasonable alternatives that allow Paramedics to be ordered to arrive in a timely manner and fully equipped.

Training and Certification Requirements

For qualifications requiring a position taskbook, training required for full qualification under the NWCG PMS 310-1 and additional agency specific training policy documents does not need to be completed in order to begin working as a trainee. There are some specific positions which do require that initial training and refreshers be maintained in order to act in either a trainee or qualified capacity. Helicopter Managers are required to have the initial training (S372) and then complete the refresher (RT372) and perform in that capacity every three years to maintain their qualification. In a potential qualified/trainee relationship working with heavy equipment under current standards there can be a qualified Heavy Equipment Boss who has not performed or had a classroom refresher/update in five years and a trainee who is knowledgeable in fire suppression but has no insight into the abilities and limitations of heavy equipment. Another example of a potential gap is the current NWCG standard to achieve Felling Boss (FELB), which does not require the individual to have a falling qualification (the FS does add to this standard to require a Class B Falling requirement). However, due to the great increase in complexity of falling Class C trees, this can put the FELB in the position of supervising an operation without having a background with which to inject a qualified second opinion.

RECOMMENDATION:

Assess whether our current standard meet our desired outcomes with regard to safety and risk for ICS positions which oversee contractor operations.

Risk Assessment among Contractors

With the emphasis among the Federal Fire Agencies toward improving the safety culture based on the components of a Highly Reliable Organization (HRO), the gap between the view federal employees and contract employees have toward a mission can be quite different. In order to be on the same page in this regard, all the players working together should have opportunity to receive the same training. Incorporating contractors into the safety culture through training requirements that are identical regardless of employment status will encourage and support the desired outcome for any incident, project or other endeavor involving contract work with the federal government to be focused on safety and not the mission. Getting the safety culture shift to take hold among federal employees took some time, and it will take time among the contractor community as well. Once that shift begins to take hold, however, accountability across the federal/contract community can come together. As it is, the contract community dutifully completes training requirements in order to be employed. With a culture shift, perhaps “requirements” can be replaced with “opportunities”.

RECOMMENDATION:

Require training in the contractor community that will align safety culture with the federal workforce they are working with, side by side.

Enquiry

There were numerous factors that likely contributed to the dozer roll over that address the question, “Why Did it Happen.” It is not an exhaustive list of factors but more an outgrowth of small and individual actions, events and factors that develop on all incidents that occur in a high risk work environment. Management of fires like Division W of the Weiser Complex requires thoughtful balancing of risk for gain and the ability to make decisions in a climate of uncertainty. This decision making starts with the Letter of Delegation to the Incident Management Team and is communicated through many levels to eventually reaching the fire fighter on the ground, and in this case a contract dozer operator making risk based decisions.

Risk based decisions can be made with thoughtful deliberation or instantaneously. It is well known that risk is an outcome associated with work production. But risk is also an outcome associated with: experience, training, expertise and risk tolerance within a safety culture.

All involved in the dozer roll over were shocked and saddened by this accident. What contributed to the collective acceptance of the risk associated with building this dozer line?

It is well documented (FLA Implementation Guide, June 2013) that there is a difference “gap” in what administrators think is going on and what is really going on in the field with employees. There is a likelihood that the “gap” for contractors exists also and is possibly larger than with the federal workforce.

Risks being taken by the contractor community may be different than within the federal agencies as the contractor community is not exposed to the agency safety culture that has evolved over the past decade. Ingrained safety practices such as daily 6 minutes for safety, job hazard assessments, frequent after action reviews, ability of all employees to question an assignment based on safety and a constant effort to communicate, clarify and understand mission have all changed agency safety culture. This may explain why risk will be assessed differently on the fire line when comparing contractors and agency personnel. There may never be a time we fully understand how the dozer operator viewed risk the moments before heading down the slope. There was certainly a risk assessment done by the dozer operator, even if it was done swiftly. Agency safety culture and the employees working within that culture will view risk differently than contractors resulting in different risk acceptance.

Training is an additional component that can result in a contractor and agency personnel assessing risk differently. The fire training required of a heavy equipment operator prior to engagement is limited to RT-130 Annual Fireline Refresher including fire shelter deployment. IMT personnel at multiple levels engaged the dozer operator prior to locating and building line in a dialogue that includes suppression tactics and strategies, rich in fire jargon and acronyms.

The outcome is a risk discussion that the dozer operator may not be fully able to participate in when assessing risk. Reasons being, if they don't fully understand suppression tactics and strategies to achieve a mission, they may not be fully able to participate in a risk assessment discussion like the one that occurred in Division W of the Weiser Complex. Fire training for contractors is limited and there is no formal way of documenting contractor experience. An appropriate question is, "is this short coming in training compensated by the agency providing an HEQB?"

To a large degree the intent of the agency is a yes to the above question. Dozer Boss training (S-232) generally requires trainees to have 5 years of experience in wildland fire and experience around heavy equipment. This ICS position is usually supervised by a Division Supervisor, Strike Team Leader or Task Force Leader. In discussions with agency personnel after the accident there was a consistent message and understanding that fully qualified line personnel and trainees deferred to the expertise of the dozer operator. This expertise reliance is partially based on assumptions of experience gained in minutes of discussion prior to line construction and an acknowledgment by all agency personnel that while they had experience around heavy equipment they were not the expert. When agency personnel and the dozer operator evaluated potential line construction from the road, all acknowledged that it was steep but not much discussion about rockiness. The dozer operator was calm and confident in his ability to do the job. Agency personnel deferred to his expertise. This deferral was also a partial transfer of risk to the dozer operator. In this case the agency is transferring risk to a contractor who may not fully understand all the fire tactics, strategy and terminology into formulating his risk assessment. A Dozer Boss on Division W said, "I don't know how to operate a dozer, I rely on the operators comfort level when implementing line construction."

The question again of why did it happen? Ultimately the judgment of the dozer operator and his risk decision is what happened. What contributed to his risk decision is important to the learning in this incident and why we believe it is obviously a bad outcome where hindsight says the risk was not worth the gain and all involved agree that it would have been better to take more time to scout the potential dozer line.

Risk gap, risk tolerance, need for contractor training, and expertise reliance are key observations from this serious accident. A new dozer contract operator shared this a few days after the accident, "I have never worked in country like this before and I'm trying to understand what you want me to do." As federal agencies align normal work with risk, safety and Just Culture, there will be a need to be more inclusive of the contractor community which has become such a large component of the fire-fighting efforts. Our compassion, empathy and sympathy for serious injuries and fatalities in the contractor community are fully warranted and

show the respect we have for these folks. It may be time to turn that respect into more front end loading of technical fire training and the sharing of our safety culture.

Thank You

The FLA team would like to thank the Payette National Forest for their hospitality and openness to the FLA process. Without the dialogue and availability of resources during this process, we would not have been able to conduct an adequate inquiry into this accident.

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