

Rapid Lesson Sharing

Event Type: Dozer Tip Over

Date: September 6, 2017

Location: Horse Creek Fire Complex,
Willamette National Forest, Oregon

“I need to learn more about the resources under my command. I realize now I need to do some dozer research.”

Division Supervisor

“Next time, I will slow down and remember to question an operator I have never worked with. I need to learn more about individual machines and their capabilities.”

Heavy Equipment Boss

“You better put your macho away! Saying ‘No’ doesn’t make you a wimp.”

Dozer Operator

NARRATIVE



It was shaping up to be another long and smoke-filled shift as a new Division was assigned to the Avenue Fire, a rapidly emerging incident that was part of the Horse Creek Complex burning on the Willamette National Forest.

Hot and dry conditions coupled with rugged terrain kept the Incident Management Team on its toes as fire behavior remained active and newly emerging incidents had resources stretched thin. Initial strategies were scrapped and new tactics were implemented due to changing conditions.

The current plan was to corral the Avenue Fire as quickly as possible in an effort to keep it from impacting the private lands below.

Best Option: Use Dozer to Tie-In Line Down Steep Slope

After quickly surveying a chunk of ground where fire line was needed, the Division Supervisor decided the best option would be utilizing a dozer to construct line, working from the saddle downhill in an attempt to tie it in below. This route would take the dozer through a previously thinned stand of second growth timber on what appeared to be a relatively steep slope.

Current resources working on the Avenue Fire had little knowledge of the dozer's capabilities or who the operator was. This Division Supervisor says: *"Put me in the middle of nowhere with a pack string building trail, or running a chainsaw, and I am in my comfort zone."* But in this case, he would ask the Heavy Equipment Boss (HEQB) and Dozer Operator to assess the feasibility of his plan—to determine their comfort zones.

A call was made on the radio requesting a Heavy Equipment Boss and Dozer Operator to come out and take a look at the section of line he wanted punched in. Although there was some initial concern due to the slope, trees, and other debris that would need to be negotiated, it would be left up to the Dozer Operator to make the call.

The Division Supervisor reflects how: *"there have been times I thought a task was a 'No Go' and an operator said they could do it. I have been surprised more than once when a task was completed successfully."*

***"As a Dozer Boss I place trust in an operator
when he tells me he is comfortable performing a given task."***

Heavy Equipment Boss

Dozer Operator is Comfortable Performing this Task

The Heavy Equipment Boss and Dozer Operator arrived on scene a short time later to examine the site where the line was proposed. While the Division Supervisor believed that *"connecting the line was the only option,"* he wanted to ensure that the proposed route was thoroughly scouted prior to engaging.

The Dozer Operator walked over and looked down the slope. He assured the Heavy Equipment Boss that he felt comfortable performing this task. The Heavy Equipment Boss described the Dozer Operator as being *"jacked up"* and ready to tackle the challenge.

Upon first inspection, the Heavy Equipment Boss realized *"it was going to be tough going."* He had some concerns about the root wads, timber, and slope where the dozer would be operating. However, he also deferred to the Dozer Operator, thinking: *"He seems confident that he can do the job."* Next, the route was scouted and a viable route down the hill was flagged in.

Heavy Equipment Boss Background/Experience: His Second Assignment

This was only the second assignment for the Heavy Equipment Boss and he was anxious to get to work. Being new, he was also unaware regarding the exact capabilities of the dozer now assigned to him. He was reassured thinking that someone down at ICP had inspected the dozer prior to it coming out on the line and they found the machine properly equipped and capable of operating in the type of terrain in which the fire was burning.

In addition, this was the first time the Heavy Equipment Boss and Dozer Operator had worked together. In fact, they had met just an hour before being called to the line. Never having worked together before, the Heavy Equipment Boss was unaware that the Dozer Operator didn't know that he could refuse the assignment. This right of refusal topic was never discussed prior to beginning the work that day.

Dozer Operator Background/Experience: His First Fire Assignment

Although the Dozer Operator worked for a season as a wildland firefighter years ago and had lots of experience with heavy equipment, this was his very first fire assignment as a Dozer Operator. This also just happened to be his first day working as a new employee for this company.

He had arrived at ICP a short time before being called out to the line and was feeling a little overwhelmed with the whole process. *"I wish I had someone to show me the ropes"* he would later state.

***The operator's skillful response and this small tree
were now the only things preventing the dozer
from tumbling farther down the hillside.***



The Dozer Operator says “I’m an old-school boy from Montana.” Regarding this fire assignment, he remembers thinking: “If I don’t do the job. They’ll find someone else who will.” As previously mentioned, the Dozer Operator didn’t know that he could say “No” to an assignment. He would later say that he feared if he did turn this assignment down, he may make his company look bad. As a new employee, this was not something that he was willing to risk.

**Dozer Operator Tries to Prevent
Dozer from Rolling Over**

As the dozer began to cut line at the site of an old landing, everything was going well and the operator was feeling good. Once the dozer neared the break in slope, the stumps and

other debris being pushed by the machine made it hard to see what was in front of him. Although this was not the first time working on steep ground, he found it difficult to judge exactly how steep the slope was—viewing it from above with all these logs, brush, and grasses obscuring his view.

After a bit, the blade was all the way down, but it wasn’t touching anything. The Dozer Operator slowly inched the machine forward.

The dozer dropped over the edge onto a small shelf and was fully committed at this point. The machine started to feel a little unstable. The operator was skillfully doing what he could to negotiate this predicament. Still struggling to determine what was under the machine, he raised the blade all the way for a better look. The blade quickly became stuck on one of two stumps.

At that moment, the entire dozer began to tip toward the downhill side. The Dozer Operator quickly dropped the blade and angled downward in an attempt to stop the dozer from rolling over. Even so, the machine continued to tip slightly until coming to rest against a 12-inch diameter Douglas fir.

The operator’s skillful response and this small tree were now the only things preventing the dozer from tumbling farther down the hillside.

“I will never push a crew or individuals if they are uncomfortable. I am happy to find another route or way to do something.”

Division Supervisor

Transport Driver Videos the Tipping Incident

Earlier, the transport driver had arrived on scene with the dozer and got out to look around after it was offloaded. This was also the first time that she and the operator had worked together. The transport driver had walked over and looked at the slope thinking *“it looked awful steep”* but quickly wrote it off as she was not an operator.

Staging near the transport, she had watched as the dozer began cutting line at the top of the slope. She had decided to pull out her phone and record some of the work being completed. *“I thought the company and the operator might like to view the video later,”* she explained.

Shortly after the dozer began to drop over the break in the slope, it was clear that the operator was having trouble pushing the root wads as the blade appeared to be lifted all the way up. In that moment, while still recording, the transport driver’s heart froze as she watched the dozer begin to tip heavily to the downhill side before coming to rest against that tree. (To watch this, see video link below.) *“I thought for sure the machine was going over and that I was witnessing his death,”* the transport driver said.

Dozer Tip Over Video:

<https://youtu.be/qkrg1S4ZlZw>

“When I observed the dozer begin to tip, I concentrated on keeping my mind clear and thought about getting everything ready. I grabbed my radio and was preparing to call for a medic. I truly thought I would be dealing with a body on the hill. It was very intense.”

Division Supervisor

Division Supervisor Sees Dozer Begin to Tip Toward Downhill Side of Hill

The Division Supervisor, located nearby, could hear the operator was having some trouble as the dozer began to make its way over the slope. He contemplated stopping the operation for a moment just before the operator seemed to recover control having worked through the difficulties he was experiencing. It was at that moment the Division Supervisor witnessed the dozer begin to tip toward the downhill side.

Division Supervisor’s Entire Perspective Changes

With the realization that a dozer was no longer an option for connecting the line, the Division Supervisor walked the entire route from the top down now considering hand line construction. Once at the bottom, he decided that rather than taking the road back to his truck as the others had done before him, he would turn and hike the same route back upslope.

It was at this moment his entire perspective changed and the true characteristics of the slope could be fully recognized. The terrain now appeared much steeper than it had when viewing it from above—or even hiking down.

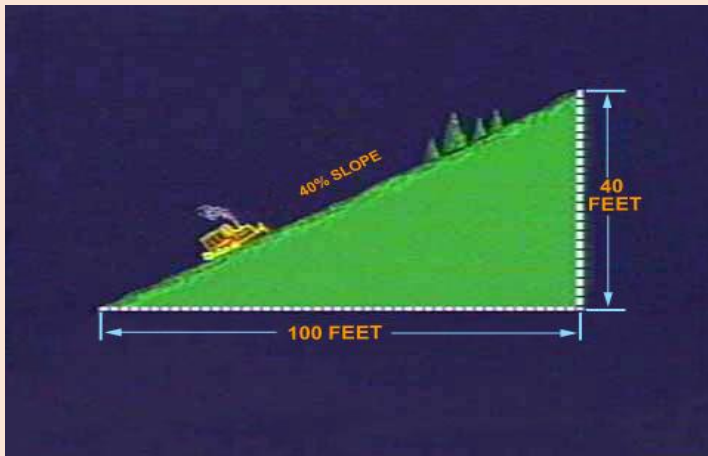
What had appeared possible beforehand—utilizing a dozer to cut the line—now was clearly not a viable option.

“Had I assessed the slope from the bottom up before requesting a dozer,” the Division Supervisor acknowledges, *“I believe my initial decision would have been to put in hand line.”*

“Had I assessed the slope from the bottom up before requesting a Dozer, I believe my initial decision would have been to put in hand line.”

Division Supervisor

Heavy Machinery Safety is Extremely Important – This is one of the Leading Causes of Occupational Death



Heavy Equipment Bosses directing the work of machinery on incidents need to dedicate time and resources toward educating themselves on the capabilities and safety-related concerns associated with working near heavy equipment.

This is especially true when working on steep slopes.

Machine-related injuries were ranked second after motor vehicle-related injuries among the leading causes of occupational injury fatalities, accounting for approximately 14 percent of total deaths. (Source: NIOSH NTOF Data, 1980-1989.)

- ❖ Rollovers were the main cause of death for heavy equipment operators.
- ❖ Being struck by heavy equipment or trucks (especially while backing up), and equipment loads or parts were the major causes of death for workers on foot and maintenance workers.

LESSONS

After this dozer incident, everyone involved reflected on what had taken place:

Division Supervisor: *"I need to learn more about resources under my command. I realize now I need to do some dozer research."*

Heavy Equipment Boss: *"Next time I will slow down and remember to question an operator I have never worked with. I need to learn more about individual machines and there capabilities."*

Dozer Operator: *"You better put your macho away! Saying 'No' doesn't make you a wimp."*

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- ✓ Ensure a thorough job of scouting takes place *before* a decision is made to initiate an operation. This includes hiking fire line both up and down a proposed route.
 - ✓ Heavy Equipment Bosses need more comprehensive training to help them identify differences in equipment, capabilities, and maintenance concerns that could create vulnerabilities during the performance of a given assignment.
 - ✓ Individuals in operations-related leadership roles need to educate themselves as to the various capabilities of resources under their command to help them make more informed decisions.
 - ✓ Never assume the resources you have just met understand their right to refuse an assignment.

- ✓ During fire suppression efforts we are often placed in a situation in which it is necessary to rely heavily on individuals whom we have just met. In these situations, false assumptions can be made that have the potential to place these people in harm's way—or directly impact the safety of others. Open discussion surrounding safety concerns, experience level, and the agency's safety culture should take place *prior* to beginning work.
- ✓ Before quickly starting a new task, especially when working with unfamiliar resources, remember to **stop** what you are doing, **think** about all available options and associated hazards, **talk** it over as a group, and then **act**—only after selecting the most appropriate and safe course of action.
- ✓ After an accident or near miss occurs we tend to spend time in hindsight reflecting on what could be done better next time. It's equally important to use forethought preemptively when contemplating a given action or next step.
- ✓ The conditions and situation firefighters are accustomed to working under come with inherent dangers and an elevated level of risk. It's imperative that we understand this and that we continue to share safety messages and lessons learned with others whenever possible.
- ✓ Make time to share stories and experiences with those whom you come in contact with. Your individual stories are extremely powerful. They allow us to learn from each other and make more informed decisions.



For More Insights on Working Around Heavy Equipment on the Fire Line, Check out this Video:

[Firefighters Inside the Iron](#)

<https://www.youtube.com/watch?v=nY6D8uu8FJY&list=PL79EEAE346F02B28&index=1>



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