# Accident Investigation: Factual Report

*(Copy 1 of 1)*


## Dutch Creek Incident

Big Bar Ranger District
Shasta-Trinity National Forest
Pacific Southwest Region

Friday, July 25, 2008

# Accident Investigation Report

**Accident:** Dutch Creek Incident

**Location:** Big Bar Ranger District, Shasta-Trinity National Forest

**Date:** July 25, 2008

**Investigation Team Leader, USFS:** Tina J. Terrell, Forest Supervisor, Sequoia National Forest, Region 5

**Investigation Team Leader, NPS:** Scott Wanek, Regional Chief Ranger, Pacific West Region

**Team Leader Trainee, NPS**: Mike Anderson, Regional Chief Ranger, Southeast Region

_____ _____

Signature Date

_____ _____

Signature Date

**Chief Investigator:** Michelle Reugebrink, USFS, R-5 Safety & Health Specialist, Pacific Southwest Region

**Investigation Team Members, United States Forest Service:**

**Safety Officer:** Ron Ashdale, Safety Officer, Angeles National Forest, R-5

**Technical Specialist:** Pete Duncan, Lead Instructor/Chainsaw Program Coordinator, Northern CA, R-5

**Documentation Specialist:** Rose Leonard, Biologist, PSW Research Station, Redding Research Lab

**Documentation Specialist Trainee:** Patricia Johnson, Wildlife Biologist, Shasta-Trinity National Forest, R-5

**GIS Specialist / Editor Writer:** Karol McGuire, GIS Specialist, Shasta-Trinity National Forest, R-5

**USFS Union Representative:** Randy Meyer, President, NFFE Local 2066

**Investigation Team Members, National Park Service:**

**Management Liaison:** Jim Milestone, Superintendent Whiskeytown National Recreational Area

**Investigation Technical Consultant:**

**Technical Specialist**: Rich Zimmerlee, Boise Smokejumper, Rx Manager, Bureau of Land Management

# SAIT Disclaimer

Based on all evidence available to the SAIT, we know that FC1 was injured from being struck by a tree during a felling operation. From the time of the accident, until the preparing of this report, no individual member of EM-CAPT could be positively identified, nor excluded from being the sawyer at the time of the accident.

Evidence collected by the SAIT included 54 manual and electronic time-stamped documents. These documents were collected from multiple entities, in three different counties. Comparing documents that logged the same event, the SAIT noted time stamps often varied by 5 to 10 minutes.

# TABLE OF CONTENTS

# I. EXECUTIVE SUMMARY

Early in the day on July 22, 2008, an engine from Olympic National Park received a resource order to report to the Iron Complex, on the Shasta-Trinity National Forest, near Junction City, California. The crew and line supervision at the park were so motivated to see the engine crew obtain an immediate assignment that the NPFMO accepted the resource order despite not being able to contact all crew members who were on their day off. NPFMO tried all day to contact the crew and eventually assembled and dispatched the crew at 2100. Despite a late start and a series of complications enroute to the fire, which included mechanical problems with their engine that lead to the separation of their crew and engine captain, the remaining crew members were encouraged to continue to pursue a line assignment as a falling team. Because Incident Management personnel were equally motivated to find a line assignment for the eager crew, the crew was ultimately given an assignment as a falling module that they were not qualified for and without qualified first or second line supervision. During that assignment the crew cut a tree that was outside their falling qualifications, which resulted in the injury of FC1.

Upon arrival to the Incident Command Post on July 23, EM reported mechanical problems with the engine that required CAPT to drive the vehicle into Redding, California for warranty service. EM-CAPT stayed at ICP and on July 24, were given a logistical assignment in camp. On July 25, while CAPT was attempting to obtain a replacement engine from Whiskeytown National Recreation Area, EM-CAPT were given an assignment as a falling module to Division B on the Eagle Fire. The assignment was to mitigate hazard trees along the fire line, so crews could safely work in the area. At approximately 1350, FC2 called ICP for medical assistance for severely injured FC1. Emergency medical personnel responded and treated the injured FC1 for severe bleeding. Due to heavy smoke conditions requiring Instrument Flight Rule (IFR) capability, primary helicopter resources were unable to respond to FC1's location. Firefighters carried FC1, by litter, to a location where FC1 was hoisted into a United States Coast Guard Helicopter, at approximately 1630. The USCG helicopter carrying FC1 arrived at Redding Municipal Airport, where FLN, in consultation with a Mercy Hospital Emergency

Room Physician, pronounced FC1's death at 1710. The Coroner later determined the cause of death to be blood loss due to blunt force trauma to FC1's left leg.

## II. NARRATIVE

The fire season of 2008 began early in the Western United States, particularly in Northern California. In less than one day, an electrical storm unleashed nearly 8,000 lightning strikes that started more than 1000 wildfires across Northern California. By late June, there were over 100 lightning sparked fires still burning in Trinity County. Among these was the Eagle Fire, part of the Iron Complex, near Junction City, California. The unprecedented fire activity had blanketed the northern Sacramento Valley with thick smoke. Firefighting resources were stretched thin and reinforcements were coming from all parts of the United States and even other countries. During June and July, there were close to 19,000 firefighters actively involved with firefighting in California.

On June 12, 2008, FC1 graduated from Port Townsend High School, in Port Townsend, Washington. On June 16, 2008, FC1 started work at Olympic National Park in Port Angeles, Washington, under the Emergency Hire Authority as an Administratively Determined (AD) firefighter. As part of FC1's job requirements, FC1 completed Basic Firefighter training on June 24, 2008. Saw training (S-212) was completed and a taskbook for Faller "A" was initiated on June 28, 2008. On July 4, 2008, FC1 completed this taskbook. On June 29, 2008, FC1 was hired as a Temporary Forestry Aid (GS-462-03) and was assigned to the EM Crew, based at the Olympic National Park Headquarters in Port Angeles, Washington.

On July 22, 2008, at 0930, Olympic National Park received a resource order for a Type 3 engine to the Eagle Fire, part of the Iron Complex, on the Shasta-Trinity National Forest in Northern California. Even though EM was on a day off, a decision was made by NPFMO to fill the order with EM. FC1 and FC2 were contacted relatively soon, but CAPT and FC3 were fishing in an area with no cell service. When CAPT and FC3 hiked out and started home, CAPT received voicemail messages about their assignment. Eager to get on the road, CAPT and FC3 drove directly to the National Park Service (NPS) Headquarters. EM left park headquarters in Port Angeles, Washington, at approximately 2100. This was EM's first out-of-park fire assignment of the season and FC1's second fire assignment. After about 4 hours of driving, EM reached Kelso, Washington on July 23, 2008, at 0105 and checked into a motel.

By 0700, EM was back on shift and preparing to continue travel to California. Shortly after leaving the Kelso city limits, the tailpipe of the engine that EM was driving fell off. EM picked up the tailpipe and left a voicemail with NPFMO reporting the mechanical failure. Later that day near Wolf Creek, Oregon CAPT noted the "check engine" light was coming on and off. When EM reached Redding, California, CAPT contacted the Iron Complex Incident Command Post (ICP) via cell phone and was told to travel directly to the ICP in Junction City, California. EM arrived at the ICP around 1800 and checked in as a Type 3 engine. EM qualifications were recorded as:

*CAPT:* Engine Boss (ENGB), Faller "C" (FALC) and Helicopter Manager Single Resource (HMGB)
*FC3:* Firefighter 2 (FFT2) and Faller "B" (FALB)
*FC2:* Engine Boss Trainee (ENGB-T), Faller "B" (FALB), and Crewboss Trainee (CRWB-T)
*FC1:* Firefighter 2 (FFT2)

After checking in, CAPT went to Ground Support to inquire about getting the engine repaired. CAPT was told that because the engine was new and under warranty, it would have to be taken to an authorized repair shop in Redding. By 2130, EM was off-shift.

On the morning of July 24th, EM went on shift at 0500 and attended the 0600 day shift operational briefing. At the briefing, CAPT notified ICP about EM's engine mechanical problems and then set out for the repair facility. On the way to the repair facility, the engine broke down a half-hour from the ICP, outside of Weaverville, California. CAPT called Ground Support and requested a tow truck. CAPT then called NPFMO. NPFMO suggested EM attempt to get a felling assignment while the engine was being repaired. Shortly after the initial call, CAPT realized that the tow truck would not have room for the entire crew and placed another call to ground support to request a vehicle to pick up the crew. Since CAPT was the only licensed driver of the engine, CAPT made the decision to accompany the engine to Redding while the crew returned to ICP. EM-CAPT transferred fire gear and chainsaws to the ground support vehicle. After notifying OBDt of the situation, EM-CAPT was assigned to help out at the staging area for the day.

When CAPT arrived at the repair facility in Redding, CAPT was told the repairs would take a few days to complete. CAPT called NPFMO and discussed the possibility of getting a loaner engine from WNRA. NPFMO called WNRA to make arrangements for use of the engine. Unable to get the engine from WNRA until the next day, CAPT had to spend the night in Redding. CAPT and EM-CAPT went off shift at 2030.

On the morning of July 25th, EM-CAPT went on shift at 0500 and attended the 0600 day shift operational briefing. Following the briefing EM-CAPT reported to OBDt as an unassigned resource. Impressed with EM-CAPT's attitude and work the previous day, OBDt assigned EM-CAPT to Division B of the Eagle Fire as a Class "B" felling team. OBDt verbally confirmed with FC1 and FC2 that they were only B sawyers and stated "no falling the trees over 24 inches."

When EM-CAPT reported to DIVB, they announced, "We're your fallers." DIVB assumed, and recorded, in DIVB's daily log, that FC1 was a swamper, FC2 was a Class "C" faller and FC3 was a Class "C" faller. EM-CAPT were briefed on the Division by TFLDt, given their assignment, and shown the drop point location on a map. TFLDt told EM-CAPT that TFLDt would meet them up on the line to make sure they were at the correct location.

Following the divisional briefing, EM-CAPT loaded fire gear and equipment into a rental minivan that had been checked out from Ground Support. EM-CAPT drove out to a location on the line later designated as DP 17 and hereafter referred to as DP 17. Around 1000, EM-CAPT started down the dozer line and fell hazard trees in the direction of Dutch Creek road. EM-CAPT had two Stihl chain saws, one with a 32 inch bar and one with a 28 inch bar.

CAPT still in Redding, was trying to contact WFMO to arrange for pick up of a loaner engine. Unable to make contact, CAPT left several messages. At 0822, CAPT received a phone call from FC3. At 1044, CAPT finally made contact with WFMO. WFMO made arrangements for CAPT to pick up a model 42 engine from WNRA. CAPT drove the loaner engine back to the

repair facility to transfer supplies from the broken down engine. CAPT left the repair shop around 1345 for the ICP, making a stop en route at Safeway to buy lunch.

Between 1340 and 1350, a radio transmission came into Iron Complex dispatch:
*"Man Down Man Down. We need help. Medical emergency. Dozer pad. Broken leg. Bleeding. Drop Point 72 and dozer line. Call 911, we need help."*

EM-CAPT had been working down the dozer line from DP 17, felling hazard trees, when the accident occurred. A decision was made to fall a large ponderosa pine (36.7" at the point of the cut). Downslope from the ponderosa pine was a 54" DBH sugar pine that had an uphill lean and a large cat face on the uphill side. When cut, the ponderosa pine fell downslope toward the sugar pine. It was contact with the sugar pine, or vibration from the ponderosa hitting the ground, that caused a portion of the sugar pine, approximately 120 feet long, to break off and fall upslope, hitting FC1 resulting in severe injuries.

At 1347, Trinity County Sheriff Office 911 (TSO) received a call from the Iron Complex ICP stating there had been an injury and that it "Sounds like a broken leg." TCLS was dispatched by TSO at 1350. ICP Com Center Dispatcher F recorded "Possible broken femur." The report given to TCLS was, "Reported man down on the fire. Possible broken leg. Subject is on a dozer line…." At 1400, further radio transmissions were reporting a fractured shoulder and fractured leg. By 1402, FC1 was reported as having severe bleeding, but was awake and conscious. At this point, FC2, FC3, CRWB2 and CRWB2t were with FC1.

At 1354, TSO started checking on the availability of rescue helicopters. At 1400, BR2 inquired about the availability of a hoist capable helicopter. At 1400, PHI / Mercy Air Ambulance and REACH Air Service had declined the assignment due to poor visibility.

When the accident happened, HANDCREW had been working above and below EM-CAPT. CRWB2 and CRWB2t heard a large tree fall and then heard the first radio transmission for help. CRWB2 directed CRWB2t to go down the hill to determine if the accident heard over the radio was on their line. CRWB2t walked down the hill and came upon the scene. CRWB2t called to inform CRWB2 it was indeed EM-CAPT. CRWB2 had already started walking toward the scene when this confirmation came from CRWB2t.

CRWB2t arrived and found FC2 and FC3 rendering aid to FC1. FC1 was laying face up, perpendicular to the jagged end of a portion of the trunk of the sugar pine. FC1's right leg was draped over the end of the tree. FC1's left leg was described by CRWBt, and others later arriving on scene, as looking like a "Z," with the lower portion of the left leg rolled backwards, and FC1's left foot bent under the end of the log. CRWB2t noted that FC1 and FC2 had chaps on, but FC3 did not. When CRWB2t arrived, a pressure dressing made of a Nomex fire shirt was being held on the upper portion of FC1's left thigh. A Nomex fire shirt belonging to FC2 or FC3 had also been used to cover FC1's right shoulder. CRWB2t took CRWB2t's Nomex shirt off and it was used to help apply pressure to the left thigh. CRWB2 arrived on scene, soon afterwards, and took over radio communications. CRBW2t was talking to FC1, intent on keeping FC1 awake and FC1's mind off of the pain. At 1403, CRBW2 called COM and reported on FC1's condition. "On scene, severe injury, heavy bleeding, leg bent back. Still conscious

and talking." COM then relayed to TSO, "A medic is with FC1, little bleeding. [FC1] is conscious." COM also gave further directions, for the ambulance, to the Dutch Creek incident site.

At 1404, while eating a sandwich in the Safeway parking lot in Redding, CAPT received a cell phone call from FC3. CAPT hurriedly left the parking lot for the Junction City ICP. While driving to ICP, CAPT heard radio traffic about the accident.

TCLS requested using Search and Rescue, knowing the rough terrain in the area of the accident, and that a litter was likely going to be needed. At 1415, Fire Rescue and the TCLS arrived at the bottom of the dozer line on Dutch Creek Road and were met by members of HANDCREW, who helped carry the rescue gear. Fire Rescue delivered a litter and were subsequently released to go on another call. Thinking more help was needed, TSO paged SAR to help with extraction of an "injured logger."

At 1419, SOF called TSO requesting a helicopter. TSO responded, "I already checked on the availability of the helicopter and they are not [available], they are declining to fly due to smoke" referring to REACH and Mercy Air Ambulance helicopters. TSO had not yet contacted the California Highway Patrol (CHP) helicopter. SOF suggested to TSO to check with the United States Coast Guard (USCG). By 1425, TSO had confirmed the CHP helicopter was not available, but was still determining the availability of the USCG helicopter.

From the accident scene, CRWB2 contacted COM at 1428, giving an update on FC1, "Still awake, in and out, numbness of tongue, lifting head, damage to shoulder and leg." DIVB notified CRWB2 "they are getting a helicopter and [they] would need people by the road." At 1430, CRWB2 called COM and reported "FC1 is conscious and stable."

At 1435, the TCLS medics, P1 and P2, arrived at FC1's location. P2 arrived slightly ahead of P1, the latter carrying more supplies. While hiking up the hill to the accident site, P1 and P2 overheard radio traffic from CRWB2 and realized the injury was much more serious than P1 and P2 had been told. The initial dispatch was for a broken leg; consequently, P1 and P2 were only carrying a vacuum splint and trauma bag. P1 and P2 performed an initial assessment during which FC1's chaps were removed and Nomex fire pants cut away, exposing the left leg injury. When the extent of FC1's injury to the left leg was revealed, including observation of femoral arterial bleeding, P1 and P2 decided they needed to facilitate a rapid evacuation of FC1 to a medical facility.

*Fifty-five minutes have now passed since the first report of the accident.*

P1 and P2 packed the left leg wound with ABD pads, Kerlix and trauma dressings. Direct pressure was reapplied to the left thigh and was maintained by P2 and CRWBt. The right shoulder was packed with Kerlix. Both P1 and P2 determined that due to the severity of FC1's injuries, a tourniquet would not work. (*This decision was later supported by the Shasta County Coroner.*) P2 attempted four peripheral IV starts. FC1's blood pressure was 110/60, pulse 120, and respirations 20. At 1440, P2 administered 2.0 mg of morphine. At 1439, COM called CRWB2 and asked, "Do you have GPS [coordinates] yet?" CRWB2 responded, "No, [we are

going to] pack [FC1] out." CRWB2 also reported to ICP there was a medic on scene, with heart monitor and morphine.

At 1444, TFLDt reported on scene and stated he would be the point of contact. TSO called P2 and reported the USCG helicopter was available. At 1445, P1 called TSO, requesting a medivac ship, and reported a 200 to 300 cc blood loss.

At 1431, TSO contacted USCG to report a firefighter with a broken leg and injured shoulder in Junction City. TSO requested USCG contact SOF and provided SOF's phone number. At 1434, SOF called TSO for helicopter availability. TSO replied, "They haven't called you yet? I gave them your 6120 [ICP] number. They were going to call you direct." TSO then advised SOF the USCG helicopter would be the last option available. At 1434, SOF called USCG to inquire about helicopter availability and was given an ETA of 40 minutes from time of ordering. At 1435, TSO called SOF to inquire if SOF had heard from USCG. SOF replied to TSO, "I did, I just talked with them and they are available, but we are trying to still determine if we can hoist [FC1] out of the scene physically or not, but it sounds like not is what they are saying right now." TSO replied, "Sounds like not." SOF replied that they would probably carry FC1 out to a spot where they could transfer FC1 to the Forest Service helicopter. At 1436, the USCG had become the absolute last opportunity for a hoisting medivac, as the Air Support supervisor was reporting the CHP helicopter was not available.

Due to the possibility that FC1 could not be hoisted, and knowing that the Forest Service helicopter was closer to the scene than the USCG helicopter, SOF asked, at 1443, for the USCG helicopter to stand down. TSO, unaware of SOF's stand down of the USCG helicopter, contacted USCG at 1445 and asked "if they are headed over to Junction City." USCG told TSO, "We were stood down by SOF because they would be hiking FC1 to a landing zone and a Forest Service helicopter would land and pick FC1 up." TSO reported to USCG they had just spoken with a medic on scene and FC1 was now "in and out of consciousness" and "has got blood loss." USCG stated they would call SOF back. At 1446, USCG called COM trying to confirm the helicopter cancellation and subsequently SOF retracted cancellation of USCG helicopter.

*One hour and 6 minutes have now passed since the first report of the accident.*

Meanwhile, at approximately 1441, P3 had arrived at the bottom of the dozer line on Dutch Creek Road and had started up the hill to the accident scene. P2 was now reporting FC1's blood pressure at 110/56, pulse 120, and respirations 20. Anticipating a medivac, CRWB1 directed FAL1 to clear a spot for FC1's extraction from the accident site. Two trees were felled by FAL1. At this time, TSO called SAR and reported that a paramedic was on scene, and "the patient is in and out of consciousness now and lots of blood loss." SAR, still in vehicle, en route to the scene, inquired about any news on the helicopter. TSO responded they were still working on it and that a USCG helicopter would be coming out of Humboldt County. TSO also told SAR, there was a Forest Service helicopter standing by and FC1 would need to be hiked out to that helicopter, as the Forest Service helicopter did not have hoisting capability.

At 1449, TSO called SOF and reported the paramedic was on scene and had stated, "The patient is in and out of consciousness now and lots of blood loss." SOF replied, having just spoken with

USCG, "We're going to go ahead and use the USCG and hoist FC1 out." TSO, at 1450, called SAR and erroneously reported USCG helicopter had been launched. SAR, still en route to the scene, reported SAR would keep responding unless they heard otherwise.

At the accident scene, stabilization and preparation for transport of FC1 was still occurring. By 1450, a vacuum splint had been applied to FC1's lower left leg and a peripheral IV had been established in FC1's left hand. At 1455, FC1 was given oxygen. CRWB1 had relayed the latitude and longitude. At 1457, the USCG confirmed with COM an ETA of 30 minutes.

By 1500, CAPT had arrived at the ICP, seeking an update on, and directions to, EM-CAPT from Operations. After leaving ICP, CAPT came across the ambulance and other responders on Dutch Creek Road, CAPT parked the engine and threw on a web belt, grabbed some water, and hurried up the hill.

P2 made a decision to move FC1 to the ambulance rather than sitting and waiting for the helicopter. Transport began, with assistance of HANDCREW. FC1 was transported down the dozerline on a litter, feet first. Direct pressure was being maintained by P2 to FC1's left thigh, while moving FC1 down the dozer line. Because of this, P3's arrival at the accident site was unnoticed by P2. P2 described hearing P3 talking to other bystanders, but P2 was busy holding pressure on FC1's leg while FC1 was being transported down the hill to the ambulance.

*One hour and 25 minutes have now passed since the first report of the accident.*

SAR was just arriving at the bottom of the hill on Dutch Creek Road. TSO called SAR and reported that COM said there was a Forest Service helicopter standing by and FC1 has to be packed out because this helicopter could not hoist. TSO called P1 to report SAR was on Dutch Creek Road. Also, SAR called TSO and reported, "My understanding is [FC1] is being packed out now, and we are starting down the road from the canal. I will check with the ambulance people when they get here to find out where they want to take [FC1] for a helicopter." TSO told SAR to start walking up the fireline as assistance was needed "carrying out" FC1.

At 1502, TSO called COM to inquire about the helicopter. COM erroneously reported to TSO the USCG helicopter was already en route and they would be hoisting FC1 out. TSO responded, "Alright, I just got contradictory orders. One said to stop it, one said to keep it coming. So just keep 'em coming?" COM responded, "Yep." COM reported to TSO, that the Forest Service helicopter was en route to Drop Point 22, and the USCG helicopter was "less than 20 minutes from us."

At 1503, TSO called SOF to determine the location of the Forest Service helicopter and SOF reported they had two helicopters coming, but considered the USCG helicopter the primary choice. The alternative, a United States Forest Service (USFS) A Star, was now en route to the Junction City School from the Willow Creek Helibase. While on the telephone with TSO, SOF had determined that the USFS helicopter had just landed at the school. SOF now reported to TSO an ETA of 30 minutes for the USCG helicopter. At 1506, TSO left a voicemail for P1, relaying the new ETA of 30 minutes for the USCG helicopter.

At this time, SAR arrived at FC1's location and encountered FC1 being carried down the dozer line by a group of firefighters. In front of the litter, SAR noted 3 or 4 firefighters throwing debris out of the way and that it was quite dusty. SAR's first observations described FC1 as in bad shape, with dust getting into FC1's uncovered wounds. P1 was still gathering gear from the accident site, while P2 was with FC1, applying pressure. As P1 caught up to P2, P2 directed P1 to get the ambulance readied, as P2 anticipated they would arrive at the road with FC1 in a few minutes. P2 asked for more tee-shirts to help with the direct pressure that was being used to control FC1's bleeding. RA arrived on scene.

At 1507, BR2 and DIVB arrived on scene. At 1511, TSO received an updated ETA for the USCG helicopter. USCG had just reported an ETA of 30 minutes. (*The ETA had not changed from the last update at 1503.*)

At 1512, P3 tells P2 to stop moving FC1 because "we have to start managing FC1!"
P3 had expressed frustration to other bystanders about transporting FC1 down the hill, but up until this moment P3 had not talked with P1 or P2 about patient care. P3 knew that FC1 was in bad shape and felt they had to start managing, rather than transporting, FC1. P3 started to do a Patient Assessment, wanting to establish a second IV, as the first one appeared to not be working. P3 checked the IV and found it had infiltrated. A new IV was established after many unsuccessful attempts. The IV seemed to help with FC1's mentation and color. P2 articulated that it was necessary to keep moving FC1 down the hill, but P3 protested. At 1520, patient care was transferred to P3. P3 made the decision to not move FC1 down the dozer line, but to wait for the helicopter. A landing zone started being cleared for hoist extraction of FC1.

The preparation of the extraction site took about 20 minutes. Trees were being felled by FAL1. CAPT had run up the hill to the current location of FC1. By 1529, SAR had received a new ETA of 15 minutes, from TSO, for the USCG helicopter. At 1530, P2 was relieved from applying pressure by a firefighter. P3 was having difficulty getting a blood pressure, so P3 asked RA to do it.

*One hour and 50 minutes have now passed since the first report of the accident.*

SAR called TSO and reported FC1, "is going down. Is there any way we can expedite that helicopter?" TSO told SAR they would call and asked if FC1 was at the road. SAR informed TSO a hoist site was being cleared. USCG reported back to TSO the USCG helicopter had just gotten off the ground, and was now en route, and should be there in 15 to 20 minutes.

At 1533, TSO called SAR to report that FC1's status information had been passed on to the USCG and the information was being relayed to the USCG helicopter that was now en route. The USCG helicopter ETA was now 15 minutes. At 1534, TSO called SAR for a status report. SAR reported they were still on the dozer line. SAR stated, "We got quite a ways to go. This is going to be too hard on [FC1]. We are trying to cut down some trees and get an area for the helicopter to hoist."

At 1541, USCG notified Mercy Hospital in Redding of the impending transport of FC1 and requested helipad and airport information. At 1541, USCG gave an ETA of 10 to 12 minutes.

At 1542, SAR called TSO and reported, "Hey, this [FC1] has far more than a broken leg. [FC1] has open gashes all over [FC1's] body. A tree took [FC1] out and we are having a hard time keeping [FC1] awake and stuff. So they have got [FC1] hooked up on O2 and the monitor. So I couldn't put that on the air, but [FC1] is in pretty bad shape and what we are doing right now is cutting down trees to get this [FC1] hoisted out." SAR asked what radio frequency the USCG helicopter was going to be operating on when it came in. TSO called USCG to inquire about the radio frequency for the incoming helicopter. CRWB1 relayed to USCG a new latitude and longitude. TSO told SAR the USCG helicopter was going to establish contact on CALCORD frequency when USCG helicopter got into the area. At 1554, TSO reported to SAR the USCG helicopter was in the area and was apparently trying to establish contact with the ground.

At 1600, BR2 transferred scene communication to DIVB.

At 1605, RA heard the USCG helicopter approaching scene. At 1617, the USCG helicopter established communication and a USCG rescue swimmer, followed by a rescue basket, were winched down. FC1 was transferred to the USCG rescue basket. During the transfer of FC1, from the litter to the rescue basket, responders observed profuse bleeding from FC1. The USCG helicopter came back in to retrieve the rescue basket and FC1 had to be protected from flying debris raised by the rotor wash. As FC1 was hoisted off the ground, medical personnel witnessed what was characterized as "agonal respirations." The rescue swimmer was not a medic, so it was decided that P3 would be needed in the helicopter. Between the time FC1 was hoisted into the USCG helicopter and the time P3 and rescue swimmer were hoisted into the USCG helicopter, FC1 was unattended by medical personnel. At 1631, the USCG helicopter was inbound for Redding.

*Two hours and 47 minutes have now passed since the first report of the accident.*

At 1627, Mercy Hospital was notified the USCG helicopter was inbound to their location, with a trauma alert, with an ETA of 10 minutes. While en route, at 1635, P3 had initiated a cardiac arrest treatment protocol. After landing at the Jet Center, at 1705, FLN responded to the USCG helicopter, where CPR was in progress.

*Three hours and 26 minutes have now passed since the first report of the accident.*

FLN initiated base hospital contact and at 1710 a Mercy Hospital ER Physician pronounced time of death, via radio.

The Shasta County Coroner was notified at 1712. The Coroner later determined that FC1's death was caused by severe blunt force trauma, shattering the left femur, transecting the major blood vessels, resulting in death due to excessive blood loss.

CRWB2t, and three others, were sent back up to the accident site to retrieve items left behind by EM-CAPT, including removal of any biohazard material. When CRWB2t, and three others arrived, CRWB2t observed SOFRt videoing the scene, from the stump/rock area, above the location where FC1 was hit by the tree. SOFRt asked that CRWB2t wait for SOFRt to complete

the documentation. By 1650, SOFRt had completed the documentation of the accident scene and then returned to ICP.

After the USCG helicopter left, EM-FC1 remained on the hill to discuss what had happened, prior to CAPT's arrival at the extraction site. EM-FC1 were still unaware of FC1's status and set out to find FC1, but were told to attend an After Action Review (AAR). The AAR was scheduled at 1630, at the Junction City school. At the AAR, EM-FC1 were asked to talk about the events of the day with others on the Division. While EM-FC1 participated in this exercise, EM-FC1's main concern was to get to FC1. EM-FC1 still had no news of FC1's condition. Not knowing where the hospital was, EM-FC1 went to the ICP for directions. Before leaving ICP, EM-FC1 were intercepted and told to stop by the IC's trailer, where EM-FC1 were notified by the IC at 1953 that FC1 had died en route to the hospital. CAPT called NPFMO to report the death of FC1.

*Five hours and 3 minutes have now passed since the first report of the accident.*

EM-FC1 were demobilized by 2018 and taken by HR to a motel in Weaverville. EM-FC1 were met there by WFMO, who facilitated the check in and dinner. At approximately 2045, HR asked each member of EM-FC1 to fill out an "events of the day" statement. After writing the statements, HR provided EM-FC1 a copy of the handwritten statements. WFMO remained with the crew until 2300, HR having left sometime before that.

The following day, NPML and WFMO met EM-FC1 for breakfast and drove EM-FC1 to the Redding Municipal Airport, where EM-FC1 were transported by charter aircraft back to Port Angeles, Washington.

## III. FINDINGS

**Finding 01** EM-CAPT was given a line assignment without adequate supervision for the assigned task. FC2 failed to exercise proper supervisory control by allowing EM-CAPT to cut trees above EM-CAPT's level of certification.

**Facts:**

4. FC1 completed saw training (S-212) on 6/27/08 and a taskbook for Faller A was initiated on 6/28/08. The taskbook was completed on 7/4/08.
(Record: FC1 Personnel File **[H-7]**)

10. FC2 was qualified as a Firefighter 1 (FFT1), Faller B (FALB), Crew Boss trainee (CRWB (T)), and Engine Boss trainee (ENB (T)).
(Record: FC2 Personnel File **[H-8]**)

12. FC2's taskbook for Faller B was initiated on 7/01/05 and completed on 7/20/06.
(Record: FC2 Personnel File **[H-8]**)

13 FC2's taskbook for Engine Boss trainee and Crew Boss trainee were both initiated on 6/20/08.
(Record: FC2 Personnel File **[H-8]**)

15. FC3 was qualified as a Firefighter 2 (FFT2), and Faller B (FALB).
(Record: FC3 Personnel File **[H-10]**)

21. FC1, FC2, and FC3 were assigned to EM under the supervision of CAPT.
(Records: FC1 Personnel File **[H-7]**, FC2 Personnel File **[H-8]**, CAPT Personnel File **[H-9]**, FC3 Personnel File **[H-10]**)

62. The 7/25/08 IAP listed several positions with trainees and no qualified trainer listed.
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, IT **[E-34]**; Record: IAP 7/25/08, Day (corrected) **[H-57]**)

72. On 7/25/08 OBDt assigned EM-CAPT to Division B as a felling team.
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, DIVB **[E-7]**, TFLDt **[E-21]**)

73. OBDt verbally reminded FC1 and FC2 "no cutting trees over 24 inches."
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, IT **[E-34])**

74. No qualified Felling Boss (FELB) was assigned to EM-CAPT.
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, DIVB **[E-8]**; Record: IAP 7/25/08, Day (corrected) **[H-57]**)

**Finding 02** Excessive motivation for EM to obtain a line assignment led to a series of inadequate communications and assumptions which subsequently led to a mismatch between resource request and resource assignment.

**Facts:**

68. There was a Felling Boss, and a professional falling team (C qualified falling team) assigned to Junction Staging on 7/25/08.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

71. FC2 was not listed on the 7/25/08 IAP as a Crew Boss Trainee.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

73. OBDt verbally reminded FC1 and FC2 "no cutting trees over 24 inches."
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, IT **[E-34]**)

74. No qualified Felling Boss (FELB) was assigned to EM-CAPT.
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, DIVB **[E-8]**; Record: IAP 7/25/08, Day (corrected) **[H-57]**)

75. DIVB and TFLDt assumed that EM-CAPT were C fallers. DIVB recorded in daily log from the briefing that FC1 was a "swamper," FC2 was a "C faller," and FC3 was a "C faller."
(Statements: DIVB **[E-7]**, DIVB **[E-8]**, TFLDt **[E-21]**)

**Finding 03** A class C tree was felled by an unqualified sawyer. Escape routes/safety zones were not effectively utilized by FC1.

**Facts:**

84. At the time of the accident EM-CAPT was felling a class C ponderosa pine tree, 36.7 inches diameter at the point of cut, and approximately 125 feet tall.
(Statements: FC2 **[E-3]**, CRWB2 **[E-25]**, CAPT **[E-2]**; MOI: SAIT **[F-49]**; Reference: Chainsaw Technical Report)

85. When the ponderosa pine was cut, the tree fell down slope and contacted the sugar pine. The resulting contact, or vibration from the ponderosa hitting the ground, caused a portion of the sugar pine, approximately 120 feet long, to break off and fall upslope.
(MOI: SAIT **[F-49]**; Reference: Chainsaw Technical Report)

86. FC1 was hit by a piece of the sugar pine tree that was 8 feet long and approximately 20 inches in diameter, resulting in multiple severe injuries.
(Statements: FC2 **[E-3]**, FC3 **[E-5]**; MOI: CRWB2t **[F-40],** SAIT **[F-49],** Record: Autopsy Report **[H-71]**; Photo Log: **[Cover Photo]**, **[Photo 10]**; Reference: Chainsaw Technical Report)

**Finding 03 (continued)**

**Facts:**

87. FC1 was 35 feet from the stump of the cut tree when FC1 was injured.
(MOI: SAIT **[F-49]**)

**Finding 04** There was insufficient pre-planning to integrate incident personnel and resources into the local emergency management system, taking into account local factors, including environmental conditions, to effectively manage a serious injury and the subsequent medical evacuation.

**Facts:**

92. At 1347 Iron Complex ICP called TSO "911" reporting "sounds like a broken leg." Incident reported at "drop point 72, which is down Dutch Creek Road. That is on the 33N47, 2 miles to the Carter Ranch Road. Go to the junction of Carter Ranch and Rattlesnake."
(Record: TSO 911 Transcript **[H-60]**)

122. TCLS is a member of Nor-Cal EMS and operates under the Nor-Cal Emergency Policy and Procedure Manual. The Nor-Cal EMS Policy and Procedure Manual states, "In the event that both public and private emergency medical care personnel arrive on the scene with the same qualifications, patient management responsibility will rest with the first to arrive."
(Record: Nor-Cal EMS Policy and Procedures Manual **[H-77]**)

152. Nor-Cal EMS Policy and Procedure Manual related to patient transport states patients should be transported to the nearest accessible facility equipped, staffed, and prepared to receive emergency cases; unless it is a trauma patient, in which case, they may be transported to a Level I/II trauma center over the most accessible facility when the trauma center is within 20 minutes.
(Record: Nor-Cal EMS Policy and procedures manual **[H-77]**)

153. The nearest hospital with emergency room and surgical services was Trinity Hospital located in Weaverville, CA located approximately 11 miles from the accident site.
(Record: Local Hospital Information **[H-176]**; Map: **[Exhibit 4B Transportation, Ground]**)

154. The nearest trauma center was greater than 20 minutes, approximately 56 miles away, by any method of transportation.
(Record: Local Hospital Information **[H-176]**; Map: **[Exhibit 4B Transportation, Ground]**)

**Finding 04 (continued)**

**Facts:**

167. P3 told/ordered P2 to stop moving FC1 down the hill. BR2 relayed from P3, to COM, that they will "keep FC1 in the spot. Don't carry to the road."
(Statements: P1 **[E-27]**, P2 **[E-31]**, P3 **[E-22]**; Records: TCLS Report **[H-36]**, Wilderness Medics Report **[H-37]**, Com Center Notes_Dispatcher F **[H-43]**)

170. At approximately 1520, FC1 patient care transferred from P2 to P3; a second IV was started in right arm.
(Statements: P1 **[E-27]**, P3 **[E-22]**, P2 **[E-31]**; Records: TCLS, Incident Report 7/25/08 **[H-36]**, Wilderness Medics Report **[H-37]**)

171. Nor-Cal EMS Policy and Procedure Manual policy regarding out of area pre-hospital provider at scene states, "If the visiting provider is not certified/accredited in the Nor-Cal EMS region, but shows proof of current licensure/certificate in CA, he/she may, at the discretion of the response provider, assist and provide care, not to exceed the scope of practice of the response provider.
(Record: Nor-Cal EMS Policy Manual **[H-77]**)

175. At 1542 SAR called TSO and reported this is "far more than a broken leg. [FC1] got open gashes all over [body]. A tree took [FC1] out and we are having a hard time keeping [FC1] awake and stuff. So they have got [FC1] hooked up on O2 and the monitor. So I couldn't put that on the air, but [FC1] in pretty bad shape and what we are doing right now is cutting down trees to get [FC1] hoisted out."
(Statement: SAR 7/30/08 **[E-26]**); Record: TSO 911 Transcript **[H-60]**)

209. The IAP Medical Plan was deficient in identifying alternate methods for ground evacuation. (Example ATV, wheeled litter, etc.)
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

210. The Medical Plan (ICS 206) does not adequately address helicopter extraction resources, operating capabilities, response times, or procedures.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

**Finding 05** Inadequate leadership, communication, and risk management resulted in a lack of clarity in communicating the severity of the injury, resource availability, and a failure to evaluate the most appropriate method of evacuation relative to risk exposure, resources required, and timeliness.

**Facts:**

89. At 1350 FC2 radioed COM "Man Down. Man Down. We need help. Medical emergency. Dozer pad. Broken leg. Bleeding. Drop point 72 and dozer line. Call 911, we need help."
(Statement: CRWB2 **[E-25]**; Record: Com Center Notes_Dispatcher A **[H-30]**)

**Finding 05 (continued)**

**Facts:**

92. At 1347 Iron Complex ICP called TSO "911" reporting "sounds like a broken leg." Incident reported at "drop point 72, which is down Dutch Creek Road. That is on the 33N47, 2 miles to the Carter Ranch Road. Go to the junction of Carter Ranch and Rattlesnake."
(Record: TSO 911 Transcript **[H-60]**)

93. At 1350 TSO paged TCLS ambulance to respond to "a medical, possible broken leg."
(Statements: P1 **[E-27]**, P2 **[E-31]**; Records: TCLS Incident Report **[H-36]**, TSO 911 Transcript **[H-60]**)

95. ICP Com Center Dispatcher F recorded, "Possible broken femur." Noted the injury involved EM-CAPT. "No medics. Apply direct pressure to control bleeding."
(Record: Com Center Notes_Dispatcher F **[H-43]**)

120. TCLS took supplies and equipment up the hill that were appropriate for responding to a "broken leg."
(Statements: P1 **[E-27]**, RA **[E-32]**)

121. P1, P2, and RA did not hear that FC1 had been hit by a tree until they were going up the hill and were almost to FC1.
(Statements: P1 **[E-27]**, RA **[E-32]**; Record: TCLS RA Timeline **[H-72]**)

125. IAP Medical Plans prior to 7/23/08 did not list the USCG helicopter as an Air Ambulance resource.
(Records: IAP 7/20/08, Day (corrected) **[H-122]**, IAP 7/21/08, Day (corrected) **[H-124]**, IAP 7/22/08, Day (corrected) **[H-126]**)

126. The USCG helicopter in Eureka, CA was added on 7/23/08 to the IAP Medical Plan as an "Air Ambulance" outfitted with hoist capabilities with night vision (IR), and no paramedic staffing.
(Statement: MEDL **[E-23]**; MOI: AIR **[F-37]**; Record: IAP 7/23/08, Day (corrected) **[H-53]**)

128. The status of the other "Air Ambulance" resources listed on the 7/25/08 (corrected) IAP were PHI/Mercy Medical, REACH (Shasta Regional Medical Center), and CHP. PHI and REACH both declined to fly due to smoke. TSO reported that CHP "can't go. Coast Guard is our last option."
(Statement: P1 **[E-27]**; Records: Com Center Notes_Log Radio **[H-112]**, TSO 911 Transcript **[H-60]**)

149. USCG helicopter was ordered, cancelled, then reactivated by SOF.
(Records: TSO 911 Transcript **[H-60]**, USCG Activity Log **[H-39]**)

**Finding 05 (continued)**

**Facts:**

150. At 1448 CRWB1 and FAL1 arrived on scene. CRWB1 instructed FAL1 to start falling trees to make a medivac spot. FAL1 drops two trees.
(Statements: DIVB **[E-8]**, TFLDt **[E-21]**, CRWB1 **[E-10]**; MOI: FAL1 **[F-14]**, CRWB1**[F-15]**)

175. At 1542 SAR called TSO and reported this is "far more than a broken leg. [FC1] got open gashes all over [body]. A tree took [FC1] out and we are having a hard time keeping [FC1] awake and stuff. So they have got [FC1] hooked up on O2 and the monitor. So I couldn't put that on the air, but [FC1] in pretty bad shape and what we are doing right now is cutting down trees to get [FC1] hoisted out."
(Statement: SAR 7/30/08 **[E-26]**; Record: TSO 911 Transcript **[H-60]**)

183. FC1 was transferred to the USCG helicopter litter and hoisted, unattended, into the helicopter. (Litter was pulled into the helicopter by the helicopter crewmember.)
(Statements: P3 **[E-22]**, CAPT **[E-2]**, Record: RA Timeline Report **[H-72]**; Photo Log: **[Photo 16]**, **[Photo 17]**)

**Finding 06** - The incident was operating with inaccurate or incomplete IAPs.

**Facts:**

61. The 7/25/08 IAP was inaccurate. Resources that had previously been demobed and had left the incident were identified as occupying positions on the incident.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

63. TFLDt was listed in the daily IAP (corrected) as being assigned to Junction Staging as a Task Force Leader trainee rather than on Division B.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

67. On 7/25/08 SOFt was listed as both the Supply Unit Leader and a Line Safety Officer trainee on Division C.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

71. FC2 was not listed on the 7/25/08 IAP as a Crew Boss Trainee.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

**Finding 07 –**The National Park Service fleet management procedures for quality control are inadequate to ensure mission ready condition of new wildland fire engines and to appropriately handle maintenance and repair issues.

**Facts:**

35. EM engine tailpipe fell off just outside the city limits of Kelso, WA. EM stopped and picked up the tailpipe. CAPT called NPFMO at 0750 and left message about the engine tailpipe. CAPT reported they were going to continue traveling to California.
(Statement: CAPT **[E-2]**; Records: Government Cell Phone Records **[H-66]**, Repair and Tow Bills **[H-152]**)

37. EM was on I-5 near Wolf Creek, OR when EM noticed the "check engine" light was coming on and off.
(Statement: CAPT **[E-2]**; Record: Repair and Tow Bills **[H-152]**)

**Finding 08 –**Iron Complex Ground Support failed to take appropriate measures to red tag EM's engine.

**Facts:**

42. EM reported to Ground Support for engine repair. Instructed by Ground Support to take the engine to Redding, CA for repairs the next day (7/24/08) because "the engine was under warranty."
(Statement: CAPT **[E-2]**; Record: Repair and Tow Bills **[H-152]**)

46. EM left the Junction City ICP to take the engine to Redding, CA for repair.
(Statement: CAPT **[E-2]**; Records: Repair and Tow Bills **[H-152]**, Government Cell Phone Records **[H-66]**)

47. EM's engine broke down in Weaverville, CA.
(Statements: CAPT **[E-1]**, CAPT **[E-2]**; Records: General Message 7/24/08 **[H-86]**, Repair and Tow Bill **[H-152]**)

48. CAPT called Ground Support at ICP at 0731 and requested assistance with a vehicle tow and return of FC1, FC2 and FC3 (EM-CAPT) to the ICP.
(Statements: CAPT **[E-1]**, CAPT **[E-2]**; Records: Government Cell Phone Records **[H-66]**, General Message 7/24/08 **[H-86]**)

49. CAPT called NPFMO at 0754 to report the engine breakdown.
(Statements: CAPT **[E-1]**, NPFMO **[E-29]**; Record: Government Cell Phone Records **[H-66]**)

50. CAPT continued on to Redding in the tow truck with the disabled engine.
(Statements: CAPT **[E-1]**, CAPT **[E-2]**; Record: Repair and Tow Bills **[H-152]**)

# IV. FACTORS

This incident is divided into two distinct parts: the falling accident and the subsequent medical treatment and evacuation of FC1 who was injured in the falling accident. Listed below are causal and contributing factors for each of the above events.

## A. Falling Accident:

### Causal Factors

01. Mechanical problems with EM's engine resulted in decisions being made that lead to the separation of EM-CAPT and CAPT. This resulted in EM-CAPT being reassigned as a falling module.
**(Finding 02, Finding 07 and Finding 08)**

02. EM-CAPT exercised poor judgment in the decision to cut a class C tree above their class B qualifications which resulted in FC1 being struck by a piece of sugar pine tree, 8 feet long and approximately 20 inches in diameter.
**(Finding 03)**

03. FC1 was standing within the falling area and failed to effectively utilize an escape route to get to a safety zone.
**(Finding 03)**

### Contributing Factors

**HUMAN**

01. CAPT, EM-CAPT, NPFMO, and OBDt exhibited excessive motivation to obtain a fireline assignment for EM.
**(Finding 02)**

02. IMT failed to assign qualified, direct supervision to EM-CAPT during a fireline assignment.
(**Finding 01 and Finding 03)**

03. EM-CAPT and OBDt failed to communicate the limitations of EM-CAPT qualifications to DIVB.
**(Finding 01)**

04. DIVB and TFLDt assumed that EM-CAPT was a C qualified felling module with qualified supervision.
**(Finding 01)**

## B. Medical Treatment / Evacuation:

### Causal Factor

01. Failure to adequately control FC1's arterial bleeding of the left femur injury received during a tree falling accident resulted in death due to excessive blood loss.
**(Finding 03 and Finding 04)**

### Contributing Factors

**HUMAN**

01. There was inadequate accident scene command and control which led to a failure to communicate the extent and severity of the injuries and to evaluate the most appropriate evacuation method.
**(Finding 05)**

02. There was inadequate transfer of patient care from P2 to P3 in violation of the Nor-Cal emergency medical services policy as contained in the Nor-Cal EMS Policy and Procedures Manual.
**(Finding 04 and Finding 05)**

**HUMAN / ENVIRONMENTAL**

03. There was a delay in delivering FC1 to definitive medical care because personnel involved in the incident focused on the use of air resources, most of which were unavailable due to the smoky conditions.
**(Finding 04 and Finding 05)**

# IV. MAPS AND ILLUSTRATIONS

**EXHIBIT 1 – Vicinity Map**

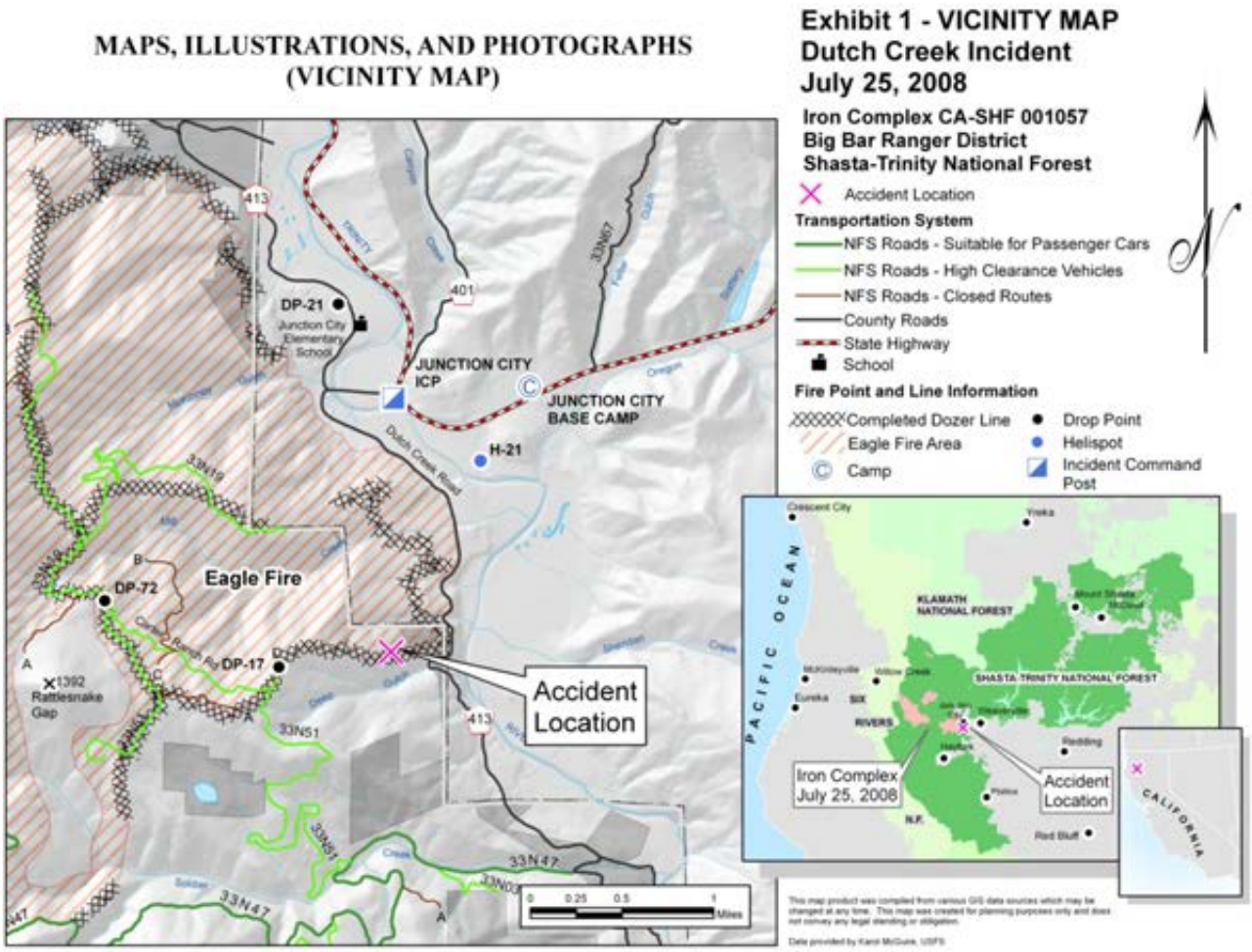
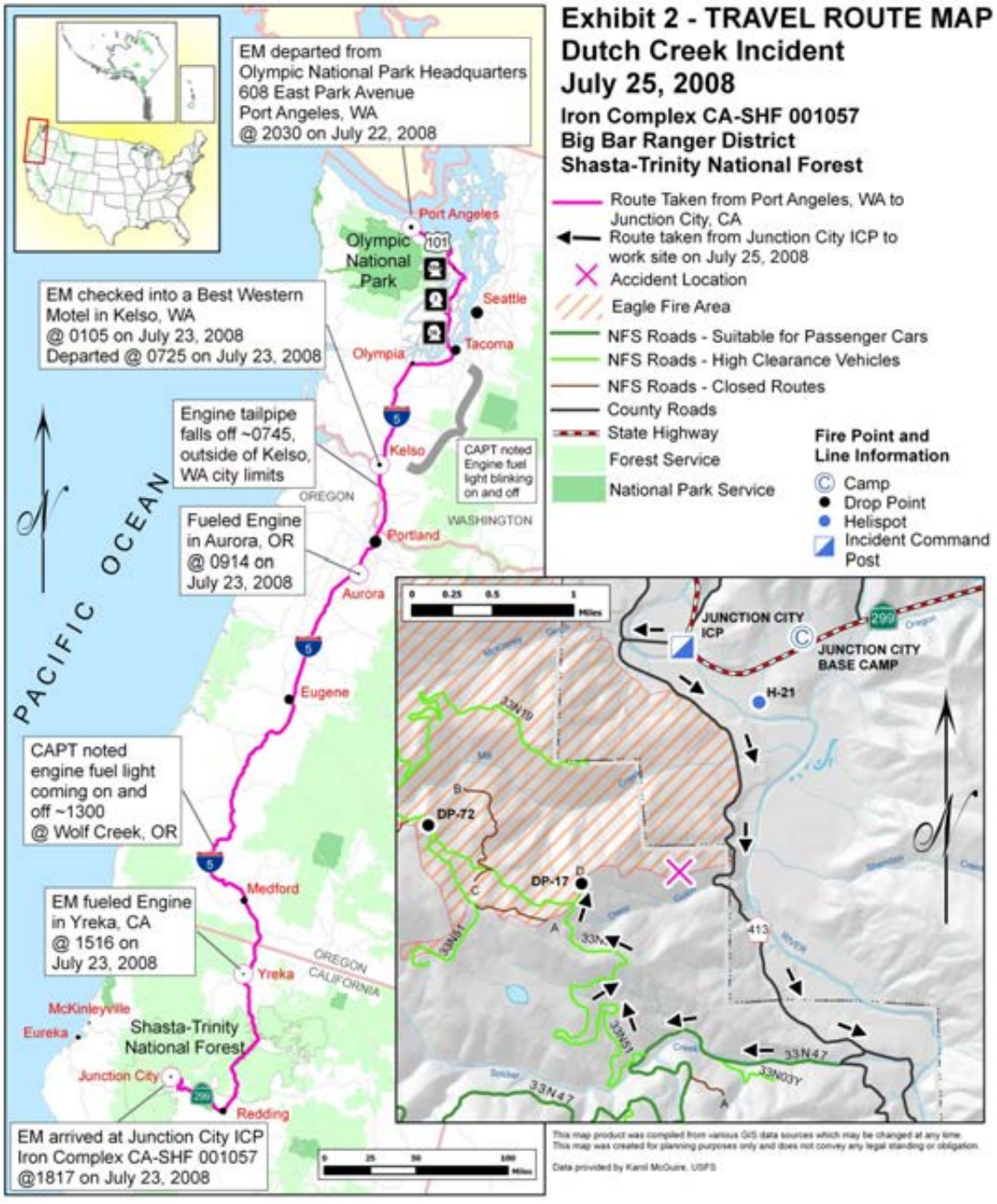


**EXHIBIT 2 - Travel Route**

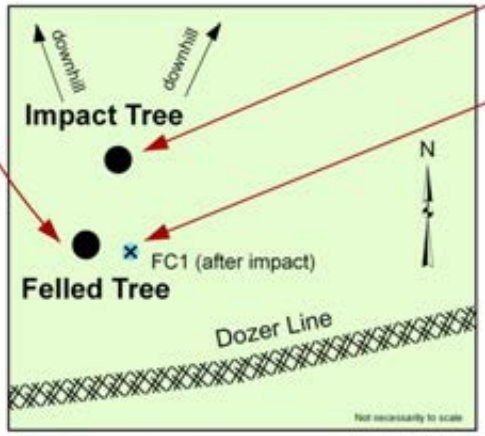
## MAPS, ILLUSTRATIONS, AND PHOTOGRAPHS (TRAVEL ROUTE)



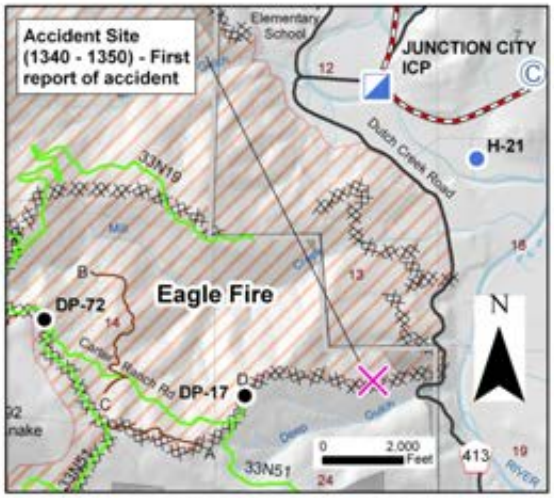
# EXHIBIT 3A, Part 1- Site Map Tree

## MAPS, ILLUSTRATIONS, AND PHOTOGRAPHS (SITE MAP)









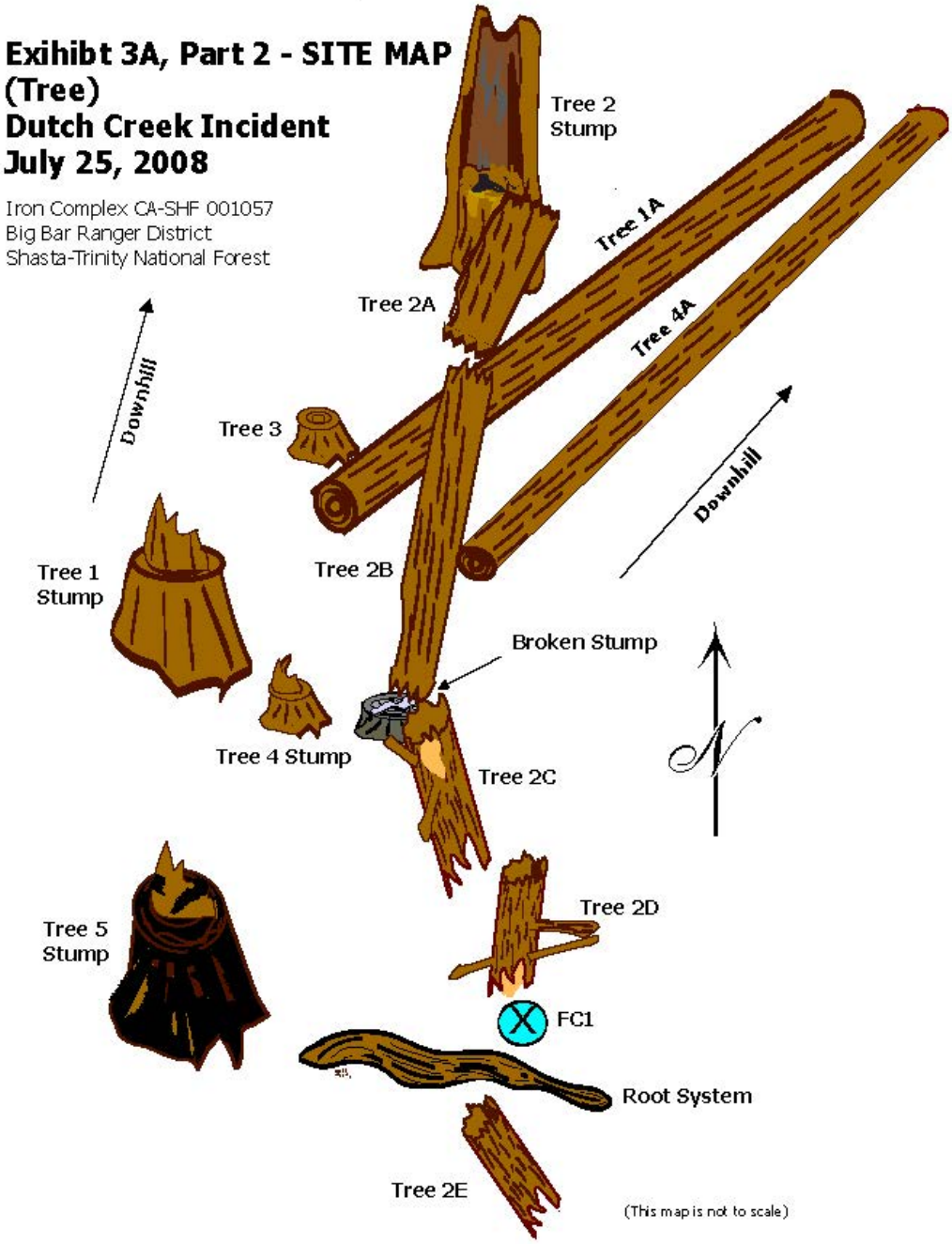

This map product was compiled from various GIS data sources which may be changed at any time. This map was created for planning purposes only and does not convey any legal standing or obligation.

**Exhibit 3A, Part 1 - SITE MAP (Tree)**
**Dutch Creek Incident**
**July 25, 2008**

**Iron Complex CA-SHF 001057**
**Big Bar Ranger District**
**Shasta-Trinity National Forest**

# EXHIBIT 3A Part 2 - Site Map

**MAPS, ILLUSTRATIONS, AND PHOTOGRAPHS**
**(SITE MAP)**

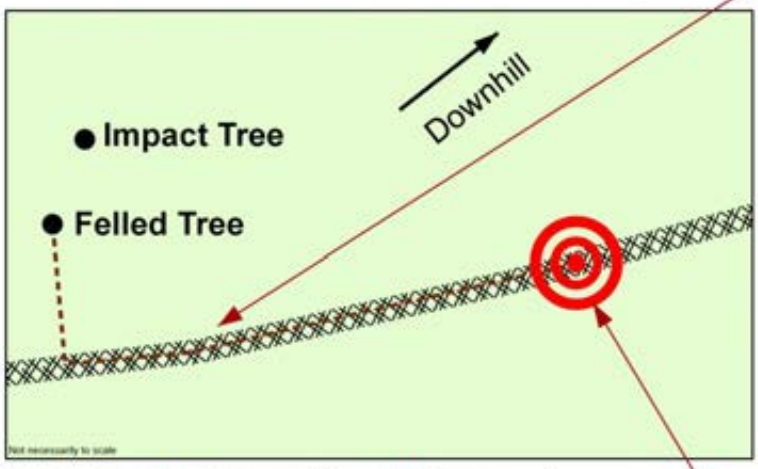


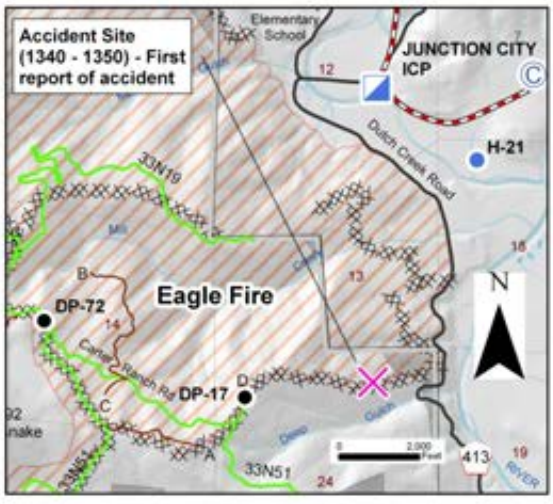
# EXHIBIT 3B - Site Map Medivac

## MAPS, ILLUSTRATIONS, AND PHOTOGRAPHS
## (SITE MAP)

**Exhibit 3B - SITE MAP**
**(Medivac)**
**Dutch Creek Incident**
**July 25, 2008**

**Iron Complex CA-SHF 001057**
**Big Bar Ranger District**
**Shasta-Trinity National Forest**

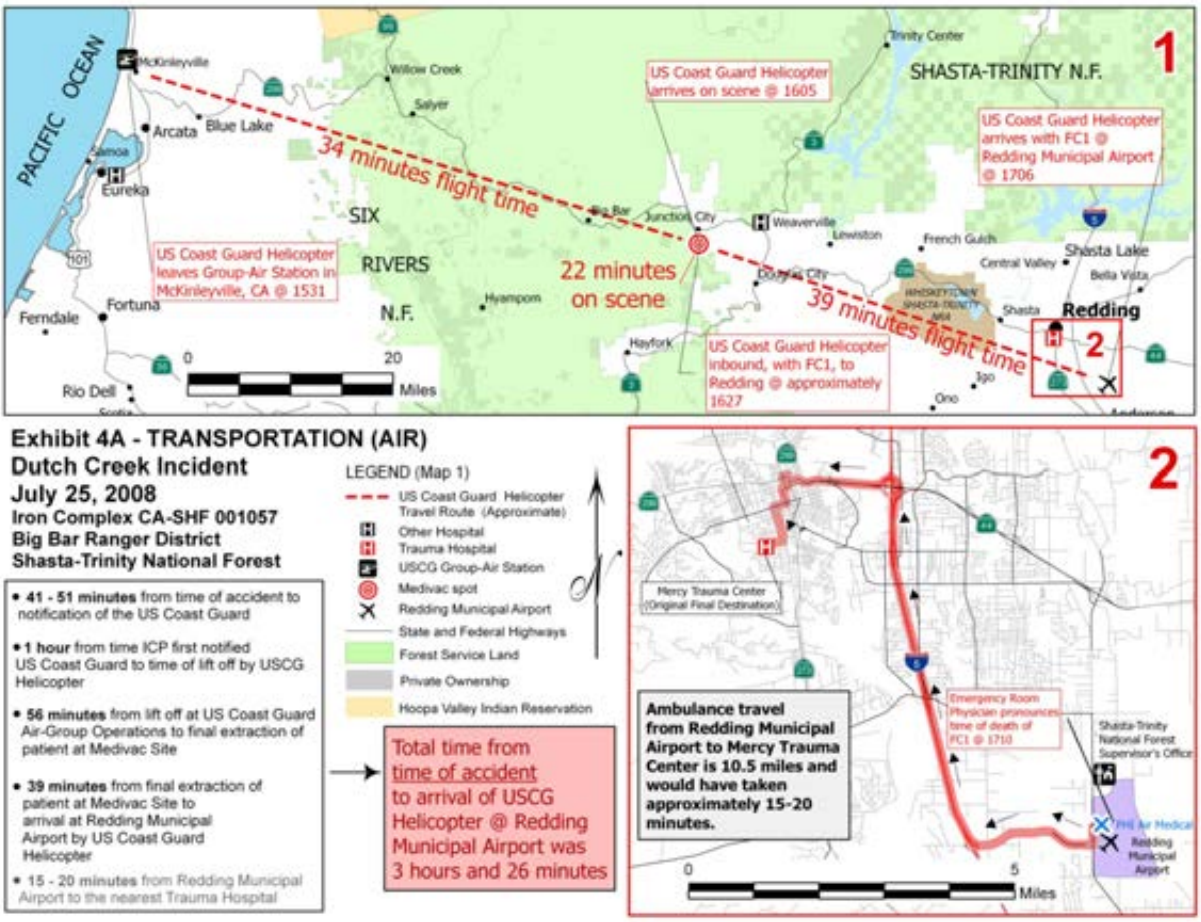



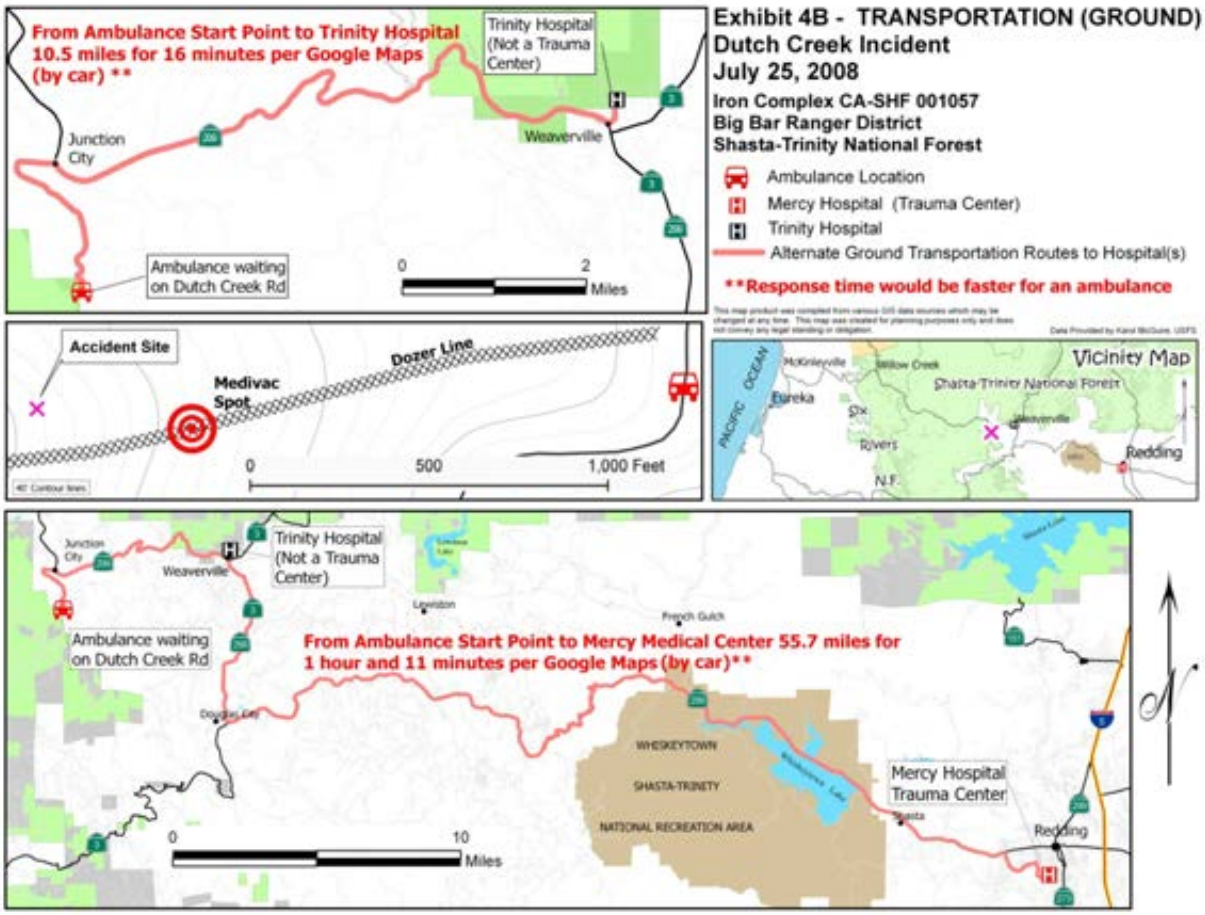


This map product was compiled from various GIS data sources which may be changed at any time.
This map was created for planning purposes only and does not convey any legal standing or obligation.

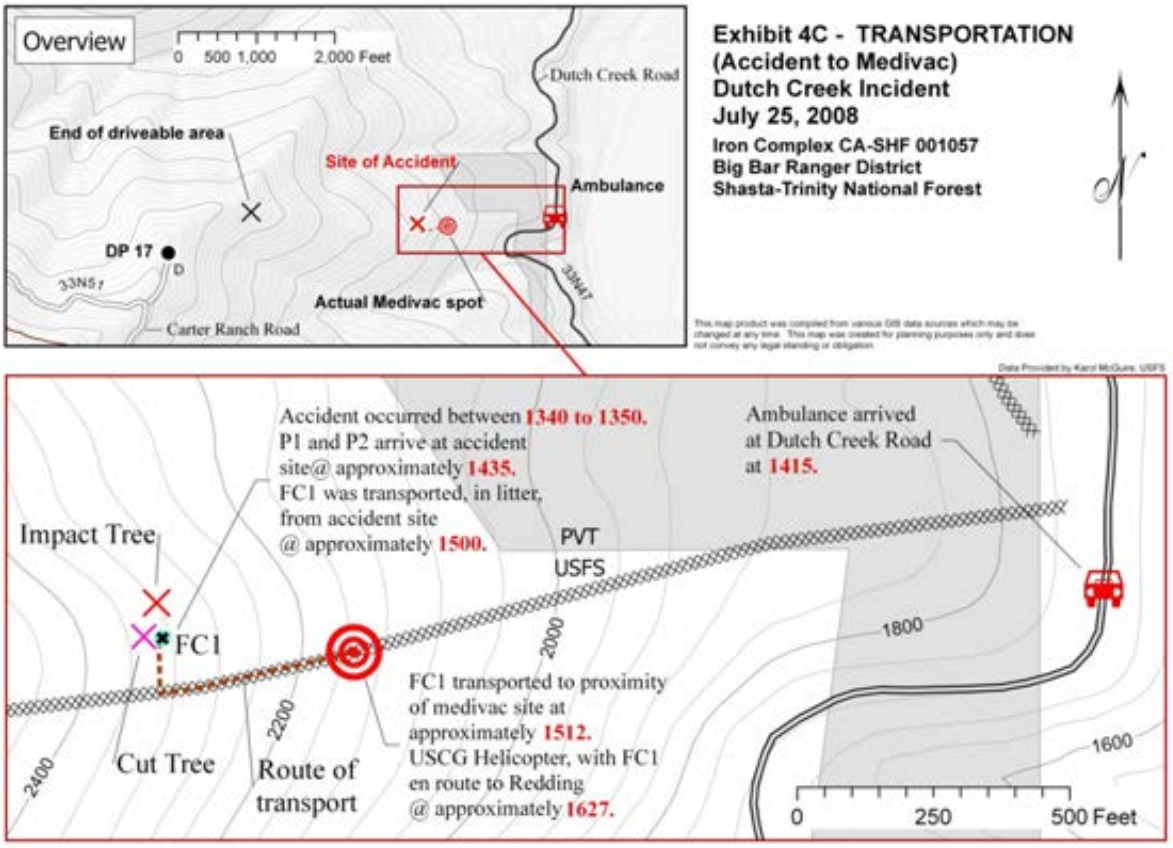
# EXHIBIT 4A - Site Map Diagram



# EXHIBIT 4B - Site Map Transportation (Ground)



# EXHIBIT 4C - Site Map Transportation (Ground)



# V. PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Incident Site** | |
| **Name of photographer:**<br>**SOFRt** | | **Date and time photograph was taken:**<br>**07/25/2008 1542** | |
| **Camera type:**<br>**N/A** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**100_1485** |

**Description of photograph:**

**Report Cover Photo. Looking at overall view of accident site. Two sections of tree that impacted FC1 causing severe injuries. (Center foreground) and (background left), left leg of chainsaw chaps, three large plastic wedges in leather pouch, radio in harness, hard hat and sunglasses, two large plastic falling wedges, short handled falling axe, right leg of chainsaw chaps and left boot removed during treatment of FC1.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:** | |
| **Name of photographer:** | | **Date and time photograph was taken:** | |
| **Camera type:** | **Film:** | **ASA:**<br>**N/A** | **Photograph number:** |

**Description of photograph:**

**Photo 1.**

# Left Blank

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location: Iron Complex, Eagle Fire, Junction Forest Road 33N51D and Dozer line** | |
| **Name of photographer:**<br>**CI** | | **Date and time photograph was taken:**<br>**07/28/2008 11:15** | |
| **Camera type:**<br>**Canon Power Shot, S215I** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**IMG_2983** |

**Description of photograph**

**Photo 2.** **View from Drop Point (DP) 17 looking east, down dozer line.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Iron Complex, Eagle Fire, Dozer line** | |
| **Name of photographer:**<br>**CI** | | **Date and time photograph was taken:**<br>**07/28/2008 11:15** | |
| **Camera type:**<br>**Canon Power Shot, S215** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**IMG_2985** |

**Description of photograph**

**Photo 3.** **View of dozer line east of Drop Point (DP) 17.**


**Remarks:** **Arrow indicates direction EM-CAPT's travel down dozer line. EM-CAPT's assigned task was to fell hazard trees in front of mop-up operation.**

# PHOTOGRAPHIC EVIDENCE

| Accident: Dutch Creek Incident 07/25/2008 | | Location: Incident Site | |
|---|---|---|---|
| Name of photographer: CI | | Date and time photograph was taken: 07/28/2008 1238 | |
| Camera type: Canon Power Shot, S215 | Film: Digital | ASA: N/A | Photograph number: IMG_3022 |

**Description of photograph**

**Photo 4.** **Looking at stump of felled tree.**

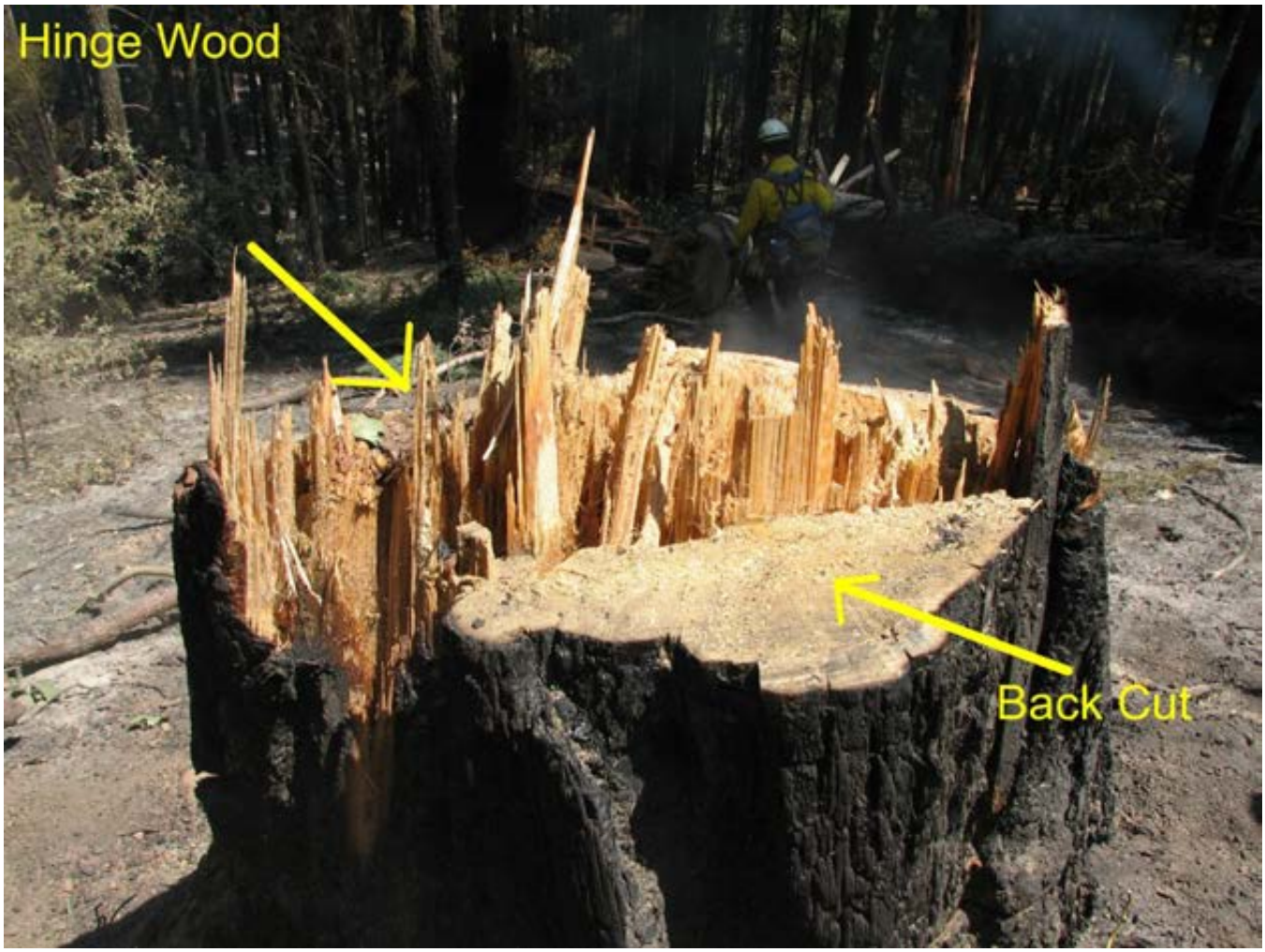

**Remarks:** **Arrow shows direction tree fell. Note how stump exhibits two distinct horizontal (gunning) cuts and two sloping cuts.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Incident Site** | |
| **Name of photographer:**<br>**CI** | | **Date and time photograph was taken:**<br>**07/28/2008 1243** | |
| **Camera type:**<br>**Canon Power Shot, S215** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**IMG_3025** |

**Description of photograph**

**Photo 5.** **Looking at back cut portion of stump.**



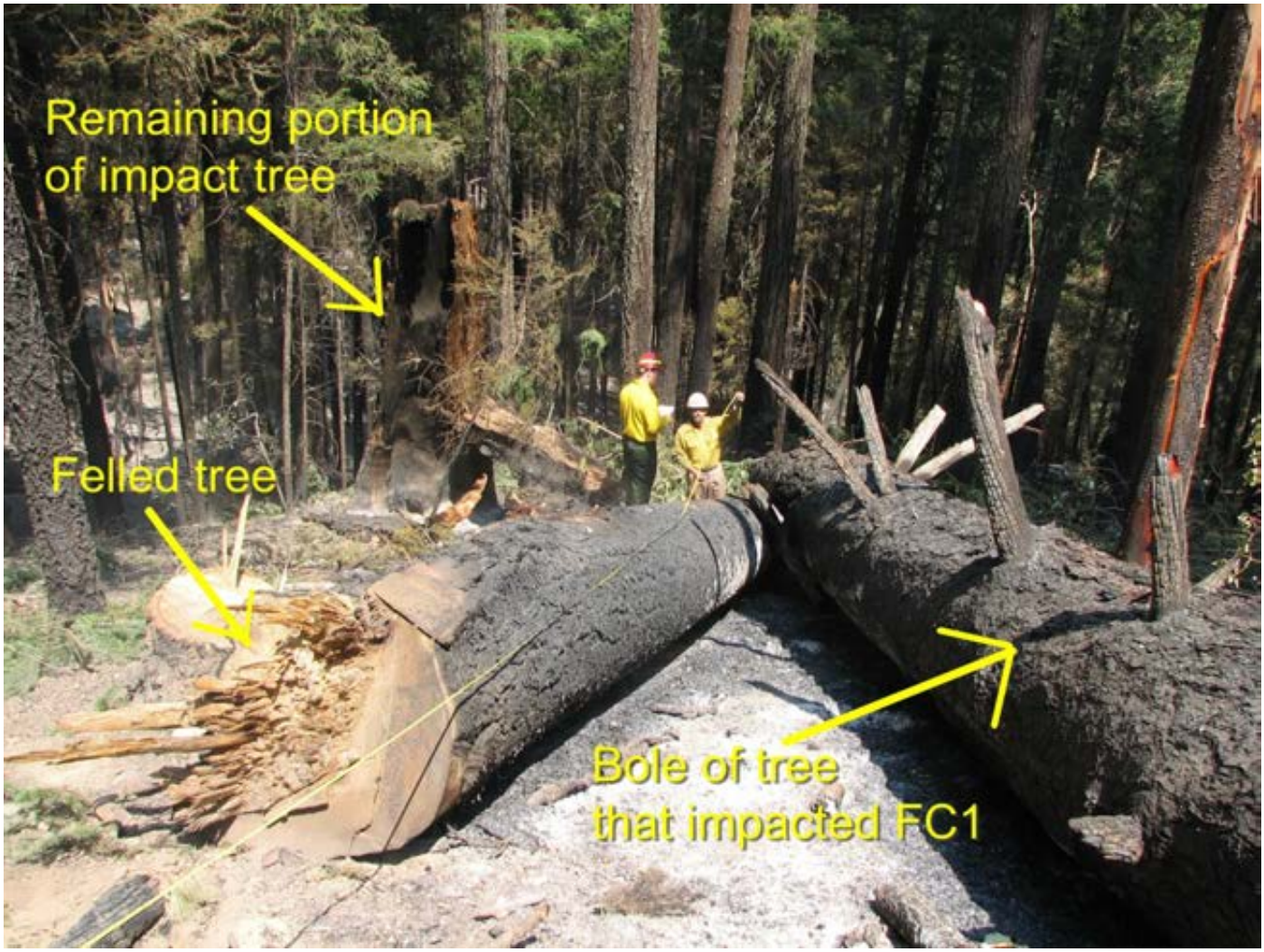

**Remarks:** **Note large amount of holding (hinge) wood (16 inches wide).**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Incident Site** | |
| **Name of photographer:**<br>**CI** | | **Date and time photograph was taken:**<br>**07/28/2008 1353** | |
| **Camera type:**<br>**Canon Power Shot, S215** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**IMG_3042** |

**Description of photograph**

**Photo 6.** **Looking at felled tree (left log) and impact tree (right log), view down slope from area of incident.**



# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Incident Site** | |
| **Name of photographer:**<br>**CI** | | **Date and time photograph was taken:**<br>**07/28/2008 1404** | |
| **Camera type:**<br>**Canon Power Shot, S215** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**IMG_3048** |

**Description of photograph**

**Photo 7.** **Looking at impact tree stump, depicting catface and uphill lean.**


**Remarks:** **Remaining portion of impact tree is 16 feet in height and 54 inches in diameter at breast height. Photograph depicts catface and uphill lean.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Incident Site** | |
| **Name of photographer:**<br>**SOFRt** | | **Date and time photograph was taken:**<br>**07/25/2008 ~1552** | |
| **Camera type:**<br>**N/A** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number: 1483** |

**Description of photograph**

**Photo 8.** **Looking at FC1's location after the accident.**


**Remarks:** **Shows location of impact point and FC1's location after accident.**

# PHOTOGRAPHIC EVIDENCE

| Accident: Dutch Creek Incident 07/25/2008 | | Location: Incident Site | |
|---|---|---|---|
| Name of photographer: SOFRt | | Date and time photograph was taken: 07/25/2008 ~1556 | |
| Camera type: N/A | Film: Digital | ASA: N/A | Photograph number: 1499 |

**Description of photograph**

**Photo 9.** **Looking upslope from remaining portion of impact tree.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Incident Site** | |
| **Name of photographer:**<br>**SOFRt** | | **Date and time photograph was taken:**<br>**07/25/2008 1552** | |
| **Camera type:**<br>**N/A** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**100_1490** |

**Description of photograph:**

**Photo 10.** **Looking at impact section and surrounding area.**


**Remarks:** **Location where FC1 was found. Photograph shows chainsaw chaps (left and right leg), three large plastic falling wedges and pair of gloves. Diameter of tree bole is approximately 20 inches.**

# PHOTOGRAPHIC EVIDENCE

| Accident: Dutch Creek Incident 07/25/2008 | | Location: Incident Site | |
|---|---|---|---|
| Name of photographer: CI | | Date and time photograph was taken: 07/28/2008 1448 | |
| Camera type: Canon Power Shot, S215 | Film: Digital | ASA: N/A | Photograph number: IMG_3075 |

**Description of photograph**

**Photo 11.** **Looking at broken section of bole of impact tree.**


**Remarks:** **Upper most section of injuring tree. Location is approximately 35 feet from injury site.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Incident Site** | |
| **Name of photographer:**<br>**MIHO** | | **Date and time photograph was taken:**<br>**07/26/2008 0836** | |
| **Camera type:**<br>**N/A** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**R0010042** |

**Description of photograph:**

**Photo 12.** **Looking downslope from felled tree #1.**

**Remarks:** **Stump of felled tree #1 in foreground. Impact tree is partially obscured in smoke. Bole of tree felled is on left and bole of impact tree is on right. Smaller stump was cut after accident.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Dozer Line Between Incident and Extraction Site** | |
| **Name of photographer:**<br>**SOFRt** | | **Date and time photograph was taken:**<br>**07/25/2008 ~1506** | |
| **Camera type:**<br>**N/A** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**100_1477** |

**Description of photograph:**

**Photo 13.** **Looking at the transport of FC1 down dozer line to extraction site.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>Dutch Creek Incident 07/25/2008 | | **Location:**<br>Dozer Line from Incident to Extraction Site | |
| **Name of photographer:**<br>SOFRt | | **Date and time photograph was taken:**<br>07/25/2008 1538 | |
| **Camera type:**<br>N/A | **Film:**<br>Digital | **ASA:**<br>N/A | **Photograph number:**<br>100_1481 |

**Description of photograph:**

**Photo 14.** **Looking at incident location from dozer line downslope of incident site.**


**Remarks:** **Photo shows looking uphill at remnants of FC1's Nomex fire pants and incident location.**

## PHOTOGRAPHIC EVIDENCE

| Accident:<br>Dutch Creek Incident 07/25/2008 | | Location:<br>Incident | |
|---|---|---|---|
| Name of photographer: | | Date and time photograph was taken: | |
| Camera type:<br>N/A | Film:<br>Digital | ASA:<br>N/A | Photograph number: |

**Description of photograph:**

**Photo 15.**

# Left Blank

**Remarks:**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location: Northern California Service Center, 6101 Airport Road, Redding California, 96002 Class Room 1** | |
| **Name of photographer:**<br>**RA** | | **Date and time photograph was taken:**<br>**07/25/2008 1622** | |
| **Camera type:**<br>**N/A Cell Phone** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number: 1622** |

**Description of photograph:**

**Photo 16.** **Looking at preparing FC1 for hoist operations.**

**Remarks:** **FC1 transferred from TCLS litter to USCG helicopter Stokes prior to hoisting.**

# PHOTOGRAPHIC EVIDENCE

| Accident: Dutch Creek Incident 07/25/2008 | | Location: Incident Extraction Site | |
|---|---|---|---|
| Name of photographer: RA | | Date and time photograph was taken: 07/25/2008 1624 | |
| Camera type: N/A Cell Phone | Film: Digital | ASA: N/A | Photograph number: 1624 |

**Description of photograph:**

**Photo 17.** **Looking at the USCG helicopter hoist operation to evacuate FC1.**

**Remarks:** **FC1 in Stokes litter being hoisted into USCG helicopter.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location: Pacific Southwest Research Station, 3644 Avtech Drive, Redding California, 96002 Micro Biology Laboratory** | |
| **Name of photographer:**<br>**SO** | | **Date and time photograph was taken:**<br>**07/29/2008 17:37** | |
| **Camera type:**<br>**Olympus, SP-55OUZ** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**P7290473** |

**Description of photograph:**

**Photo 18.** **Looking at FC1's left boot, recovered from incident site.**


**Remarks:** **Left boot removed from FC1 for assessment and treatment of injuries.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location: Pacific Southwest Research Station, 3644 Avtech Drive, Redding California, 96002 Micro Biology Laboratory** | |
| **Name of photographer:**<br>**SO** | | **Date and time photograph was taken:**<br>**07/29/2008 17:48** | |
| **Camera type:**<br>**Olympus, SP-55OUZ** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**P7290482** |

**Description of photograph:**

**Photo 19.** **Looking at FC1's chainsaw chaps (left leg) inside of left leg.**

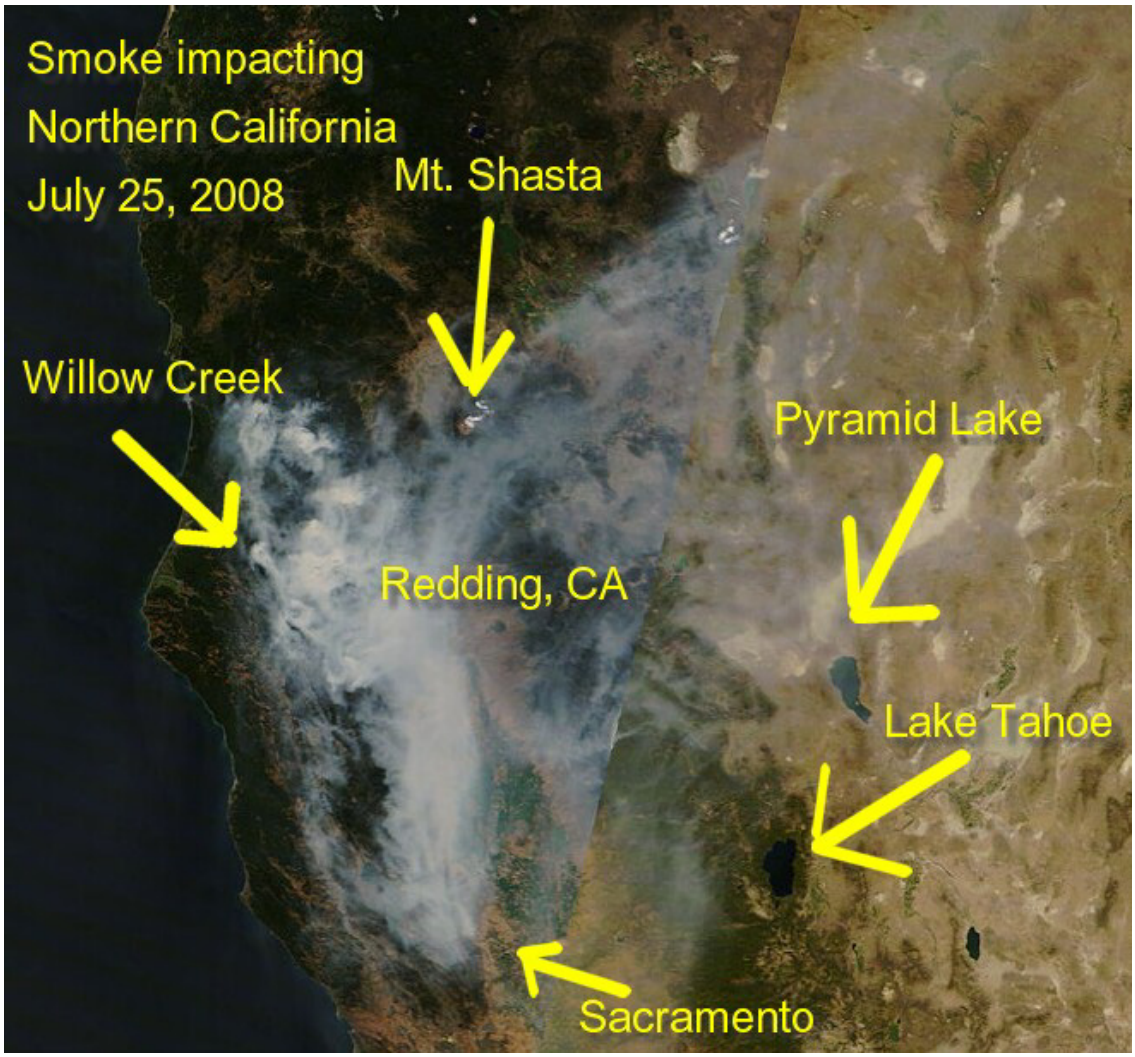
**Remarks:** **Chaps removed from FC1 for patient assessment and treatment.**

# PHOTOGRAPHIC EVIDENCE

| | | | |
|---|---|---|---|
| **Accident:**<br>**Dutch Creek Incident 07/25/2008** | | **Location:**<br>**Satellite view** | |
| **Name of photographer:**<br>**Area Command** | | **Date and time photograph was taken:**<br>**07/25/08** | |
| **Camera type:**<br>**N/A** | **Film:**<br>**Digital** | **ASA:**<br>**N/A** | **Photograph number:**<br>**19718** |

**Description of photograph:**

**Photo 20.** **Looking at aerial view of smoke impacting Northern California.**



## VI. RECORDS

| Exhibit | Description |
|---|---|
| **C-1** | 24-Hour Report |
| **C-2** | 72-Hour Report |
| **D-1** | Safety Alert - Medivac and Emergency Communications within an Incident |
| **D-2** | Safety Alert GSA Type IV First Aid kit and OSHA Logging standards |
| **H-7** | FC1 Personnel File |
| **H-8** | FC2 Personnel File |
| **H-9** | CAPT Personnel File |
| **H-10** | FC3 Personnel File |
| **H-11** | Resource Order - Equipment |
| **H-14** | Hotel Receipt 7/22/08 |
| **H-16** | Crew Time Reports |
| **H-17** | Resource Check-in Sheet |
| **H-18** | Rental Vehicle Checkout/Return |
| **H-26** | Unit Log, Communications |
| **H-30** | Com Center Notes_Dispatcher A |
| **H-31** | Com Center Notes_Dispatcher B |
| **H-32** | Com Center Notes_Dispatcher C |
| **H-33** | Com Center Notes_Dispatcher D |

| Exhibit | Description |
|---|---|
| **H-34** | Com Center Notes_Dispatcher E |
| **H-36** | TCLS Incident Report |
| **H-37** | Wilderness Medic Report 7/25/08 |
| **H-38** | Coast Guard Case History Report |
| **H-39** | Coast Guard Activity Log |
| **H-40** | Coast Guard Chronological Log |
| **H-41** | Coast Guard Radio Log |
| **H-42** | SHASCOM Dispatch Log |
| **H-43** | Com Center Notes_Dispatcher F |
| **H-53** | IAP 7/23/09, Day (corrected) |
| **H-57** | IAP 7/25/08, Day (corrected) |
| **H-59** | TSO 911 Transcript, channels 2 and 4 |
| **H-60** | TSO 911 Transcript, channels 8 and 9 |
| **H-61** | Fuel Card Use Record |
| **H-66** | Government Cell Phone Record |
| **H-70** | Coroner's General Information Report |
| **H-71** | Autopsy Report |
| **H-72** | TCLS RA Timeline |
| **H-77** | Nor-Cal EMS Policy and Procedures Manual |

| Exhibit | Description |
|---|---|
| **H-86** | General Message 7/24/08 |
| **H-101** | Unit Log, Willow Helibase |
| **H-110** | Com Center Notes_Command Radio |
| **H-112** | Com Center Notes_Phone Log |
| **H-113** | Northern California Lightening Seige |
| **H-122** | IAP 7/20/08, Day (corrrected) |
| **H-124** | IAP 7/21/08, Day (corrected) |
| **H-126** | IAP 7/22/08, Day (corrected) |
| **H-139** | Actual Demob 7/26/08 |
| **H-141** | OSHA Logging Standards, 29 CFR 1910.266 |
| **H-142** | Logging Standard, First Aid Requirements |
| **H-143** | FSH 6709.11, First-Aid Requirements |
| **H-144** | GSA First-Aid Kit, Contents |
| **H-145** | MTDC First-Aid Kit Specifications |
| **H-150** | Personal Cell Phone Record |
| **H-152** | Repair and Tow Bills |
| **H-153** | First-Aid CPR Class Roster |
| **H-155** | Olympic NP JHAs - Chainsaw Use, Tree Felling, Snag Defect, Vehicle Use |
| **H-159** | Crew Radio Serial Numbers |

| Exhibit | Description |
|---|---|
| **H-163** | Hotel Receipt 7/24/08 |
| **H-165** | CA Military Department Cooperative Agreement |
| **H-166** | Interagency Standards for Fire and Fire Aviation Operations, 2008 |
| **H-167** | NPS Directors Order #18: Wildland Fire Management |
| **H-168** | NPS Reference Manual # 18 - Wildland Fire Management |
| **H-169** | NPS Director's Orders and Reference Manual #50B |
| **H-170** | FSH 6709.11, Chapter 22 - Chainsaw Operations |
| **H-171** | NWCG Incident Response Pocket Guide, PMS #461, Jan. 2006 |
| **H-173** | Smoke Impacts July 2008 |
| **H-174** | NOAA Smoke/Dust Satellite Report |
| **H-176** | Local Hospital Information |
| **H-179** | Tourniquet/Pressure Bandage Information |
| **H-181** | Wheeled Litter and ATV setup |
| **H-184** | IMT Position Training Requirements |
| **H-185** | NWCG Taskbook - Medical Unit Leader, Communications Unit Leader, Safety Officer |
| **H-186** | Federal Motor Carrier 49 CFR Part 395 |
| **H-187** | Flight Request and Schedule |
| **H-188** | FSM 6730 - Accident Reporting and Investigation |

| Exhibit | Description |
|---|---|
| **H-189** | FSH 6709.12 - Accident Investigation and Reporting |
| **H-190** | Forest Service, Accident Investigation Guide, 2005 |
| **H-191** | An example of the Green/Amber/Red risk assessment tool recently adopted by the National Park Service in their operational leadership program. |
| **H-192** | Department of the Interior Department Manual part 485, chapter 7, Incident/Accident reporting/Serious Accident Investigation |
| **L-2** | Shasta County Sheriff News Release 7/25/08 |
| **L-6** | USFS News Release 7/26/08 FS-072608-1 |
| **P-1** | Fire Gear and Equipment Inventory |
| **P-2** | SAIT Physical Evidence Log |

# VII. APPENDICES

## Appendix A: Timeline

**6/12/2008**

FC1 was 18 years old and graduated from Port Townsend High School.

**6/16/2008**

FC1 started work at Olympic National Park in Port Angeles, Washington, under Emergency Hire Authority as a Firefighter AD-C.

**6/21/2008**

An electrical storm unleashed nearly 8,000 lightning strikes setting more than 1000 wildfires across Northern California.

**6/24/2008**

FC1 completed Basic Firefighter training.

**6/27/2008**

FC1 completed Saw Training (S-212).

**6/28/2008**

FC1 started a Taskbook for Faller A.

**6/29/2008**

FC1 was hired as a Temporary Forestry Aid (GS-462-03). FC1 was assigned to EM Crew, based at Olympic National Park, Port Angeles, Washington.

**7/04/2008**

FC1 completed taskbook for Faller A.

**7/22/2008**

**0930 –** Dispatched EM to Iron Complex.
Two crew members, CAPT and FC3, were fishing in a remote location without cell phone coverage and did not get the dispatch message until around 1930.

**~1930 –** CAPT and FC3 heard voicemail messages regarding the dispatch.

**2030 –** CAPT called NPFMO.

**2030 –** EM reported on shift.

**~2100 –** EM left from Port Angeles, Washington for Iron Complex, Junction City, California in a new International Type 3 Engine that had been received in April with an odometer reading of less than a thousand miles.

**2317** – EM paid toll at Tacoma Narrows Bridge, Gig Harbor, Washington.

**7/23/2008**

**0105 –** EM had noticed that the check engine light was going on and off en route. EM went off the clock. EM checked into Best Western Aladdin Hotel in Kelso, Washington.

**0700 –** EM went on the clock.

**0723 –** CAPT called NPFMO from Kelso, Washington. CAPT left voicemail.

**0725 –** EM checked out of Best Western Aladdin Hotel in Kelso, Washington.

**~0745 –** EM engine tailpipe fell off.

**0750 –** CAPT telephoned NPFMO and left message, south of Kelso, Washington.

**0914 –** EM fueled at Lealhers Shell 25 in Aurora, Oregon.

**~1300 –** EM was on I-5 near Wolf Creek, Oregon when EM noted "check engine" light was going on and off.

**1516 –** EM fueled at Miner Street Texaco in Yreka, California.

**1817 –** EM checked in at Iron Complex Incident Command Post (ICP) in Junction City, California as a Type 3 engine (ENG) with 4-person crew.
EM qualifications were noted. CAPT qualifications noted as an Engine Boss (ENGB), Faller C (FALC) and Helicopter Manager Single Resource (HMGB). FC2 qualifications noted as Engine Boss Trainee (ENGB-T) and Faller B (FALB). FC1 qualifications noted as Firefighter 2 (FFT2). FC3 qualifications noted as Firefighter 2 (FFT2) and Faller B (FALB).

**1830 - 1900 –** EM reported off-duty break.

**1900 –** EM reported to Ground Support for engine repair. EM instructed by Ground Support to take the engine to Redding, CA, the next day (7/24/08) for repairs.

**1912 –** CAPT called NPFMO.

**2130 –** EM went off duty.

**7/24/2008**

**0500 –** EM went on duty.

**0600 –** EM attended morning briefing to report status of engine to Operations.

**~0700 –** EM left the Junction City Incident Command Post to take engine to Redding California for repair "because the engine was under warranty."

**0731 –** EM's engine broke down outside of Weaverville, California. CAPT called for Ground Support. Incident Command Post requested assistance with vehicle tow and return of FC1, FC2 and FC3 to Incident Command Post.

**0754 –** CAPT called NPFMO.

**~0930 –** CAPT continued on to Redding in the tow truck with engine in tow.

**~0930 –** EM-CAPT returned to the Incident Command Post.

**~1230 –** EM-CAPT began working in Supply Unit at the Incident Command Post.

**1235 –** CAPT called FC3.

**1244 –** CAPT called NPFMO.

**2030 –** EM-CAPT went off shift.

**2030 –** CAPT went off shift and spent the night in Redding, California.

**7/25/2008**

**0500 –** EM-CAPT started shift.

**0600 –** EM-CAPT attended the morning briefing.

**0700** – CAPT started shift.

**0702** – CAPT called FC3.

**~0715** – After resource assignments were made, EM-CAPT reported to OBDt as an "unassigned resource." OBDt assigned EM-CAPT to Division B as a falling team. OBDt verbally reminds EM-CAPT "no cutting the trees over 24 inches."

**~0715** – DIVB recorded in the daily log that FC1 was a swamper, FC2 was a "C" faller and FC3 was a "C" faller.

**0730 –** EM-CAPT were briefed on the Division by TFLDt.

**0737 –** CAPT called WFMO at WNRA to arrange for pick up of a loaner engine. CAPT left phone message.

**0742 –** CAPT called WFMO for second time to arrange for a loaner vehicle.

**0808 –** CAPT called WFMO for third time to arrange for a loaner vehicle.

**0822 –** CAPT received call from FC3.

**~0930 –** EM-CAPT drove the blue rental minivan to the field work site. Parked at DP 17 and began unloading, fueling saws and preparing gear.

**~1000 –** EM-CAPT started down the dozer line toward Dutch Creek Road.

**~1030 –** TFLDt met EM-CAPT on the dozer below DP 17 line and talked with them about NPS.

**1044 –** CAPT made contact with WFMO.

**1145** – CAPT checked out model 42 engine from WNRA.

**1245 –** CAPT drove loaner engine to the repair shop in Redding to retrieve gear and equipment from the disabled engine. Spoke to mechanic about repairs and was told parts were on order and the engine would not be ready until Monday or Tuesday.

**~1340-1350 –** Accident occurred.

**~1345** – CAPT left the repair shop for the ICP, making a stop en route at Safeway to buy lunch.

**~1340-1350 –** FC2 called Iron Complex Communications, reporting accident and requesting help. "Man Down. Man Down. We need help. Medical emergency. Dozer pad. Broken leg. Bleeding. Drop point 72 and dozer line. Call 911, we need help."

**Note*: Com Center Notes_Dispatcher A conflicts with Com Center Notes_Dispatcher F***

**1347** – TSO received call from the Iron Complex ICP reporting "sounds like a broken leg." Incident reported at "drop point 72, which is down Dutch Creek Road. That is on the 33N47, 2 miles to the Carter Ranch Road. Go to the junction of Carter Ranch and Rattlesnake."

**1350** –TSO pages Junction City Fire (Trinity County Life Support) ambulance: "Respond to medical. Reported man down on the fire. Possible broken leg. Subject is on a dozer line. Further directions will be given while in route. You are going to Dutch Creek Road to the 33N47, two miles to Carter Ranch Road."

**1352** – TCLS called TSO. "I'm confirming off of Dutch Creek." TSO stated, "Affirmative."

**1354** – TSO called Mercy Air checking on availability of helicopter.
**1356** – TCLS ambulance dispatched to incident.
**1357 –** TSO reported they were checking on a helicopter.
**1357** – COM recorded "Possible broken femur." Recorded the injury involved EM-CAPT. "No medics. Apply direct pressure to control bleeding."
**1359 –** TCLS ambulance was en route.
**1400 –** BR2 inquired as to availability of hoist capable helicopter.
**1400** – TSO called PHI / Mercy Air Ambulance. Stated helicopter pilot declined due to poor visibility. Stated that REACH (Shasta Regional Medical Center) air ambulance had also declined.
**1400** – COM recorded, "EM-CAPT. Fractured shoulder. Fractured leg."
**1402** – COM recorded, "Patient condition? Severely bleeding, awake, conscience (sic)."
**1403** – COM records, "Medic" reports "on scene. Severe injury heavy bleeding leg bent back. Still conscious & talking."
*Note: SAIT determined there were no medics on scene at this time. This transmission was likely CRWB2.*
**1403** – COM called TSO with better directions for ambulance to the Dutch Creek incident site.
COM told TSO that "A medic is with [FC1], little bleeding. He is conscious."
*(The "medic" that was referred to was likely CRWB2)*
COM reported USFS "also have another emergency, medical in our ICP camp, its acid reflux, burning chest pain. They believe it's acid reflux, burning chest pain, but they called for an ambulance."
**1404 –** FC3 called CAPT reported accident involving FC1.
**1406** – TCLS called TSO and asked, "Do we have fire rescue currently responding to our location?"
TSO responded, "I have not heard anybody going enroute, but I have further information for you. Subject is conscious, little breathing. No further information at this time, other than to go down Dutch Creek Road and some one will meet you and guide you in."
TCLS requested, "Can you send search and rescue? We have to walk off the trail and if fire rescue is not responding I need a basket, Stokes."
Fire Rescue replied, "Responding with two."
TCLS asked 2551 Fire Rescue, "Do you have a Stokes?" Fire Rescue responded, "Affirmative."
TCLS asked TSO, "Can go ahead and continue Search and Rescue? They are way off the beaten path currently."
TSO reported, "Also be advised I am paging a second medical to the Junction City Base Camp."
**1408** – Iron Complex ICP called TSO again to clarify ambulance directions to the Dutch Creek incident.
**1410 –** 2551 Fire Rescue (2nd Fire Rescue unit) reported to TSO, "on scene" at Dutch Creek "with Trinity County Life Support. They have released us to go to second call."
**1415 –** TSO paged S&R to help with the extrication of "injured logger."
**1415 –** TCLS arrived at scene on Dutch Creek road.

**1419** – SOF called TSO and requested helicopter.
TSO responded, "I already checked on the availability of the helicopter and they are not, they are declining to fly due to smoke." TSO reported they had checked on Reach and PHI /Mercy Air helicopters but not CHP. SOF suggested checking with Coast Guard.

**1420** – TSO "Attention Search & Rescue, second page for a medical rescue in the Junction City area."

**1425** – TSO called COM to report on helicopter availability; "TSO called Reach, CHP, PHI [/ Mercy Air] to check on helicopter availability, they are checking on USCG."

**~1428** – CRWB2 called COM reports, "[FC1] talking, awake in and out, numbness of tongue, lifting head, damage to shoulder and leg."

**1428** – SOF called TSO for helicopter update. TSO replied, "They haven't called you yet? I gave them your 6120 (ICP land line) number. They were going to call you direct." TSO advised SOF that CHP is not available and US Coast Guard was the last option.

**1430 –** DIVB called CRWB2, "Getting helicopter, need people by the road."
CRWB2 answered, "Have one crew member from Flying Eagle engine."
DIVB asked, "Are they a medic?" CRWB2 answered, "No, EMT basic."
DIVB stated, "Want medic at rig before they get [FC1] off the hill."

**1430 –** CRWB2 called COM, (FC1) "conscious, stable."

**1431 –** TSO contacted USCG and reported a firefighter with a broken leg/injured shoulder at Junction City. Requested USCG contact SOF via phone and provided SOF's phone number.

**1433 –** CRWB2 called COM "Do medics have line gear (IVs, Drugs)?"

**1434 –** SOF called USCG to see if helicopter is available. SOF gets ETA of 40 minutes from time of ordering. Will need the latitude and longitude of the specific location.

**1435 –** TSO called COM and inquired if COM had heard from USCG.
SOF replied, "I did, I just talked with them and they are available, but we are trying to still determine if we can hoist [FC1] out of the scene physically or not, but it sounds like not is what they are saying right now."
TSO replied, "Sounds like not." SOF replied, "Yeah. So it sounds like we are probably going to carry [FC1] out, walk [FC1] down and we have got a helicopter of our own assigned to the incident. We are going to use it and try to land [FC1] at a location they are working on and fly [FC1] out that way."

**1435 –** P1 and P2 arrived at patient, performed initial assessment. Wildland Nomex shirt, chaps, and clothing removed and replaced with ABD pads, Kerlix, and trauma dressing. Direct pressure applied and maintained to control bleeding.

**1437 –** P2 attempted four peripheral IV starts. Patient blood pressure 110-60, pulse 120, respirations 20.

**1439 –** COM called CRWB2 and asks, "Do You have GPS yet?" CRWB2 responded, "No have to pack [FC1] out."

**1440 –** P2 administered 2.0 mg of morphine.

**1441–** CRWB2 reported, "[P1, P2] have heart monitor and morphine. Medic on scene."
TSO called P1 reported USCG helicopter available.

**~1441–** P3 arrived at the bottom of the dozerline, Dutch Creek Road.
**1443 –** SOF called USCG and cancels USCG helicopter.
**1444 –** TFLDt reported on scene and will be the point of contact.
**1445 –** P1 called TSO, requested medivac and reported, "200-300cc blood loss."
TSO called USCG asked, "Hey, are you guys going to head over to Junction City?" USCG replied, "We just talked to [SOF] and he said to stand down."
TSO responded, "Okay, I just talked to the paramedic on scene." Also reported, "Patient is now in and out of consciousness; [FC1] has got blood loss."
USCG replied, "Okay, our only reason why we didn't go is because [SOF] said stand-down 'cause they were going to hike [FC1] to a landing zone and one of your guys' helicopters was going to land and pick [FC1] up."
USCG stated they will call SOF back.
**1446 –** USCG called COM to ask, "Confirming we don't need them."
**1447 –** P2 blood pressure 110/56, pulse 120, respirations 20.
**1448 –** CRWB1 arrived on scene.
**1448 –** FAL1 arrived on scene.
**1448 –** TSO called S&R and reported the "paramedic on scene and that the patient is in and out of consciousness now and lots of blood loss."
S&R asked, "Any news on the helicopter?"
TSO stated, "Still trying to work on it. It would be coming out of Humboldt County though. Apparently there is a Forest Service helicopter standing by and the patient needs to be hiked out to the helicopter."
**1449 –** TSO called SOF and reported having talked to the paramedic on scene, and patient was in and out of consciousness.
SOF reported having just gotten off the phone with USCG and, "we are going to go ahead and use the USCG and hoist [FC1] out."
**1450 –** TSO called S&R and reported the USCG helicopter had been launched. S&R responded, "we will keep responding until we hear otherwise to go back."
**1450 –** P1 established peripheral IV left hand.
**1450 –** P2 applied vacuum splint to FC1 lower left extremity.
**1452 –** COM called USCG "giving them latitude & longitude."
**1455 –** P2 applied oxygen.
**1457 –** USCG confirmed helicopters ETA of 30 min.
DIVB concurred with hoist.
**~1500 -** CAPT arrived at ICP and asked for an update and directions to location of FC1.
**1500 –** TSO called S&R and reported the ICP had said that there was a Forest Service helicopter standing by. The subject had to be packed out. They couldn't hoist.
TSO called P1 to report that S&R was at the bottom of trail. TSO inquired, "Do you need them to come up?"
**1500 –** S&R called TSO and reported, "My understanding is that **[**FC1] is being packed out now. And we are starting down on the road down from the canal. I will check with the ambulance people when they get here to find out where they want to take **[**FC1] for a helicopter."
**~1500 –** P3 arrived at FC1 location.
**1501 –** TSO told S&R to start up the fireline; they needed "assistance carrying out."
**1502 –** TSO called COM asking about helicopter status.

COM reported a Coast Guard helicopter is en route and they will be hoisting the FC1 out.
TSO responded, "all right, I just got contradictory orders. One said to stop it. One said to keep it coming. So just keep 'em coming?"
COM responded, "Yeah, it's just a matter of who gets there first."
COM reported to TSO that the FS helicopter is en route to drop point 22, and the Coast Guard helicopter was "less than 20 minutes from us."

**1503 –** SOF called TSO and reported, "They had two helicopters coming. One is an A Star that was at the Junction City School, and they were sitting there as an alternative path. The primary way we are going is with the USCG helicopter."
SOF reported the USCG helicopter was en route and they were going to try to hoist FC1 out of there. The USCG helicopter had an ETA of 30 minutes.

**1506 –** SAR arrived at FC1.
SAR called TSO and asked, "Is there any way we can get more manpower?"

**1506 –** TSO left phone message for P1, USCG helicopter ETA 30 minutes.

**1507 –** BR2 and DIVB arrived on scene.

**1510 –** TSO called SAR and reported there was another engine that could respond to assist with the extraction. SAR stated, "Anybody I can get. I got a critical patient."

**1510 –** USCG contacted by USFS to cancel due to other resources available.

**1511 –** TSO called USCG for an updated ETA on the helicopter. USCG advised 30 minutes.

**1512 –** P3 told P2 to stop moving FC1 that they "have to start managing [FC1]."
BR2 relayed to COM, from P3, they would "keep [FC1] in the spot. Don't carry to the road."

**1512 –** USCG contacted USFS to verify stand down.

**1515 –** FC1 assessment by P3 occurred.

**~1515 –** CAPT arrived at bottom of dozerline.

**1515 -** P2 applied direct pressure using RA shirt.

**1516 –** SAR called TSO and cancelled extra manpower request and stated, "There is a group of about 20 up there."

**1517 –** TSO requested ETA of USCG helicopter. USCG advised TSO that USFS requested stand down.

**1520 –** FC1 assessment occurred.

**1520 –** FC1 care transferred to P3 from P2, a second IV started in right arm.

**1521 –** USFS requested assistance from USCG.

**~1525 –** CAPT arrived at FC1 location.

**1525 –** USCG dispatcher notified duty flight surgeon. The flight surgeon asked dispatch to confirm that the leg was stabilized due to severity of a femur break in relation to blood vessels. Advised to provide oxygen and IV if possible.

**1529 –** SAR called TSO for an updated ETA. SAR was informed that the helicopter ETA was approximately 15 minutes

**1530 –** P2 relieved from applying pressure by a firefighter, and switched patient sides with P3. RA applied oxygen mask at 25 lpm, reduced it down to 15 lpm.

**1530 –** SAR called TSO and reported, "For your info our patient is going down. Is there any way we can expedite that helicopter?"

**1530 –** TSO – "I will give them a call. Is the [FC1] at the road?" "10/4 the crew is now getting to build a [hoist site] where we are."

**1531 –** TSO called USCG. USCG reported, "They just got off of ground and should be there in 15 to 20 minutes."
TSO responded, "Okay, could you let them know the [FC1] is crashing, and I know they are going to get there as quickly as they can."

**1532 –** USCG helicopter was launched.

**1533 –** TSO called SAR to report that FC1 status information had been passed on to the USCG and the information was being relayed to the helicopter that was en route. The USCG helicopter ETA was 15 minutes.

**1534 –** TSO called SAR for a status report. SAR reported still on the trail. "We got quite a ways to go. This is going to be too hard on the patient. We are trying to cut down some trees and get an area for the helicopter to hoist."

**1536 –** FC1 assessment, started new IV bag.

**~1540 –** SOFt arrived on scene.

**1541 –** USCG notified Mercy Hospital in Redding of the case and requested helipad information as well as airport information. USCG was advised that the closest airport was Benton airfield.

**1542 –** SAR called TSO and reported, "Hey, this **[**FC1] has far more than a broken leg. **[**FC1] got open gashes all over **[**body]. A tree took **[**FC1] out and we are having a hard time keeping **[**FC1] awake and stuff. So they have got **[**FC1] hooked up on O2 and the monitor. So I couldn't put that on the air, but **[**FC1] in pretty bad shape and what we are doing right now is cutting down trees to get **[**FC1] hoisted out."
SAR asked what radio frequency the USCG helicopter was going to be operating on when it came in. TSO called USCG to inquire about the radio frequency for the incoming helicopter.

**~1545 –** SOFRt arrived on scene.

**1546 –** USCG dispatcher noted inability to get new hoist position to USCG helicopter because of inability to contact. Requested USFS ground parties establish communication.

**1550 –**USCG notified St. Joseph's Hospital, in Eureka, of possible injured firefighter. One hour ETA with clear weather.

**1551 –**USCG received new latitude & longitude**.**

**1551 –** SAR called TSO requesting an update on the helicopter. Stated, "It's getting bad up here." TSO informed SAR the USCG helicopter was going to establish contact on CALCORD when they got into the area.

**1552 –** USCG reported USCG helicopter was on scene and was attempting to establish communications with the ground crew. USCG helicopter stated FC1 would be transported to Eureka.

**1554 –** TSO reported to SAR that the USCG helicopter was in the area and apparently trying to establish contact with the ground. The USCG base unit was trying to contact their helicopter. TSO gave USCG base unit the Sheriff's net frequency to contact SAR. TSO coordinated radio frequencies for communications between SAR and the USCG.

**1600 –** BR2 transferred scene communication to DIVB.

**1600 –** P3 reported, "Patient heart rate 136, still conscious, open femur fracture, open shoulder fracture, medical still in route."
**1605 –** DIVB called with update on FC1. "BP 100, HB136, broken left tibia, one IV in, couldn't get second, 1500ccs fluid, sinus tachycardia rhythm."
**1605 –** RA heard USCG helicopter arriving on scene.
**1609 –** USCG helicopter reported communications established with USFS.
**1611 –** USCG dispatcher reported USFS requested FC1 be transported to Mercy Hospital in Redding. USCG dispatcher advised USFS had no communications with the USCG helicopter. USCG dispatcher advised USFS to pass on the request and the position to the helicopter.
**~1617 –** USCG helicopter started hoisting operation.
**1619 –** DIVB reported USCG rescue swimmer on ground, lifting FC1 shortly.
**1619 –** USCG reported, "Rescue Swimmer on deck preparing patient." *(USCG log states 1625.)*
**~1621 –** FC1 transferred to USCG litter, RA reports FC1 breathing turned into agonal breaths.
**~1624 –** FC1 was hoisted.
**1627** – SAR requested TSO to advise Mercy Medical Center that USCG helicopter was inbound with a trauma alert.
**1628 –** TSO called Mercy Medical Center and reported an inbound USCG helicopter with a trauma alert.
TSO called USCG to get confirmation they were going to Mercy.
**1630 –** NPML notified by NPRD.
**1631 –** USCG helicopter reported to USCG en route to Redding with FC1 and one paramedic.
**1631 –** P3 and USCG rescue swimmer onboard.
**1631 –** TSO to TCLS, "Confirming that they are going to Mercy. I was getting conflicting information."
**1632 –** After action debriefing with personnel on Division B.
**1632 –** CPR initiated on FC1.
**1633 –** TSO calling Mercy Medical Center – "I have a USCG helicopter inbound with a trauma alert." Mercy Medical Center – "we know about it, ETA is 10 minutes now. We have got them landing at Benton Airfield & we have a unit there to meet them."
**1635 –** P3 reported patient EKG-Vtach.
**1635 –** P3 reported patient pulseless and apneic.
**1636 –** P3 administered 1.0 mg epinephrine 1:10,000 IVP.
**1637 –** Shock advised (shocked @150 j biphasic).
**1638 –** P3 administered 100.0 mg lidocane IVP.
**1638 –** USCG contacted Mercy Hospital in Redding and requested they dispatch an ambulance to Benton airfield.
**1639 –** USCG dispatcher contacted St. Joseph's Hospital in Eureka and advised them to "stand down."
**1639 –** P3 re-evaluated FC1--no shock advised.
**1640 -** P3 administered 1.0 mg epinephrine 1:1,000 IVP.
**1640 –** P3 administered 1.0 mg Atropine IVP.

**1640 –** EKG-Asystole.
**1642 –** Patient re-evaluated--no shock advised.
**1644 –** P3 administered 1.0 mg Atropine IVP.
**1645 –** SOFRt calls COM, "Emergency scene documented returning to ICP."
**1646 –** FC1 re-evaluated--no shock advised.
**1647 –** FC1 remained pulseless and apneic, BLS CPR.
**1647 –** P3 used all drugs on hand.
**1650 –** USCG contacted Benton airfield. Benton airfield reported no USCG aircraft on site.
**1657 –** Incident routed to SHASCOM.
**1657 –** Redding Fire dispatched ambulance #821.
**1658 –** Redding Fire dispatched Engine #7.
**1700 –** NPML arrived at the Redding Hospital.
**1703 –** CPR in progress in USCG helicopter.
**1704 –** TCLS called TSO, reported TCLS returning to Weaverville.
**1704 –** Ambulance is at Benton.
**1705 –** Will keep ambulance at Benton until they figure out where the helicopter is going.
**1705 –** USCG helicopter arrived at Redding airport. (Jet Center)
**1705 –** FLN responded to USGC helicopter where CPR was in progress on FC1 at Redding Jet Center.
**1706 –** USCG dispatch reported USCG helicopter on-deck at the Redding airport with EMS. FC1 deceased.
**1710 – Mercy ER physician pronounces time of death via radio at Redding Jet Center.**
**1712 –** CAPT called NPFMO.
**1712 –** TSO called USCG and asked, "Where did you land?"
USCG responded, "Redding Municipal Airport. Do we need to notify Shasta County officials because the person is there now?"
TSO responded, "Would it be [Trinity County] coroner or Shasta County Coroner?"
**1712 –** Request for Shasta County Coroner.
**1713 –** TCLS reported to TSO available in Weaverville.
**1713 –** Ambulance was clear at scene/available.
**1723 –** Ambulance was clear from Benton/available.
**1728 –** USCG received report from USCG helicopter. On deck at Redding Airport. USCG helicopter unable to land at Benton Airpark due to visibility (smoke). CPR had been initiated shortly after FC1 was on board. Ambulance on scene and FC1 had been pronounced.
**1729 –** USCG helicopter reported that the ambulance had departed and the coroner was en route with 10 minute ETA.
**1800 –** OSHA contacted by CI.
**1953 –** EM-FC1 notified of FC1 death; CAPT called NPFMO.
**1957 –** NPRFM notified WFMO to meet the EM-FC1 at the Incident Command Post.
**2018 –** EM-FC1 demobilized.
**~2045 –** HR took EM-FC1 to Best Western Hotel, Weaverville, CA.
**~2045 –** WFMO met EM-FC1 at the motel.

**~2130 –** HR arrived at motel and asked EM-FC1 to fill out "events of day statement."
**2300 –** WFMO left motel in Weaverville, California.

**7/26/2008**

**0600 –** At morning operational briefing – multiple resources, involved in the extrication of FC1 on 7/25, were assigned to same section of Division B, where the accident occurred.
**0615 –** WFMO met EM-FC1 for breakfast and drove EM-FC1 to Redding Airport.
**0930 –** EM-FC1 transported by charter air craft back to Port Angeles, Washington.
**1445 –** SOF returned to incident site to photograph accident area.
**1700 –** SAIT arrived for first briefing.

**7/29/2008**

EM's Type 3 Engine repairs were completed. The broken fuel pump was replaced under warranty. The tail pipe and exhaust repairs were not under warranty because the tail pipe was an after market modification.

**8/1/2008**

**0830 -** FC1 private memorial with USFS Honor Guard send-off took place at North Ops Air Hanger, Redding California and FC1 cremated remains escorted home to family via USFS aircraft.

## Appendix B: FACTS

*1.* FC1 was 18 years old and graduated from Port Townsend High School on 6/12/08.
(Record: FC1 Personnel File **[H-7]**)

*2.* FC1 started work at Olympic National Park, Port Angeles, WA on 6/16/08 under Emergency Hire authority as a Firefighter AD-C.
(Record: FC1 Personnel File **[H-7]**)

*3.* FC1 completed Basic Firefighter Training, completed the work capacity test and became qualified as a firefighter type 2 (FFT2) on 6/24/08.
(Record: FC1 Personnel File **[H-7]**)

*4.* FC1 completed saw training (S-212) on 6/27/08 and a taskbook for Faller A was initiated on 6/28/08. The taskbook was completed on 7/4/08.
(Record: FC1 Personnel File **[H-7]**)

*5.* No records were found that verified FC1 completed Basic First Aid/CPR Training which is a prerequisite to attending S-212.
(Record: FC1 Personnel File **[H-7]**)

*6.* FC1 was hired on 6/29/08 as a temporary GS-462-3 Forestry Aid (Fire). FC1 was assigned to the EM crew based at Olympic National Park, Port Angeles, WA.
(Record: FC1 Personnel File **[H-7]**)

*7.* FC2 worked seasonally in 2003 and 2004 as a Firefighter Type 2 (FF2) on various NPS fuels crews. In 2004 FC2 was a Faller A.
(Record: FC2 Personnel File **[H-8]**)

*8.* FC2 worked seasonally in 2005 and 2006 as a Firefighter Type 1 (FF1) and Faller B for the National Park Service.
(Record: FC2 Personnel file **[H-8]**)

*9.* FC2 was hired on 6/8/08 under a 1039 temporary appointment as a GS-462-5 Forestry Technician (Fire). FC2 was assigned to an engine module based at Olympic National Park, Port Angeles, WA.
(Record: FC2 Personnel File **[H-8]**)

*10.* FC2 was qualified as a Firefighter 1 (FFT1), Faller B (FALB), Crew Boss trainee (CRWB (T)), and Engine Boss trainee (ENB (T)).
(Record: FC2 Personnel File **[H-8]**)

*11.* FC2's taskbook for Firefighter 1 was initiated on 6/23/05 and completed on 9/06/06.
(Record: FC2 Personnel File **[H-8]**).

*12.* FC2's taskbook for Faller B was initiated on 7/01/05 and completed on 7/20/06.
(Record: FC2 Personnel File **[H-8]**)

*13.* FC2's taskbooks for Engine Boss trainee and Crew Boss trainee were both initiated on 6/20/08.
(Record: FC2 Personnel File **[H-8]**)

*14.* FC3 was hired on 5/25/08 under a 1039 temporary appointment as a GS-462-3 Forestry Aid (Fire). FC3 was assigned to an engine module based at Olympic National Park, Port Angeles, WA.
(Record: FC3 Personnel File **[H-10]**)

*15.* FC3 was qualified as a Firefighter 2 (FFT2), and Faller B (FALB).
(Record: FC3 Personnel File **[H-10])**

*16.* FC3's taskbook for Faller B was initiated on 5/27/08 and completed on 7/2/08.
(Record: FC3 Personnel File **[H-10]**)

*17.* CAPT is a permanent seasonal/subject-to-furlough employee of the National Park Service, Olympic National Park, with 18 years of wildland fire experience.
(Record: CAPT Personnel File **[H-9]**)

*18.* CAPT is qualified as an Engine Boss (ENGB), a Crew Boss (CRWB, qualified 1999), a Feller Boss (FELB, qualified 1999) and a Faller C (FALC, qualified 1999).
(Record: CAPT Personnel File **[H-9]**)

*19.* CAPT had supervisory experience beginning in 1995. CAPT progressed from a squad leader (1995) to a Supervisory Forestry Technician (1997).
(Record: CAPT Personnel File **[H-9]**)

*20.* CAPT completed DOI Engine Academy on 5/25/01.
(Record: CAPT Personnel File **[H-9]**)

*21.* FC1, FC2, and FC3 were assigned to EM under the supervision of CAPT.
(Records: FC1 Personnel File **[H-7]**, FC2 Personnel File **[H-8]**, CAPT Personnel File **[H-9]**, FC3 Personnel File **[H-10]**)

*22.* CAPT, FC2 and FC3 were current on First Aid/CPR training, having completed training on 6/12/08.
(Record: First-Aid/CPR Class Roster **[H-153]**)

*23.* CAPT had a Washington State Class B Commercial Driver's License.
(Record: CAPT Personnel File **[H-9]**)

*24.* FC2 had a Washington State Class B Commercial learners permit granted 6/6/08.
(Record: FC2 Personnel File **[H-8]**)

*25.* On 7/22/08 at 0930 Olympic National Park received a resource order for EM to report to the Iron Complex in Junction City, CA. Report date was 7/23/08 at 1200.
(Record: Resource Order - Equipment **[H-11]**)

*26.* At the time of the call, CAPT and FC3 were fishing in a remote location without cell phone coverage and did not get the voicemail message about the dispatch until 2027.
(Statements: CAPT **[E-2]**, NPFMO **[E-29]**; Record: Personal Cell Phone Record **[H-150]**)

*27.* EM came on shift at 2030.
(Record: Crew Time Reports **[H-16]**)

*28.* EM left Port Angeles, WA for the Iron Complex, on the evening of 7/22/08.
(Statements: CAPT 3/10/09 **[E-2]**, NPFMO **[E-29]**)

*29.* EM was driving an International Type 3 engine that had been received in April 2008 by the Olympic National Park with an odometer reading of less than 1000 miles. It was assigned to EM at the end of June 2008.
(Statements: CAPT **[E-2]**, NPFMO **[E-29]**; Records: Resource Check-in Sheet **[H-17]**, Repair and Tow Bills **[H-152]**)

*30.* At 2317 EM paid toll at Tacoma Narrows Bridge, Gig Harbor, Washington.
(Record: Fuel Card Use Record **[H-61]**)

*31.* On 7/23/08 at 0100 EM went off shift. EM checked in to the Best Western in Kelso, WA.
(Records: Hotel Receipt **[H-14]**, Crew Time Reports **[H-16]**)

*32.* At 0700 EM went back on shift.
(Record: Crew Time Reports **[H-16]**)

*33.* At 0723 CAPT called NPFMO from Kelso, WA, and left voicemail.
(Statement: CAPT **[E-2]**; Record: Government Cell Phone Record **[H-66]**)

*34.* At 0725 EM checked out of Best Western, Kelso, WA and continued traveling south on I-5.
(Record: Hotel Receipt 7/22/08 **[H-14]**; Map: **[Exhibit 2 Travel Route Map]**)

*35.* EM engine tailpipe fell off just outside the city limits of Kelso, WA. EM stopped and picked up the tailpipe. CAPT called NPFMO at 0750 and left message about the engine tailpipe. CAPT reported they were going to continue traveling to California.
(Statement: CAPT **[E-2]**; Records: Government Cell Phone Records **[H-66]**, Repair and Tow Bills **[H-152]**)

*36.* At 0914 EM fueled at Lealhers Shell 25 in Aurora, OR.
(Record: Fuel Card Use Record **[H-61]**)

*37.* EM was on I-5 near Wolf Creek, OR when EM noticed the "check engine" light was coming on and off.
(Statement: CAPT **[E-2]**; Record: Repair and Tow Bills **[H-152]**)

*38.* At 1516 EM fueled at Miner Street Texaco, Yreka, CA.
(Record: Fuel Card Use Record **[H-61]**)

*39.* At 1817 EM checked in at the Iron Complex Incident Command Post (ICP), Junction City, CA as a Type 3 Engine (ENG).
(Record: Resource Check-in Sheet **[H-17]**)

*40.* Crew qualifications were noted at check-in. CAPT qualifications noted as an Engine Boss (ENGB), Faller C (FALC) and Helicopter Manager Single Resource (HMGB). FC2 qualifications noted as Engine Boss Trainee (ENGB(T)) and Faller B (FALB). FC1 qualifications noted as Firefighter 2 (FFT2). FC3 qualifications noted as Firefighter 2 (FFT2) and Faller B (FALB). These qualifications match those in their personnel records.
(Records: Resource Check-in Sheet **[H-17]**, FC1 Personnel File **[H-7]**, FC2 Personnel File **[H-8]**, CAPT Personnel File **[H-9]**, FC3 Personnel File **[H-10]**)

*41.* EM reported off-duty break from 1830-1900.
(Record: Crew Time Reports **[H-16]**)

*42.* EM reported to Ground Support for engine repair. Instructed by Ground Support to take the engine to Redding, CA for repairs the next day (7/24/08) because "the engine was under warranty."
(Statement: CAPT **[E-2]**; Record: Repair and Tow Bills **[H-152]**)

*43.* CAPT called NPFMO at 1912 to report they had arrived at the ICP.
(Statement: CAPT **[E-2]**; Record: Personal Cell Phone Record **[H-66]**)

*44.* On 7/23/08 at 2130 EM logged off shift.
(Record: Crew Time Reports **[H-16]**)

*45.* On 7/24/08 at 0500 EM reported on shift.
(Record: Crew Time Reports **[H-16]**)

*46.* EM left the Junction City ICP to take the engine to Redding, CA for repair.
(Statement: CAPT **[E-2]**; Records: Repair and Tow Bills **[H-152]**, Government Cell Phone Records **[H-66]**)

*47.* EM's engine broke down in Weaverville, CA.
(Statements: CAPT **[E-1]**, CAPT **[E-2]**; Records: General Message 7/24/08 **[H-86]**, Repair and Tow Bill **[H-152]**)

*48.* CAPT called Ground Support at ICP at 0731 and requested assistance with a vehicle tow and return of FC1, FC2 and FC3 (EM-CAPT) to the ICP.
(Statements: CAPT **[E-1]**, CAPT **[E-2]**; Records: Government Cell Phone Records **[H-66]**, General Message 7/24/08 **[H-86]**)

*49.* CAPT called NPFMO at 0754 to report the engine breakdown.
(Statements: CAPT **[E-1]**, NPFMO **[E-29]**; Record: Government Cell Phone Records **[H-66])**

*50.* CAPT continued on to Redding in the tow truck with the disabled engine.
(Statements: CAPT **[E-1]**, CAPT **[E-2]**; Record: Repair and Tow Bills **[H-152]**)

*51.* At 1235 CAPT called FC3 and checked on the status of EM-CAPT.
(Statement: CAPT [**E-2]**; Record: Government Cell Phone Record **[H-66]**)

*52.* International repair shop informed CAPT that parts must be ordered for the repair and would not be in until Monday or Tuesday (7/28/08 or 7/29/08). CAPT calls NPFMO at 1244 and reports on repair status.
(Statement: CAPT **[E-2]**; Records: Government Cell Phone Records **[H-66]**, Repair and Tow Bills **[H-152]**)

*53.* FC1, FC2 and FC3 (EM-CAPT) were picked up by Ground Support and loaded their chain saws, chaps, and other gear into the Ground Support vehicle. EM-CAPT returned to the ICP. Reported to OBDt, and were given an assignment to work in Supply Unit for that day.
(Statements: CAPT **[E-1]**, CAPT **[E-2]**, OBDt **[E-12]**; Record: Crew Time Reports **[H-16]**)

*54.* OBDt gave FC2 a Form 213 to get a minivan from Ground Support for use in moving supplies.
(Statement: OBDt **[E-12]**; Record: Rental Vehicle Checkout/Return **[H-18]**)

*55.* NPFMO made arrangements to get a loaner engine from WFMO at WNRA.
(Statements: NPFMO **[E-29]**, CAPT **[E-2]**; MOI: WFMO **[F-1]**)

*56.* At 2030 CAPT logged off shift. Spends the night at the Best Western hotel on Hilltop Drive in Redding, CA.
(Statement: CAPT **[E-2]**, Record: Hotel Receipt 7/24/08 **[H-163]**)

*57.* At 2030 EM-CAPT logged off shift.
(Record: Crew Time Reports **[H-16]**)

*58.* On 7/25/08 at 0500 EM-CAPT logged on shift.
(Record: Crew Time Reports **[H-16]**)

*59.* At 0530 DIVB requested fellers from OBDt at pre-op meeting.
(Statements: OBDt **[E-12]**, DIVB **[E-8]**)

*60.* EM-CAPT attended the morning briefing at 0600.
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, TFLDt **[E-21]**)

*61.* The 7/25/08 IAP was inaccurate. Resources that had previously been demobed and had left the incident were identified as occupying positions on the incident.
(Record: IAP 7/25/08, Day (corrected) **[H-57])**

*62.* The 7/25/08 IAP listed several positions with trainees and no qualified trainer listed.
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, IT **[E-34]**); Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*63.* TFLDt was listed in the daily IAP (corrected) as being assigned to Junction Staging as a Task Force Leader trainee rather than on Division B.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*64.* There was a fully qualified Task Force Leader assigned to Junction Staging on 7/25/08.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*65.* On 7/25/08 there was no Line Safety Officer assigned to Division B.
(Statement: SOF **[E-17]**; Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*66.* On 7/25/08 Division C had two fully qualified, and one trainee Line Safety Officer.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*67.* On 7/25/08 SOFt was listed as both the Supply Unit Leader and a Line Safety Officer trainee on Division C.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*68.* There was a Felling Boss, and a professional falling team (C qualified falling team) assigned to Junction Staging on 7/25/08.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*69.* Following the briefing, EM-CAPT reported to OBDt as an "unassigned resource".
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, DIVB **[E-7]**; Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*70.* EM was listed as an Engine Module with FC2 as the "Leader" on the daily IAP for 7/25/08.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*71.* FC2 was not listed on the 7/25/08 IAP as a Crew Boss Trainee.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*72.* On 7/25/08 OBDt assigned EM-CAPT to Division B as a felling team.
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, DIVB **[E-7]**, TFLDt **[E-21]**)

*73.* OBDt verbally reminded FC1 and FC2 "no cutting trees over 24 inches."
(Statements: OBDt **[E-11]**, OBDt **[E-12**], IT **[E-34]**)

*74.* No qualified Felling Boss (FELB) was assigned to EM-CAPT.
(Statements: OBDt **[E-11]**, OBDt **[E-12]**, DIVB **[E-8]**; Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*75.* DIVB and TFLDt assumed that EM-CAPT were C fallers. DIVB recorded in daily log from the briefing that FC1 was a "swamper," FC2 was a "C faller," and FC3 was a "C faller."
(Statements: DIVB **[E-7]**, DIVB **[E-8]**, TFLDt **[E-21]**)

*76.* On 7/25/08 at 0700 CAPT logged on shift.
(Record: Crew Time Reports **[H-16]**)

*77.* At 0702 CAPT called FC3 to obtain a status report on the crew.
(Statement: CAPT **[E-2]**; Record: Government Cell Phone Records **[H-66]**)

*78.* CAPT called WFMO at WNRA numerous times (0737, 0742, 0808) to arrange for a ride to pick up the loaner engine. Left phone messages. Made contact with WFMO at 1044.
(Statement: CAPT **[E-1]**, **MOI:** WFMO **[F-1]**; Record: Government Cell Phone Records **[H-66]**)

*79.* At 0822 CAPT received call from FC3.
(Statement: CAPT **[E-2]**, Record: Personal Cell Phone Record **[H-150]**)

*80.* EM-CAPT drove a blue rental minivan to DP 17 and began unloading, fueling saws and preparing gear.
(Statements: CRWB2 **[E-25]**, CRWB2t **[E-36]**; MOI: CRWB2 **[F-29]**)

*81.* At 1000 EM-CAPT started down the dozerline toward Dutch Creek road.
(Statement: CRWB2 **[E-25]**; MOIs: CRWB2 **[F-29]**, TFLDt **[F-30]**)

*82.* At 1145 CAPT picked up Model 42 (E-4) loaner engine from Whiskeytown NRA.
(Statement: CAPT **[E-2]**, MOI: WFMO **[F-1]**)

*83.* CAPT drove the loaner engine to the repair shop in Redding and retrieved gear and equipment from the disabled engine.
(Statement: CAPT **[E-2]**; Record: Fire Gear and Equipment Inventory **[P-1]**)

*84.* At the time of the accident EM-CAPT was felling a class C ponderosa pine tree, 36.7 inches diameter at the point of cut, and approximately 125 feet tall.
(Statements: FC2 **[E-3]**, CRWB2 **[E-25]**, CAPT **[E-2]**; MOI: SAIT **[F-49]**; Reference: Chainsaw Technical Report)

*85.* When the ponderosa pine was cut, the tree fell down slope and contacted the sugar pine. The resulting contact, or vibration from the ponderosa hitting the ground, caused a portion of the sugar pine, approximately 120 feet long, to break off and fall upslope.
(MOI: SAIT **[F-49]**; Reference: Chainsaw Technical Report)

*86.* FC1 was hit by a piece of the sugar pine tree that was 8 feet long and approximately 20 inches in diameter, resulting in multiple severe injuries.
(Statements: FC2 **[E-3]**, FC3 **[E-5]**; MOIs: CRWB2t **[F-40]**, SAIT **[F-49]**, Record: Autopsy Report **[H-71]**; Photo Log: **[Cover Photo]**, **[Photo 10]**; Reference: Chainsaw Technical Report)

*87.* FC1 was 35 feet from the stump of the cut tree when FC1 was injured.
(MOI: SAIT **[F-49]**)

*88.* FC1's major injury was described as a crushing blunt force injury of the left thigh. There was a laceration with a maximum length of 12 inches and approximately 9 inches wide. There were comminuted fractures of the left femur. Examination of the wound depth revealed ragged transections of the femoral artery and its major branch, the deep femoral artery. *Glossary Note: Comminuted – a fracture in which bone is broken, splintered or crushed into a number of pieces.*
(Record: Autopsy Report **[H-71]**)

*89.* At 1350 FC2 radioed COM "Man Down. Man Down. We need help. Medical emergency. Dozer pad. Broken leg. Bleeding. Drop point 72 and dozer line. Call 911, we need help."
(Statement: CRWB2 **[E-25]**; Record: Com Center Notes_Dispatcher A **[H-30]**)

*90.* At 1340 ICP Com Center Dispatcher F recorded "Emergency. Man down. Dozer DP-72. Half-way to the road. Severe bleeding."
(Record: Com Center Notes_Dispatcher F **[H-43]**)

*91.* The handwritten time on ICP Dispatcher A's Com Center Notes differs by 10 minutes with handwritten time on Dispatcher F's Com Center Notes.
(Records: Com Center Notes_Dispatcher A **[H-30]**, Com Center Notes_Dispatcher F **[H-43]**)

*92.* At 1347 Iron Complex ICP called TSO "911" reporting "sounds like a broken leg." Incident reported at "drop point 72, which is down Dutch Creek Road. That is on the 33N47, 2 miles to the Carter Ranch Road. Go to the junction of Carter Ranch and Rattlesnake."
(Record: TSO 911 Transcript **[H-60]**)

*93.* At 1350 TSO paged TCLS ambulance to respond to "a medical, possible broken leg."
(Statements: P1 **[E-27]**, P2 **[E-31]**; Records: TCLS Incident Report **[H-36]**, TSO 911 Transcript **[H-60]**)

*94.* At 1354 TSO called Mercy Air checking on availability of helicopter.
(Record: TSO 911 Transcript **[H-60]**)

*95.* ICP Com Center Dispatcher F recorded, "Possible broken femur." Noted the injury involved EM-CAPT. "No medics. Apply direct pressure to control bleeding."
(Record: Com Center Notes_Dispatcher F **[H-43]**)

*96.* The TCLS ambulance was dispatched to "a possible broken leg" at 1357, and was en route at 1359.
(Records: TCLS Incident Report **[H-36]**, TSO 911 Transcript **[H-59]**)

*97.* At 1400 BR2 radioed COM and inquired as to availability of a hoist-capable helicopter.
(Statement: BR2 **[E-19]**; Record: Com Center Notes_Dispatcher A **[H-30]**)

*98.* At 1400 PHI/Mercy air ambulance called TSO stating the pilot "declined it for visibility." Also reported that REACH air ambulance pilot had declined.
(Record: TSO 911 Transcript **[H-60]**)

*99.* On the day of the accident, weather and air quality data from numerous sources reported that "extremely dense smoke," from the large number of wildfires burning in the area, was being held in place due to an inversion layer. Health warnings were being issued and some fire fighting aircraft were grounded.
(MOI: AIR **[F-37]**; Records: Smoke Impacts July 2008 **[H-173]**, NOAA Smoke/Dust Satellite Report, Northern CA Lightening Siege **[H-113]**, **[H-174]**; Photo Log: **[Photo 20]**)

*100.* At 1400 Com Center Dispatcher B recorded, "EM-CAPT. Fractured shoulder. Fractured leg."
(Record: Com Center Notes_Dispatcher B **[H-31])**

*101.* At 1403 Com Center Dispatcher F recorded, "Medic" reports "on scene. Severe injury heavy bleeding leg bent back. Still conscious & talking."
(Record: Com Center Notes_Dispatcher F **[H-43]**)
*Note: SAIT determined there were no medics on scene at this time. This transmission was likely CRWB2.*
*(Statements: CRWB2* ***[E-25]****, P2* ***[E-31])***

*102.* At 1402 Com Center Dispatcher A recorded, "Patient condition? Severely bleeding, awake, conscience (sic)."
(Record: Com Center Notes_Dispatcher A **[H-30]**)

*103.* CRWB2, CRWB2t were working above EM-CAPT on the hill and heard the "man down" call for help.
(Statements: CRWB2 **[E-25]**, CRWB2t **[E-36]**)

*104.* CRWB2 sent CRWB2t to the accident scene.
(Statements: CRWB2 **[E-25]**, CRWB2t **[E-36]**)

*105.* CRWB2t was the first on-scene.
(Statements: CRWB2 **[E-25]**, CRWB2t **[E-36]**)

*106.* CRWB2t radioed CRWB2 on crew channel, stated "it's bad" and requested the entire crew to assist. CRWB2 and crew members arrived at accident scene.
(Statement: CRWB2 **[E-25]**; MOI: CRWB2t **[F-40]**)

*107.* CRWB2t, FC2 and FC3 used fire shirts to cover the wounds, wrapping and tying one over the leg wound in a pressure-dressing fashion, then applied direct pressure in an attempt to control bleeding.
(Statements: FC2 **[E-3]**, P2 **[E-31]**, CRWB2t **[E-36])**

*108.* Though the initial wound dressing was referred to as a "tourniquet" by some witnesses, no tourniquet was applied. (there was no windlass present).
(Statements: FC2 **[E-3]**, P2 **[E-31]**, CRWB2t **[E-36]**, P1 **[E-27]**; Record: Tourniquet/Pressure Bandage **[H-179]**)

*109.* P1, P2, and coroner (MOI) stated that a tourniquet could not be used on FC1 because of the location and nature of the wound.
(Statements: P1 **[E-27]**, P2 **[E-21]**; MOI: **[F-12]**)

*110.* Radio #0346464, which was assigned to FC1, was found at the accident site. Damage was noted.
(Record: Crew Radio Serial Numbers **[H-159]**; Physical Evidence: Fire Gear and Equipment Inventory **[P1]**)

*111.* At 1403 the ICP called TSO with better directions for the ambulance to the Dutch Creek incident site.
(Record: TSO 911 Transcript **[H-60])**

*112.* At 1403 ICP dispatcher told TSO that "The medic is with [FC1] now and [CRWB2] said, little bleeding, and [FC1] is conscious."
(Record: TSO 911 Transcript **[H-60])**
*Note: SAIT determined there were no medics on scene at this time. This transmission was likely CRWB2. (Statements: CRWB2* ***[E-25]****, P2* ***[E-31])***

*113.* At 1404 FC3 called CAPT reporting accident involving FC1.
(Statement: CAPT **[E-2]**; Record: CAPT Personal Cell Phone Record **[H-150]**)

*114.* At 1406 TCLS called TSO and requests that Fire Rescue respond with a Stokes basket. Fire Rescue responds, "Affirmative."
(Record: TSO 911 Transcript **[H-59]**)

*115.* At 1408 COM called TSO again to clarify ambulance directions to the Dutch Creek incident.
(Record: TSO 911 Transcript **[H-60]**)

*116.* At 1410 Fire Rescue reports to TSO, "on scene" at Dutch Creek with TCLS. They delivered a Stokes basket then were released to go to second call.
(Record: TSO 911 Transcript **[H-59]**)

*117.* At 1415 TSO paged Search and Rescue to help with the extrication of "injured logger."
(Record: TSO 911 Transcript **[H-59]**)

*118.* At 1415 TCLS (P1, P2 and RA) arrived at scene on Dutch Creek Road.
(Record: Incident report 7/25/08 **[H-36]**)

*119.* A handcrew met P1 and P2 at the road and helped shuttle gear up the hill including the litter.
(Statements: P1 **[E-27]**, P2 **[E-31]**, RA **[E-32]**, CRWB2 **[E-25]**)

*120.* TCLS took supplies and equipment up the hill that were appropriate for responding to a "broken leg."
(Statements: P1 **[E-27]**, RA **[E-32]**)

*121.* P1, P2, and RA did not hear that FC1 had been hit by a tree until they were going up the hill and were almost to FC1.
(Statements: P1 **[E-27]**, RA **[E-32]**; Record: TCLS RA Timeline **[H-72]**)

*122.* TCLS is a member of Nor-Cal EMS and operates under the Nor-Cal Emergency Policy and Procedure Manual. The Nor-Cal EMS Policy and Procedure Manual states, "In the event that both public and private emergency medical care personnel arrive on the scene with the same qualifications, patient management responsibility will rest with the first to arrive."
(Record: Nor-Cal EMS Policy and Procedures Manual **[H-77]**)

*123.* At 1419 SOF called TSO and requested helicopter. TSO responded, "I already checked on the availability of the helicopter and they are not [available], they are declining to fly due to smoke." TSO reported that they had checked on Reach and PHI helicopters but not CHP.
(Record: TSO 911 Transcript **[H-60]**)

*124.* At 1419 SOF suggested checking with USCG.
(Record: TSO 911 Transcript **[H-60]**)

*125.* IAP Medical Plans prior to 7/23/08 did not list the USCG helicopter as an Air Ambulance resource.
(Records: IAP 7/20/08, Day (corrected) **[H-122]**, IAP 7/21/08, Day (corrected) **[H-124]**, IAP 7/22/08, Day (corrected) **[H-126]**)

*126.* The USCG helicopter in Eureka, CA was added on 7/23/08 to the IAP Medical Plan as an "Air Ambulance" outfitted with hoist capabilities with night vision (IR), and no paramedic staffing.
(Statement: MEDL **[E-23]**; MOI: AIR **[F-37]**; Record: IAP 7/23/08, Day (corrected) **[H-53]**)

*127.* The USCG helicopter was listed as an "Air Ambulance" resource on the Medical Plan of the corrected IAP for 7/25/08.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*128.* The status of the other "Air Ambulance" resources listed on the 7/25/08 (corrected) IAP were PHI/Mercy Medical, REACH (Shasta Regional Medical Center), and CHP. PHI and REACH both declined to fly due to smoke. TSO reported that CHP "can't go. Coast Guard is our last option."
(Statement: P1 **[E-27]**; Records: Com Center Notes_Log Radio **[H-112]**, TSO 911 Transcript **[H-60]**)

*129.* CRWB2 called COM at 1425 and reported "[FC1] still awake and talking, bleeding controlled, knows what is going on, can't communicate."
(Record: Com Center Notes_Dispatcher F **[H-43]**)

*130.* At 1428 CRWB2 calls COM reports "[FC1] talking, awake in and out, numbness of tongue, lifting head, damage to shoulder and leg."
(Record: Com Center Notes_Dispatcher F **[H-43]**)

*131.* At 1428 SOF called TSO for USCG helicopter update. TSO replied, "They haven't called you yet? I gave them your 6120 (ICP land line) number. They were going to call you direct."
(Record: TSO 911 Transcript **[H-60]**)

*132.* 1430 DIVB calls CRWB2, "Getting helicopter, need people by the road." CRWB2 answers, "Have one crew member from Flying Eagle engine." DIVB asks, "Are they a medic?" CRWB2 answers, "No, EMT basic." DIVB states, "Want medic at rig before they get FC1 off the hill."
(Record: Com Center Notes_Dispatcher F **[H-43]**)

*133.* 1430 CRWB2 calls COM, states FC1 "conscious, stable."
(Record: Com Center Notes_Dispatcher B **[H-31]**)

*134.* At 1431 TSO contacted USCG and reported a firefighter with a broken leg/injured shoulder at Junction City. Requested USCG contact SOF via phone and provided SOF's phone number.
(Records: Coast Guard Activity Log **[H-39]**, Coast Guard Radio Log **[H-40]**)

*135.* At 1432 SOF called TSO and reported that "Helicopter is 35 out."
(Record: Com Center Notes_ Phone Log **[H-112]**)

*136.* At 1433 CRWB2 calls COM, "Do medics have line gear (IVs, Drugs)."
(Record: Com Center Notes_Dispatcher F **[H-43]**)

*137.* TSO reports an ETA of 40 minutes from time of ordering.
(Record: Com Center Notes_Dispatcher A **[H-30]**)

*138.* During the incident a USFS helicopter, without hoisting capabilities, was launched from Willow Creek, CA to assist with the medical evacuation. It arrived at 1503 and was staged at Junction City School.
(Statement: P2 **[E-31]**; MOI: AIR **[F-37]**; Records: Com Center Notes_Dispatcher A **[H-30]**, TSO 911 Transcript **[H-60]**, Unit Log, Willow Helibase **[H-101]**)

*139.* At 1435 P1 and P2 arrived at FC1. P2 was slightly ahead of P1, who was carrying more medical supplies.
(Statements: P1 **[E-27]**, P2 **[E-31]**)

*140.* P1 and P2 had equal paramedic qualifications and P2 was the lead paramedic on 7/25/08.
(Statements: P1 **[E-27]**, P2 **[E-31]**)

*141.* When P1 and P2 arrived CRWB2t was applying direct pressure over the fire shirts that had been used to cover the left leg wound.
(Statements: P2 **[E-31]**, P1 **[E-27]**, CRWB2t **[E-36]**)

*142.* P2 attempted four peripheral IV starts. P2 administers 2.0 mg of morphine IM. P1 started IV in FC1's left hand. FC1 blood pressure 110-60, pulse 120, respirations 20.
(Record: TCLS, Incident Report 7/25/08 **[H-36]**)

*143.* P2 cut off FC1's left boot and sock and applied vacuum splint to the lower left leg.
(Statements: P1 **[E-27]**, TFLDt **[E-21]**; Record: TCLS, Incident Report 7/25/08 **[H-36]**)

*144.* P2 performed an initial assessment during which the fire shirts that were covering the upper left leg wound were removed. Then FC1's chaps were cut away.
(Statements: P2 **[E-31]**, P1 **[E-27]**, CRWB2t **[E-36]**)

*145.* P2 and P1 realized femoral arterial bleeding and decided to prepare FC1 for transport down the hill toward more life support resources.
(Statements: P2 **[E-31]**, P1 **[E-27]**, CRWB2t **[E-36]**)

*146.* The wound was packed with ABD pads, Kerlix, and trauma dressing. P1 reapplied direct pressure.
(Statements: FC2 **[E-3]**, P1 **[E-27]**, **P2 [E-31]**, CRWB2t **[E-36]**; Records: TCLS Incident Report, 7/25/08 **[H-36]**, TCLS RA Timeline **[H-72]**)

*147.* TFLDt arrived on scene and became point of contact for the incident with COM.
(Statements: TFLDt **[E-21]**, DIVB **[E-8]**; Records: Com Center Notes_Dispatcher E **[H-34]**, Com Center Notes_Dispatcher F **[H-43]**)

*148.* P1 called TSO and requested a medivac and reported "200-300cc blood loss."
(Statement: P1 **[E-27]**; Record: TSO 911 Transcript **[H-60]**)

*149.* USCG helicopter was ordered, cancelled, then reactivated by SOF.
(Records: TSO 911 Transcript **[H-60]**, USCG Activity Log **[H-39]**)

*150.* At 1448 CRWB1 and FAL1 arrived on scene. CRWB1 instructed FAL1 to start falling trees to make a medivac spot. FAL1 dropped two trees.
(Statements: DIVB **[E-8]**, TFLDt **[E-21]**, CRWB1 **[E-10]**; MOIs: FAL1 **[F-14]**, CRWB1**[F-15]**)

*151.* At 1449 TSO called SOF and reported having talked to the paramedic on scene. FC1 was in and out of consciousness. SOF replied, "we are going to go ahead and use the USCG and hoist FC1 out."
(Record: TSO 911 Transcript **[H-60]**)

*152.* Nor-Cal EMS Policy and Procedure Manual related to patient transport states patients should be transported to the nearest accessible facility equipped, staffed, and prepared to receive emergency cases; unless it is a trauma patient, in which case, they may be transported to a Level I/II trauma center over the most accessible facility when the trauma center is within 20 minutes.
(Record: Nor-Cal EMS Policy and procedures manual **[H-77]**)

*153.* The nearest hospital with emergency room and surgical services was Trinity Hospital located in Weaverville, CA located approximately 11 miles from the accident site.
(Record: Local Hospital Information **[H-176]**; Map: **[Exhibit 4B Transportation, Ground]**)

*154.* The nearest trauma center was greater than 20 minutes, approximately 56 miles away, by any method of transportation.
(Record: Local Hospital Information **[H-176]**; Map: **[Exhibit 4B Transportation, Ground]**)

*155.* P2 applied oxygen to FC1.
**(**Records: TCLS, Incident Report 7/25/08 **[H-36]**, TCLS RA Timeline**[H-72]**)

*156.* HANDCREW helped place FC1 into a Stokes basket.
(Statements: P1 **[E-27]**, TFLDt **[E-21]**, DIVB **[E-8]**)

*157.* At 1457 USCG confirmed helicopters ETA of 30 min.
(Record: Com Center Notes_Dispatcher B **[H-31]**)

*158.* DIVB concurred with hoisting operation.
(Record: Com Center Notes_Dispatcher B **[H-31]**)

*159.* At approximately 1500 P3 arrived on scene.
(Statements: DIVB **[E-8]**, P2 **[E-31]**, P1 **[E-27]**, P3 **[E-22]**; Record: Wilderness Medic Report **[H-37]**)

*160.* At 1502 COM told TSO to keep both the USFS and USCG helicopters en route.
(Record: TSO 911 Transcript **[H-60]**)

*161.* At 1502 COM reported to TSO that the USFS helicopter is en route to DP 22, and the USCG helicopter was "less than 20 minutes from us."
(Record: TSO 911 Transcript **[H-60]**)

*162.* At 1503 SOF called TSO and reported, "they had two helicopters coming. One is an A Star that was at the Junction City School. And they were sitting there as an alternative path. The primary way we are going is with the USCG helicopter." SOF reported the USCG helicopter was en route and they were going to try to direct hoist him out of there. USCG helicopter had an ETA of 30 minutes.
(Record: TSO 911 Transcript **[H-60]**)

*163.* Firefighters began carrying FC1 down dozerline.
(Statements: P3 **[E-22]**, CRWB2 **[E-25]**, P1 **[E-27]**, P2 **[E-31]**)

*164.* At 1506 TSO called P1 to advise that "the ETA [of USCG helicopter] was 30 minutes more than what they were previously advised." "It is not 1510, so 30 minutes from now."
(Record: TSO 911 Transcript **[H-60]**)

*165.* At approximately 1506 USFS helicopter arrived at Helispot 22 (H-22), Junction City School.
(Records: Com Center Notes_Dispatcher C **[H-32]**, TSO 911 Transcript **[H-60]**)

*166.* At 1507/1509 DIVB and BR2 arrived on scene.
(Statements: DIVB **[E-8]**, BR2 **[E-19]**; Records: Com Center Notes_Dispatcher C **[H-32]**, Com Center Notes_Dispatcher D **[H-33]**)

*167.* P3 told/ordered P2 to stop moving FC1 down the hill. BR2 relayed from P3, to COM, that they will "keep FC1 in the spot. Don't carry to the road."
(Statements: P1 **[E-27]**, P2 **[E-31]**, P3 **[E-22]**; Records: TCLS Report **[H-36]**, Wilderness Medics Report **[H-37]**, Com Center Notes_Dispatcher F **[H-43]**)

*168.* FC1 final assessment done by TCLS.
(Record: TCLS, Incident Report 7/25/08 [**H-36]**)

*169.* SAR arrived at FC1.
(Statement: SAR 7/30/08 **[E-26]**; Record: TCLS RA Timeline **[H-72]**)

*170.* At approximately 1520, FC1 patient care transferred from P2 to P3; a second IV was started in right arm.
(Statements: P1 **[E-27]**, P3 **[E-22]**, P2 **[E-31]**; Records: TCLS, Incident Report 7/25/08 [**H-36**], Wilderness Medics Report **[H-37]**)

*171.* Nor-Cal EMS Policy and Procedure Manual policy regarding out of area pre-hospital provider at scene states, "If the visiting provider is not certified/accredited in the Nor-Cal EMS region, but shows proof of current licensure/certificate in CA, he/she may, at the discretion of the response provider, assist and provide care, not to exceed the scope of practice of the response provider."
(Record: Nor-Cal EMS Policy Manual **[H-77]**)

*172.* At 1532 USCG helicopter is en route. USCG reported to TSO that, "they just got off of ground and should be there in 15 to 20 minutes."
(Records: USCG Case History Report **[H-38]**, Coast Guard Activity Log **[H-39]**, Guard Chronological Log **[H-40]**, TSO 911 Transcript **[H-60]**)

*173.* P3 re-assessed FC1. Started new IV bag.
(Statements: P3 **[E-22]**, P2 **[E-31]**; Records: Wilderness Medics Report **[H-37]**, Com Center Log_Dispatcher F **[H-43]**; Photo Log**: [Photo 16]**)

*174.* USCG helicopter notified Mercy Hospital in Redding of the case and requested helipad and airport information. Mercy advised USCG helicopter that the closest airport was Benton airfield.
(Record: Coast Guard Activity Log **[H-39]**)

*175.* At 1542 SAR called TSO and reported this is "far more than a broken leg. [FC1] got open gashes all over [body]. A tree took [FC1] out and we are having a hard time keeping [FC1] awake and stuff. So they have got [FC1] hooked up on O2 and the monitor. So I couldn't put that on the air, but [FC1] in pretty bad shape and what we are doing right now is cutting down trees to get [FC1] hoisted out."
(Statement: SAR 7/30/08 **[E-26]**; Record: TSO 911 Transcript **[H-60]**)

*176.* At 1605 USCG helicopter is on scene.
(Records: Com Center Notes_Dispatcher A **[H-30]**, Com Center Notes_Dispatcher C **[H-32]**, Com Center Notes_Dispatcher F **[H-43]**, TCLS RA Timeline **[H-72]**)

*177.* At approximately 1540 SOFt on scene.
(Statement: SOFt **[E-15]**; Records: Com Center Notes_Dispatcher C **[H-32]**, Com Center Notes_Dispatcher E **[H-34]**)

*178.* At approximately 1545 SOFRt on scene.
(Statement: SOFRt **[E-14]**; Records: Com Center Notes_ Dispatcher C **[H-32]**, Com Center Notes_Dispatcher E **[H-34]**)

*179.* At approximately 1556 BR2 transferred scene communication to DIVB.
(Statement: BR2 **[E-19]**; Records: Com Center Notes_Dispatcher A **[H-30]**, Com Center Notes_Dispatcher F **[H-43]**)

*180.* USCG helicopter reported establishing communications with USFS.
(Record: Coast Guard Activity Log **[H-39]**)

*181.* USCG dispatcher reported that USFS requested that FC1 be transported to Mercy Hospital in Redding. USCG dispatcher advised USFS that they had no communications with the USCG helicopter. USCG dispatcher advised USFS pass the request and the position to the helicopter.
(Record: Coast Guard Activity Log **[H-39]**)

*182.* DIVB reports Coast Guard swimmer is on the ground, lifting FC1 shortly.
(Records: Coast Guard Activity Log **[H-39]**, Com Center Notes_Phone Log **[H-112]**)

*183.* FC1 was transferred to the USCG helicopter litter and hoisted, unattended, into the helicopter. (Litter was pulled into the helicopter by the helicopter crewmember.)
(Statements: P3 **[E-22]**, CAPT **[E-2]**; Record: RA Timeline Report **[H-72]**, Photo Log: **[Photo 16]**, **[Photo 17]**)

*184.* USCG rescue swimmer stated that an EMT was needed to accompany FC1 in the helicopter since the swimmer was not a paramedic. P3 agreed to go along and was hoisted, along with the rescue swimmer, into the helicopter.
(Statements: P3 **[E-22]**, CAPT **[E-2]**; Record: TCLS RA Timeline **[H-72]**)

*185.* At approximately 1627 USCG helicopter leaves scene en route to Redding, CA.
(Records: TCLS RA Timeline **[H-72]**, Com Center Notes_Phone Log **[H-112]**, USCG Case History Report **[H-38]**, Coast Guard Activity Log **[H-39]**, Coast Guard Radio Log **[H-41]**)

*186.* TCLS called TSO requesting they contact Mercy Medical Center and inform them the USCG helicopter was inbound to their location with a trauma alert.
(Record: TSO 911 Transcript **[H-59]**)

*187.* At 1633 TSO calling Mercy Medical – "I have a USCG helicopter inbound with a trauma alert." Mercy Medical – "we know about it, ETA is 10 minutes now. We have got them landing at Benton Airfield & we have a unit there to meet them."
(Record: TSO 911 Transcript **[H-60]**)

*188.* At 1635 P3 recorded FC1 EKG-Vtach, patient pulseless & apneic, administered 1.0 mg epinephrine 1:10,000 IVP.
(Statement: P3 **[E-22]**; Record: Wilderness Medics Report **[H-37]**)

*189.* At 1640 EKG-asystole.
(Statement: P3 **[E-22]**; Record: Wilderness Medics Report **[H-37]**)

*190.* At 1645 SOFRt completed "documenting" the accident scene and reported returning to ICP.
(MOI: CRWB2t **[F-40]**; Records: Com Center Notes_Dispatcher E **[H-34]**, Com Center Notes_Command Radio **[H-110]**)

*191.* At 1647 FC1 remained pulseless & apneic. CPR in progress.
(Statement: P3 **[E-22]**; Record: Wilderness Medics Report **[H-37]**)

*192.* At 1659 USCG helicopter arrived at Redding Airport (Redding Jet Center), CPR was in progress.
(Statement: P3 **[E-22]**; Record: SHASCOM Incident Report **[H-42]**)

*193.* FLN responds to USGC helicopter CPR was in progress on FC1.
(Statements: FLN **[E-30]**, P3 **[E-22]**)

*194.* At 1706 USCG dispatch reported USCG helicopter on-deck at the Redding airport with EMS. FC1 deceased.
(Record: Coast Guard Activity Log **[H-39]**)

*195.* At 1710 Mercy ER physician pronounced FC1 time of death via radio at Redding Jet Center.
(Record: Coroner's General Info Report **[H-70]**)

*196.* At 1632 an after action debriefing was held at the Junction City Elementary School. EM-FC1 was asked to attend.
(Statements: CAPT **[E-2]**, TFLDt **[E-21]**, CRWB2 **[E-25]**, HR **[E-24**]; Records: Com Center Notes_Dispatcher A **[H-30]**, Unit Log, Communications **[H-26]**)

*197.* OSHA was contacted by CI at 1800 on 7/25/08.
(MOI: CI **[F-6]**)

*198.* At approximately 1953 EM-FC1 is notified of FC1 death; CAPT calls NPFMO to report the death of FC1.
(Statement: CAPT **[E-2]**; Record: Government Cell Phone Records **[H-66]**)

*199.* EM-FC1 were taken to Best Western Hotel, Weaverville, CA, by HR and HR asked EM-FC1 to fill out "events of day" statements.
(Statements: HR **[E-24]**, CAPT **[E-1]**, **[E-2]**, FC2 **[E-3]**, FC3 **[E-5]**)

*200.* At morning operational briefing of 7/26/08, multiple resources that had been involved in the extrication of FC1 on 7/25/08 were assigned to same section of Division B that the accident occurred on.
(Statements: CRWB2 **[E-25]**, TFLD **[E-21]**, CRWB2T **[E-36]**)

*201.* On the morning of 7/26/08 EM-FC1 were transported by charter aircraft back to Port Angeles, Washington.
(MOI: WFMO **[F-3]**; Records: Actual Demob 7/26/08 **[H-139]**, Flight Request and schedule [**H-187]**)

*202.* The following felling equipment was on-site: One Stihl chainsaw with a 32" bar; one Stihl chainsaw with a 28" bar; 2 pair of saw chaps; one 2-pound falling axe with 11" handle; one faller's pouch with three 12" wedges and two 8" wedges; and one Dolmar-style saw gas/bar oil container.
(Physical Evidence: Fire Gear and Equipment Inventory **[P-1]**, SAIT Physical Evidence Log **[P-2]**)

*203.* There was one faller's pouch with three 12" wedges and two 8" wedges attached to the chaps FC1 was wearing at the time of the accident.
(Statement: CRWB2t **[E-36b]**; MOI: **[F-43]**; Photo Log: **[Cover Photo]**)

*204.* GSA Type IV Belt First Aid Kit (item # 6545-01-010-7754) does not meet the OSHA 266A standards for logging and felling operations.
(Records: MTDC First Aid Kit Specifications **[H-145]**, OSHA Logging Standards 29 CFR1910.266 **[H-141]**, Logging standard **[H-142]**, GSA First Aid Kit, contents **[H-144]**)

*205.* CAPT was the only qualified driver and engine operator.
(Records: FC1 Personnel File **[H-7]**, FC2 Personnel File **[H-8]**, CAPT Personnel File **[H-9]**, FC3 Personnel File **[H-10]**)

*206.* There was no post-accident site security on the day of the incident. During the night and day shifts, following the accident, the scene was flagged off but crews were allowed to work in the area. The site was allowed to be disturbed and vandalized.
(Statements: SOFRt [**E-14**], SOFt **[E-16]**, SOF **[E-17]**, CRWB2 **[E-25]**, CRWB2t **[E-36]**; MOIs: SEC **[F-17**], SEC **[F-22]**, DRHS **[F-19]**, DIC **[F-33]**, CRWB2t **[F-40]**, SAIT **[F-49]**)

*207.* According to Forest Service Policy the accident site should have been secured. (Records: FSM 6730 – Accident Reporting and Investigation **[H-188]**, FSH 6709.12 Accident Investigation and Reporting **[H-189]**, USDA Forest Service, Accident Investigation Guide, 2005 **[H-190]**, Department of the Interior Department Manual part 485, chapter 7, Incident/Accident Reporting/Serious Accident Investigation **[H-192]**)

*208.* Physical evidence was removed from the scene immediately after the incident. The disturbance of the accident site and removal of physical evidence disrupted and compromised this accident investigation.
(Statements: SOFRt **[E-14]**, CRWB2t **[E-36]**; MOI: SAIT **[F-49]**; Physical Evidence: Fire Gear and Equipment Inventory **[P-1]**, SAIT Physical Evidence Log **[P-2]**)

*209.* The IAP Medical Plan was deficient in identifying alternate methods for ground evacuation. (Example ATV, wheeled litter, etc.)
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*210.* The Medical Plan (ICS 206) does not adequately address helicopter extraction resources, operating capabilities, response times, or procedures.
(Record: IAP 7/25/08, Day (corrected) **[H-57]**)

*211.* There is a written agreement for the use of Military Aircraft; there is no written agreement for the use of USCG Aircraft.
(MOI: ADRF **[F-41]**; Record: CA Military Department Cooperative Agreement **[H-165]**)

*212.* A holder of a Class B Commercial Drivers License must have 8 hours continuous rest prior to driving.
(Record: Federal Motor Carrier Regulations Hours of Service **[H-186]**)

*213.* EM did not have a signed Job Hazard Analysis (JHA) for Driving and Chainsaw Operations.
(Records: Olympic National Park JHAs [**H-155]**, Interagency Standards for Fire and Fire Aviation Operations, 2008, Chap 7 – Job Hazard Analysis **[H-166]**)

*214.* From the time of the arrival for the USCG helicopter over the extraction site, until its departure time en route to Redding, it took approximately 25 minutes.
(Record: TSO 911 Transcript **[H-60]**)

*215.* There is conflict between the agency serious accident investigation protocol and the Safety Officer taskbook. (Record: NWCG Taskbook – Medical Unit Leader, Communications Unit Leader, Safety Officer **[H-185]**, Forest Service, Accident Investigation Guide, 2005 **[H-190]**, Department of the Interior Department Manual part 485, chapter 7, Incident/Accident Reporting/Serious Accident Investigation **[H-192]**)

## Appendix C: CHAIN SAW TECHNICAL REPORT

### General Information:

On July 22, 2008, EM was dispatched to the Iron Complex, Shasta-Trinity National Forest in Junction City, California. EM departed from Port Angeles, Washington and arrived at the Iron Complex Incident Command Post (ICP) the evening of July 23rd. Due to mechanical problems developed en route to the incident, CAPT took the engine to Redding, California to be repaired on the morning of July 24th. EM-CAPT worked in camp. On the morning of July 25, 2008, EM-CAPT were assigned to Division B of the Eagle Fire as a falling module. The assignment was to work in support of crews and engines during mop-up operations clearing hazard trees.

### Relevant Qualifications:

***CAPT*:** Crew *Boss (CRWB), Engine Boss (ENGB), Felling Boss (FELB), C Faller (FALC)*
Qualified: First Aid/CPR, 6/12/08
*Falling Experience: Qualified FALC, 1999*

***FC1:*** *Fire Fighter Type 2 (FFT2), A Faller (FALA)*
*Falling Experience: FALA task book issued June 25, 2008 and completed June 28, 2008*

***FC2:*** *Fire Fighter Type 1 (FFT1), CRWB Trainee (t), ENGB (t), B Faller (FALB)*
Qualified: First Aid/CPR, 6/12/08
*Falling Experience: FALB task book issued July1, 2005 and completed July 21, 2006*

***FC3:*** *FFT2, FALB*
Qualified: First Aid/CPR, 6/12/08
*Falling Experience: FALB task book issued June 1, 2008 and completed July 08, 2008*

### Felling Equipment:

*The following felling equipment that has been verified to have been on site with EM-CAPT*

Stihl Chainsaws
- Model MS-460 with a 32" bar and semi-skip round filed chisel chain.
- Model MS-440 with a 28" bar and semi-skip round filed chisel chain.
2- Saw chaps
1- Falling axe 2 lb. w/ 11" handle
1- Fallers pouch w/ 3-12" wedges and 2-8" wedges.
1- Dolmar style saw gas / bar oil container.

*While it appears that all required PPE was present and available, it is unknown to what extent the required PPE for felling operations was utilized by the crew members.*

**Sequence of events:**

- See Exhibit 3A part 2 for a site diagram.

- Following the morning operational briefing of July 25th, EM-CAPT were identified as an "unassigned" resource. FC1 and FC2 talked with OBDt and were told that EM-CAPT would be assigned as a falling module to Division B of the Eagle Fire (one of the fires in the Iron Complex).
  *(Statement: OBDt **[E-12]** )*

- At the division break out, DIVB assigned EM-CAPT to TFLDt.
  *(Statements: DIVB **[E-7]**, **[E-8]**)*

- The TFLDt assigned EM-CAPT to work the area east from DP 17 down the dozer line toward Dutch Creek Road removing hazard trees in front of the handcrews.
  *(Statement: TFLDt **[E-21]**)*

- After receiving the assignment, EM-CAPT loaded equipment in a minivan obtained the previous day from Ground Support and traveled to DP 17.

- From DP 17, EM-CAPT worked their way down the dozer line, felling an undetermined number of trees, until reaching a point approximately 3280 feet from DP 17.

- At this point a decision was made to fall a ponderosa pine *(Tree 1)* that was 36.7" in diameter, (C class tree) and approximately 125' in height. Down slope from Tree 1 was a 54" sugar pine *(Tree 2)* that had an uphill lean and a large catface on the uphill side. Between Tree 1 and Tree 2 there was a 21" approximately 95' -110' tall Douglas fir *(Tree 3)*.

- Tree 1 was felled downslope. The multiple undercuts present caused Tree 1 to fall 20-40 degrees to the right of its intended lay. In the process of falling, it appears that Tree 1 contacted Tree 3, breaking the top out. As Tree 1 continued to fall, it may have made contact with Tree 2. It was either this contact with Tree 1, or the vibration from Tree 1 hitting the ground, that caused an approximately 120' section of the severely weakened Tree 2 to break off 16' from the ground and fall upslope.

- When this section of Tree 2 hit the ground it broke into at least five pieces. It was one of these sections that impacted FC1 causing severe injuries.

**Technical Assessment of Accident Site**

*Due to the lack of eye-witness accounts, a number of key facts are unclear; therefore actual events have been pieced together from interview statements and evidence at scene. FC2 and FC3 are the only surviving witnesses to the accident and they have not granted interviews to the Serious Accident Investigation Team. While it is impossible to determine at this time who actually fell Tree 1, it is possible for experienced observers to read the stump, the lay of the felled tree, and the felling area to determine how the felling of Tree 1 set into motion the sequence of events that lead to FC1 being injured.*

Starting at DP 17, EM-CAPT proceeded east along the dozer line cutting an undetermined number of hazard trees. When the crew members reached the accident site one of them proceeded to fall Tree 1. Tree 1 was 36.7" at the point of cut. The ponderosa pine, when examined, appeared to be green with no readily apparent defects that would have required it to be felled as a hazard tree.

*Photo 1 Remaining portion of Tree 1*

*The first step in a procedural approach to felling is to survey the tree to be felled and the felling area for any hazards. Tree 2 would have presented a considerable hazard to anyone upslope from its base.*

The chainsaws EM-CAPT had with them had bar lengths of 28" and 32"; the diameter of Tree 1 at the point the cut was made was 36.7". Regardless of which saw was used, the sawyer would have had to cut from both sides of the stump in order to complete the undercut. During this process, the sawyer experienced difficulty in obtaining a single plane, or hinge, across the diameter of the stump. This hinge is critical to the process that directs the tree into the undercut and the intended lay.

*Photo 2 Undercut section of Tree 1*

*Closer inspection revealed that the sloping section of the undercut was not cleaned sufficiently as to provide a single plane across the diameter of the stump. The stump exhibits two distinct horizontal (gunning) cuts and two sloping cuts. Multiple Dutchmen that would have altered the holding wood were also present.*

Due to the multiple horizontal (gunning) cuts and the multi-faceted sloping cut, it is impossible to accurately determine the exact intended lay of Tree 1; however it appears that the intended lay was to be downslope and to the left (looking downslope) of Tree 2 and 3. The sawyer made the decision that the undercut was completed sufficiently to direct Tree 1 into the intended lay, and proceeded with the backcut. As the backcut was initiated, it appears that the tree may have started to fall before the feller was able to get a sufficient amount of the holding wood cut.

*The stump section of Tree 1 and pieces of the undercut section were removed from the site of the accident. Under controlled conditions the cutting sequence was recreated. Photos three and four show the stump of Tree 1 with a saw in place to illustrate the multiple gunning cuts.*

*Photo 3 Stump of Tree 1 with saw illustrating multiple gunning cuts.*

*Photo 4 Stump of Tree 1 with saw illustrating multiple gunning cuts.*

*Photo 5 Backcut section of Tree 1*

*The large amount of holding wood (16" wide) left on the stump can be attributed to Tree 1 starting to fall earlier than expected due to a heavy sidehill lean or a large amount of limb weight. Because of the interaction of the multi-faceted undercut, the Dutchmen present in the undercut and the heavy lean, the tree fell in a sidehill direction, possibly as much as 20 to 40 degrees to the right of the intended lay.*

*Photo 6 Butt section of Tree 1 showing excessive holding wood, two gunning cuts and Dutchmen*

As Tree 1 fell, it is possible that it contacted Tree 3, breaking it off approximately 85' from the ground. *(Statement: CRWB1* ***[E-10]****; MOI: FAL1****[F-20]*** *)*

As Tree 1 continued to fall, it is possible that it contacted the bole or a limb of Tree 2. It was this contact, or the vibration from Tree 1 hitting the ground, that caused an approximately 120' section of the severely weakened Tree 2 to break off 16' from the ground and fall upslope.


*Photo 7 Tree 1 in foreground, Tree 2 is partially obscured in smoke. Bole of Tree 1 is on left and bole of Tree 2 is on right. Smaller stump was cut after accident.*

When this section of Tree 2 hit the ground it broke into at least five pieces. It was a section approximately 8' long and 20" in diameter that impacted FC1 causing severe injuries.

*Photo 8 Section of tree 2 that impacted FC 1*

*It is highly probable that a large cloud of ash and dust was generated when Tree 1 hit the ground. This would have obscured any debris falling toward FC1. Based on the location of the broken pieces of Tree 2 and the known location of FC1 after the accident it was likely that a section of Tree 2, over 8' in length and approximately 20" in diameter, impacted FC1, causing severe injuries.*


*Photo 9 Injury site - section of Tree 2 that likely impacted FC1 is in foreground, stump of Tree 1 is in background.*

The injury site is 35 feet from Tree 1. It is unknown what escape route the faller used and where the faller was when Tree 2 fell upslope. It is also unknown as to why FC1 was in such close proximity to the tree when it fell.

*Photo 10 Tree 5 located next to FC1's injury location*

**Findings:**

- Tree 1 was a class C tree. The stump measured 36.7" in diameter at the point the cut was made.
- The highest saw qualification of any of the crew members present was that of a faller B.
- The undercut of Tree 1 was not cleaned sufficiently as to provide an adequate "hinge" to direct Tree 1 during the felling process.
- The undercut of Tree 1 exhibits two distinct horizontal (gunning) cuts and two sloping cuts. Multiple Dutchmen that would have altered the holding wood were also present. (See photo 2)
- Tree 1 fell away from its intended lay due to lean, possible limb weight, and an inadequately cleaned undercut.
- Tree 1 appeared to have been a sound, green tree with no readily apparent defects that would have required it to be felled as a hazard tree.
- FC1 had not completed First Aid/CPR training. First Aid/CPR training is a prerequisite for S-212 (Wildland Power Saws).
- The JHA for tree felling provided by EM after the accident was not adequate for the activity of tree felling, additionally no evidence could be found to indicate the JHA had been reviewed by EM or a line supervisor.

**Recommendations:**

- Fallers must only fall trees that are within their qualification level, unless being directly supervised by a faller of appropriate qualifications.
- Fallers must survey the cutting area for hazards and identify escape routes/safety zones before the felling operation can commence.
- Fallers must retain control of the cutting area.
  (S-212 identifies the cutting area as *two times the height of the tree being cut*; OSHA Logging Standards 1910.266(h)(1)(iv) states:
  "No employee shall approach a feller closer than two tree lengths of trees being felled until the feller has acknowledged that it is safe to do so, unless the employer demonstrates that a team of employees is necessary to manually fell a particular tree.")
- Undercuts must be completely cleaned.
- Techniques such as boring back cuts and quarter wedging should be considered on leaning trees.

**Policy:**

The following references are the Forest Service and National Park Service policies that address wildland fire training and qualifications for chainsaw use. The Forest Service and National Park Service chainsaw policies differ in many aspects. However, as per the Interagency Standards for Fire & Aviation Operations (Redbook), ***"Employees engaged in fire management activities will continue to comply with all agency specific health and safety policy documents."***

**Forest Service:**

***FSM 5130.3 – POLICY***

1. Wildland Fire Suppression Planning and Operations. Line officers shall conduct wildland fire suppression planning and operations in compliance with Servicewide and interagency wildland fire suppression principles and practices established in the Fireline Handbook; the Firefighters Guide; Interagency Standards for Fire and Aviation Operations; the Incident Response Pocket Guide; the Health and Safety Code Handbook; and the Annual Fire and Aviation Management Operations Plan.

***FSM 5126 – PREPAREDNESS TRAINING AND QUALIFICATIONS***

5126.1 - Minimum Training Requirements

3. Forest Service Employees must meet the minimum standards for training, experience, and physical qualifications listed in FSH 5109.17 prior to being certified for positions.

***FSH 6709.11 - HEALTH AND SAFETY CODE HANDBOOK***

22.48- Chainsaw Operations

***OSHA REGULATIONS (STANDARDS - 29 CFR)***

Logging operations. - 1910.266

**National Park Service:**

***DOI 620 DEPARTMENTAL MANUAL***

1.10 Training and Qualifications.

All personnel will meet minimum wildland fire qualification requirements which are equal to or exceed those recommended by the NWCG.

***REFERENCE MANUAL 18: WILDLAND FIRE MANAGEMENT***

3.1 Program Administration

Individuals will not be assigned to duties for which they lack training and/or certified experience. NPS wildland fire management training is based on criteria specified within the training curriculum approved by National Wildfire Coordinating Group (NWCG). This curriculum is supportive of positions described in the *Wildland Fire Qualification System Guide* (PMS 310-1) Agency-specific position qualification requirements and training are identified in the *Interagency Standards for Fire and Fire Aviation Operations*.

***INTERAGENCY STANDARDS FOR FIRE & AVIATION OPERATIONS (REDBOOK)***

Chapter 13 Firefighter Training & Qualifications – Chainsaw Operators and Fallers
BLM/FWS/NPS – Utilize BLM Faller A/B/C Taskbook

***NPS DIRECTOR'S ORDER #50B: OCCUPATIONAL SAFETY AND HEALTH PROGRAM.***

***NATIONAL WILDFIRE COORDINATING GROUP (NWCG)***

All agencies must meet training standards of S-212-Wildfire Power saws

***INTERAGENCY STANDARDS FOR FIRE & AVIATION OPERATIONS (REDBOOK)***

"Employees engaged in fire management activities will continue to comply with all agency specific health and safety policy documents."
Employees engaged in fire suppression and other fire management activities will comply with standards stated in the NWGC Incident Response Pocket Guide (PMS 461, NFES 1077) and the NWCG Fireline Handbook (PMS 410-1, NFES 0065).

***FIRELINE HANDBOOK (NWCG HANDBOOK 3, PMS 410-1, NFES 0065)***

States on page 59 under felling that:
*"Felling of snags or large Trees (over 20 inches DBH) shall be done by a qualified Class B or C faller. Personnel felling trees less than 20 inches DBH shall be supervised by certified personnel.*
*Tree/snag falling shall meet specific agency faller qualification requirements."*

***INCIDENT RESPONSE POCKET GUIDE (IRPG) (PMS #461, NFES #1077)***

On page 80 the IRPG refers to hazard tree safety, page 81 contains information about procedural chain saw operations. Both these pages outline general guidelines to be followed while conducting operations around hazard trees and while conducting chainsaw operations. Specifically the guide states on page 81:
*"Procedural approach to cutting operations begins with assessing the situation, completing a hazard analysis, and establishing cutting area control."*

**Wildland Fire Chainsaws (S-212)**

For specific references to Agency manuals refer to the following:

**USFS Students**. Refer to the USFS Health and Safety Code Handbook, Chapter 20, Section 22.48B.

**BIA Students.** Refer to Wildland Fire and Aviation Program Management and Operations Guide, Chapter 11.

**USFWS Students.** Refer to service manual 241FW7.38 (7) and (7.4C).

**BLM and NPS Student**. Refer to Interagency Standards for Fire & Aviation Operations (Redbook), the Fireline Handbook and the Incident Response Pocket Guide.

***OSHA REGULATIONS (STANDARDS - 29 CFR)***

Logging standards 1910.266(h)(1)(iv)

No employee shall approach a feller closer than two tree lengths of trees being felled until the feller has acknowledged that it is safe to do so, unless the employer demonstrates that a team of employees is necessary to manually fell a particular tree.

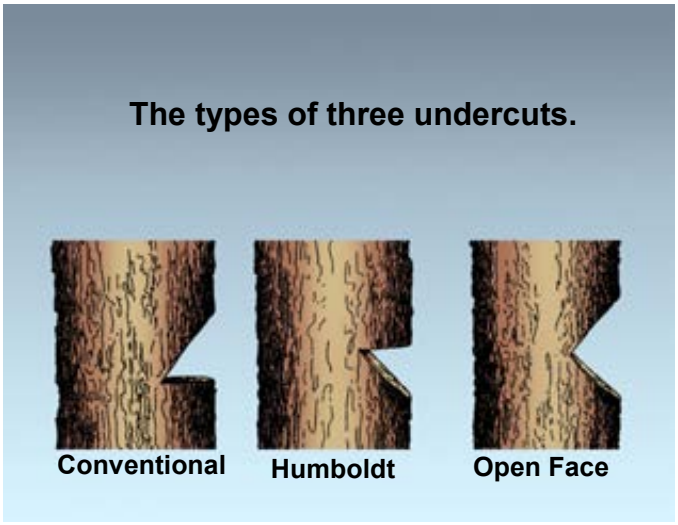
**Glossary:**

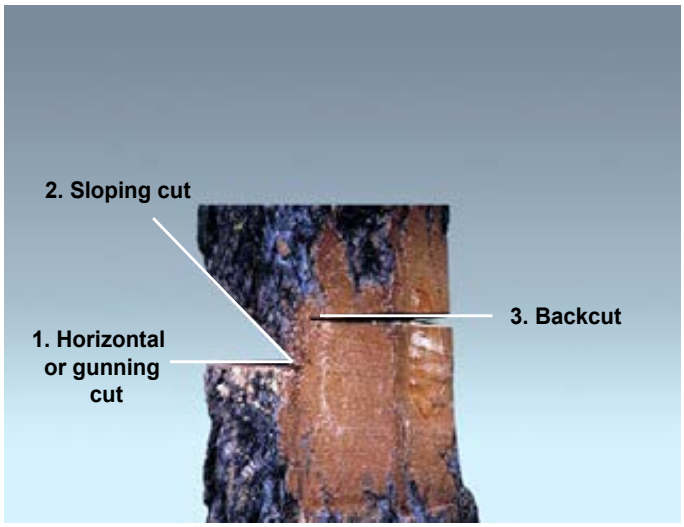
*Horizontal cut:* Initial cut made in bole of tree, the horizontal cut is the gunning or aiming cut to direct the tree to the desired lay. Typically the horizontal cut should be at least 1/3 of the trees' diameter. Also known as the gunning cut.

*Sloping cut:* The second of the three required felling cuts. The sloping cut can be located above or below the horizontal cut and should be angled to provide a wide opening for the tree to fall into.

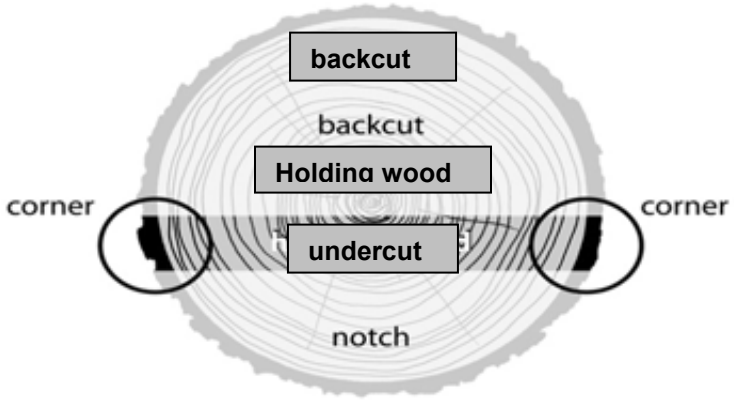
*Backcut:* The last cut in the felling sequence; it is initiated on the opposite side of the tree and above the horizontal portion of the undercut.

*Undercut or Facecut:* A wedge shaped section that is sawn and removed from the tree to be felled. The undercut forms an opening for the tree to fall into guiding the tree into the intended lay. The undercut is formed when the horizontal and sloping cuts are sawn. The two cuts should meet, but not cross each other.

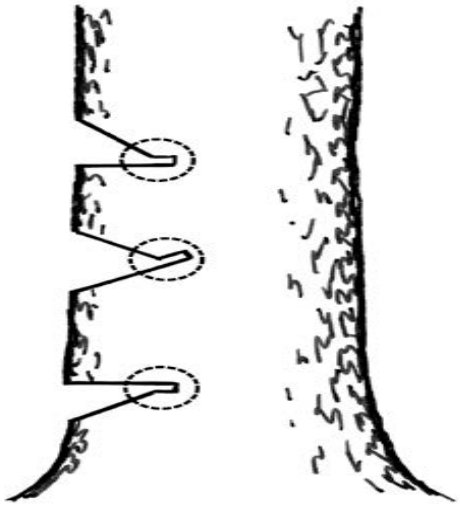


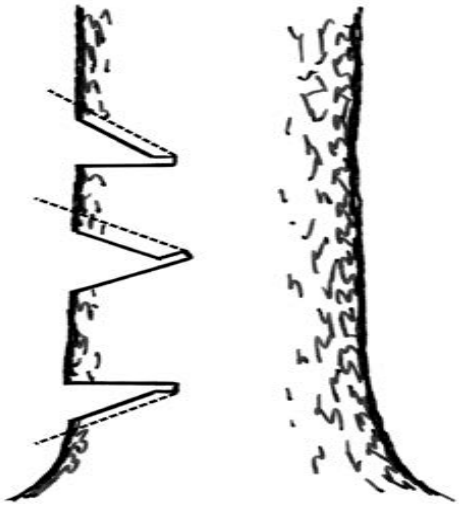
*Holding wood:* A section of wood located between the undercut and the backcut. The holding wood holds the bole of the tree to the stump and guides it into the undercut. The holding should be even across the width of the stump and never be completely severed.




*Dutchman:* A Dutchman occurs when either the horizontal or sloping cut extend past each other. This results in an "undercut within an undercut" that closes before the tree is committed to the undercut causing the holding wood behind it to break prematurely.



**Dutchman In undercut**



**Cuts needed to Correct Dutchmen**

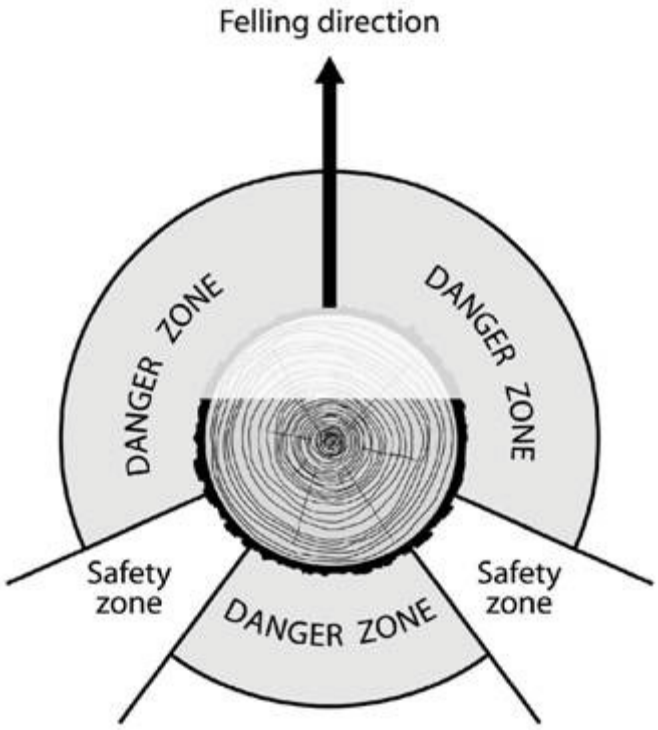
*Boring Backcut:* A felling method that utilizes a back cut where the chainsaw bar is inserted behind the holding wood area and the direction of cut proceeds away from the holding wood toward the back of the tree to fell. This is a particularly good method to use on leaning tress as it prevents the tree from pulling a large amount of holding wood and possibly barberchairing.

Side wedging: A method used to stabilize a leaning tree, and help to guide the tree into the undercut.

Barberchair: Vertical split of a tree during the felling procedure. Commonly a result of improper facing and/or back cutting. Characterized by a portion of the fallen tree being left on the stump.

Catface: Scarred or hollowed section at the base of a tree caused by rot or fire.

Escape Route: A predetermined path of exit used by fallers when felling or bucking. The essential components of an escape route are selection of the desired direction and distance, prior to felling or bucking, and a well cleared path through which to escape.



**Human Factors**

The summer of 2008 was a very active fire season in the western United States, particularly in Northern California. EM was excited to get their first out-of-park assignment. Although EM was on a day off, and out of communication, the resource order was accepted. The departure time was delayed for close to 12 hours due to two crew members being out of phone contact during the day the order was received. The decision was made to begin travel from Port Angeles, WA to Junction City, CA, late in the evening. En route to California the engine had numerous major mechanical problems. In spite of these mechanical issues, EM continued on. Shortly after reaching fire camp, the engine completely broke down and had to be towed to a repair shop. Unable to go out on the line, arrangements were made for EM-CAPT to work in camp, while CAPT accompanied the engine to town and then worked to get a loaner engine from WNRA. Suggestions from NPFMO to "get a job as fallers" while the engine was down, were taken to heart as the young crew was eager to go to work on the fireline. On the morning of July 25, 2008, OBDt received a request for fallers to work in front of mop-up crews on Division B. OBDt had been told by EM-CAPT that EM-CAPT were fallers and knew EM-CAPT were from an area with large timber. When presented with the opportunity to work as fallers, EM-CAPT jumped on it. OBDt recognized EM-CAPT's limited qualifications as fallers, and counseled EM-CAPT on that fact. When EM-CAPT presented themselves as fallers to DIVB at the Division break out meeting, both DIVB and TFLDt assumed EM-CAPT were a class C falling module. At some point during the day, a decision was made to fall Tree 1, a class C tree. Due to inexperience with the felling of large trees, great difficulty was encountered with the undercut. The procedure of getting the undercut in most likely took a fairly long time. When Tree 1 fell in an unexpected direction, setting into motion an unanticipated chain of events, FC1 had limited time to react to the danger. Unable to make it to a safe area FC1 was struck by Tree 2. When FC2 and FC3 realized that their crewmember and friend was severely injured, FC2 and FC3 did their best to help FC1 based on FC2's and FC3's limited experience and training for the emergency situation at hand. FC2 and FC3 continued to remain with FC1, talking and offering encouragement and comfort, during the long process of extracting FC1 from the hill.

Prepared By:
*/s/ Pete Duncan*
Pete Duncan
Lead Instructor/Chainsaw Program Coordinator
Region 5, Northern Operations Area
USDA Forest Service

## Appendix D: TEAM PROCESS

**07/25/08**

1800 CI contacted by RSOM to report fatality on Shasta-Trinity
CI contacted OSHA

**07/26/08**

SAIT team travel to Redding, CA
Find hotel for SAIT lodging
1730 Arrive in Redding, meet with team for initial briefing
1800 Started to gather information for the time line and interview priority list

**07/27/08**

0800 Phone brief with Washington Office
0900 Phone briefings with National Park Service
0930 Briefing with full team with the exception of Chief Investigator
Establish base of operations, i.e., logistical support, who will do the interviewing and work space
Co-Team Leads (TLS) and Team Lead Trainee (TLt) travel to fire Incident Command Post in Junction City to meet Incident Command Team and prepare for team to visit accident scene and conduct interviews with crew members
1000 Council with OSHA
Review witness statements taken by team the day of the accident
Initial review of information packet provided by team
Evidence binders cataloged
JHA was produced by the team safety and signed by all who where scheduled to go to the fire line
1700 Council with OSHA
1900 Initial briefing with Chief Investigator
Brief Regional and Washington Office

**07/28/08**

0630 Travel to Junction City (Incident Command Post)
Part of team visited accident site while others began interviews
Visit accident site
Physical evidence inventoried
Request cell phone records, training records, gas card records from NPS
Arrange for interviews with EM-FC1 from Port Angeles, WA
Collection of documents from ICP
0915 Interview IC
1000 Council with OSHA
1030 Interview MEDL
1230 Authorized Olympic National Park activities release
1305 Phone call to discuss Joint USFS/NPS SAIT delegation of authority with NPSM (NPS Office of the Director)

**07/28/08**

1320 Interview HR
1442 Briefing with National Park Service
1500 Interview P3
Interview USCLO, no time designation
1600 Phone briefing with RF
1638 Interview OBDt
1709 Interview SOFt
Interview CRWB1
1900 Brief RF
1913 Interview SOFRt
2100 Interview CRWB2t
Interview OPS
Interview DIVB
0030 SAIT returns from Incident Command Post

**7/29/08**

0700 Travel to Junction City Incident Command Post
Follow-up interviews
0746 Received final joint USFS/NPS Delegation of Authority
Washington Office Letter to Region
Witness transcripts and photo cataloging
Additional collection of documents from Incident Command Post
Develop site maps
Obtain dispatch logs from SHASCOM and Cost Guard
0800 Brief WOS
0915 Interview IC
1030 Interview WFMO
1144 Interview TFLDt
1252 Interview BRII
1300 Interview WFMO
1400 Council with OSHA
1426 Interview OBDt (2 interviews)
1456 Interview SOFt
1547 Interview CRWB2t

**7/30/08**

0630 Travel to Port Angeles to interview engine crew
0700 Interview P2 and SAR
0820 Brief WOS
1000 Meet with CAPT, FC3, FC2, NPFMO, and AFMO
CAPT, FC3 and FC2 refused to give statements.
1203 Interview NPFMO
1214 Consult with SNPS (phone)
1230 Council with OSHA 2hrs
1300 Interview P1

**7/30/08**

1348 Briefing with National Park Service (phone)
Obtain dispatch logs from Emergency Communication Center
1400 Interview SAR
1446 Consult with Regional SAC about Law Enforcement investigation (phone)
1520 Briefing with DRF
1530 Briefing with WOS
1533 Briefing with NPSD
1550 Briefing with RF
1600 Leave Port Angeles for Redding
1815 Arrive Redding
1830 SAIT conference call to discuss law enforcement implications of case with Forest Service/National Park Service Line/Law Enforcement

**7/31/08**

0623 Phone briefing with WOS
0700 Setting up interview with FLN
0800 Briefing with team
0850 Interview P2
0814 Briefing with National Park Service
0900 Phone call with NPRSA about law enforcement investigation
Phone conference with OSHA
0926 Phone call with NPSA about his role in law enforcement investigation
1018 Interview RA
1054 Follow-up call with NPSA
1115 Review radio logs, timeline, physical evidence.
Develop specialist reports and develop photo evidence log
Obtain 911 log
Additional interviews conducted
1600 OSHA visited SAIT to look at evidence.
1700 Brief STFS and OSHA
Request letter sent to Shasta County Coroner for Autopsy Report
1730 Briefing with National Park Service
1853 Briefing with NPRD

**8/1/08**

0700 Team Briefing
0830 Memorial for FC1 at smokejumper base, Redding, CA
Work on specialist reports and timeline
1010 Phone briefing with National Park Service
1030 Meet with NPSA, SAKNF and SAPNF to discuss transfer of case to Law Enforcement investigation
1105 FLN interview
1300 Meeting between DRF, TLS, and CI
1308 Follow-up phone briefing with NPS
1322 Phone briefing with NPRD

**8/1/08**

1400 Meeting with DRF, TL2, TL1, SAPNF, NPSA and STFS, about law enforcement investigation
1500 Transfer Physical Evidence to Special Agents
1700 Briefing to WOS

**8/2/08**

0700 Briefing with team
0715 Review witness statements
1006 Phone briefing with NPRD
1010 Discussion between team co-leaders regarding release of witness statements
1142 Initial phone consultation with SNPS2 about release of witness statements to Special Agents
1145 TL2 contacts SNPS2 and updates on investigation
1220 Follow-up phone consultation with SNPS2 about witness statements
1300 DS2 in route to home unit
1500 TL1 phone brief DRF on transfer of witness statements to Special Agents
1515 GIS arrives to assist team
1600 Briefing with DRF
1614 Phone consultation with Department of Interior Solicitor's Office about role of US Attorney's role in investigation
1620 Briefing with Forest Service
1630 Copy of documents to transfer to law enforcement
1836 Phone briefing with National Park Service

**8/3/08**

0730 Team Briefing
GIS starts the development of accident scene lay out
Develop a list of facts as of current date
Purchase supplies
0800 Review witness statements
0845 Meeting between TL1, TL2 and TLt to discuss Solicitors' opinions on witness statements
0924 Phone briefing with NPSD about witness statements
0949 Phone briefing with NPRFM about witness statements
1024 Phone message left for NPSM briefing him on witness statements
1215 TECH en route to home unit
1400 Brief DRF
1600 AR departs for home unit
1615 NPML departs for home unit

**8/4/08**

0545 TL2 and NPML travel to Port Townsend, WA for FC1 memorial service
0700 Team briefing
SO and TLt en route to home unit
1000 FC1 Memorial Service at Port Townsend, WA
Work on Time Line

**8/4/08**

Obtain cell phone logs
Work on daily logs
Work on photo log
Work on maps
Start Factual and Management Evaluation Reports template
Brief RFSM
1100 Brief WO
Brief RSOM
1300 UR in route to home unit
1400 Check Coroner's report
1430 TL1 and NPML travel to Redding
1700 Update with team
TL1 contact with SCCOR
1711 Brief DRF
2000 Made copies of witness statements and MOIs for law enforcement

**8/5/08**

0700 TL1, TL2, CI, DS1, GIS, and NPSA made copy of case file and cleaned up meeting room to start to adjourn and meet at an approved date to reconvene to complete the SAIT Factual, and MER Reports.
0740 Discuss witness statement issue with SNPS2
0827 TL1 briefed OGC
0900 Brief STDF and SHFSO
1000 Discuss witness statement issue with NPS Acting Director of Law Enforcement and Security
1015 Discuss witness statement issue with NPSD and Special Agent
1130 GIS en route for home unit
SHFSO written statement to CI, no time designation
1815 NPSD, RF, TL1, and TL2 briefed

**8/6/08**

0730 Team Briefing
GIS returns from home unit
GIS continues development of scene lay out
0800 TL1, TL2, CI and DS1 meet
0830 Brief OGC
Brief RF
1300 Council with OSHA
1600 TL1, TL2 and CI brief with RF and NPSD
Case file was given to National Park Service Special Agent
1640 DS1 left for home unit
1700 Brief RF
Update Daily Log

**8/7/08**

0730 Team Briefing
GIS continues development of scene lay out
0800 TL1, TL2 and CI meet
0830 Brief OGC and WO
1027 CI sent out mail to SAIT about status of disengagement of safety investigation until further notice.
1057 TL1 sent out email to SAIT on process of what will occur and will update SAIT as information is given.
1200 TL1 and TL2 left for home unit
1600 CI left for home unit

**8/8/08**

0938 TL2 sent out email to SAIT

**9/4/08**

0938 TL2 update on LE Investigation

**9/12/08**

Team update on LE Investigation

**9/19-22/08**

Messages sent requesting extension to complete Chiefs Level SAI safety investigation, Dutch Creek Incident, Region 5
Request granted

**9/22/08**

FC1 Scholarship Fund established

**9/29/08**

Chief Investigator (CI) invited to participate in the after action discussion with R5 Law Enforcement and R5 Fire Safety by TL1

**11/12/08**

1300 WO conference call with SAIT, law enforcement and WOS to review SAI process

**12/5/08**

CI contacts TL1 and TL2 about witness statements

**1/26/09**

Heads-up from RSOM that Federal Prosecutor issues a Declination of Criminal Charges related to the death of FC1. TL1 confirms

**1/27/09**

TL1 Briefed Shasta-Trinity National Forest on re-engagement of SAIT

**1/28/09**

CI, TL1 and TL2 to set up a conference call about the restart of the SAIT Investigation

**2/2/09**

TL1 update on moving safety investigation forward

**2/4/09**

TL1 sends out email to inform WO and RO of re-engagement of SAIT in March
CI sends out email about Dutch Creek SAIT re-engagement

**2/11/09**

TLS and CI conference call and make final decision to re-engage SAIT March 6th 2009
CI sends out email to TLS, TLS send out email to full SAIT

**2/20/09**

Shasta-Trinity National Forest and OSHA conference call for accident close-out

**2/29/09**

TL1 briefed Shasta-Trinity National Forest on re-engagement of SAIT

**3/4/09**

TLS and CI meet in Sacramento, CA, Marriott TownPlace Suites, Cal Expo

**3/5/09**

Travel day for remaining SAIT

**3/6/09**

Full SAIT meets in Sacramento and reconvenes
Team in brief with TL1, TL2, TLt and CI
Team reviews file as received from law enforcement
Update filing system
CI continues development work on SAIT Narrative and Executive Summary
Development of facts
Update Time Line
Follow up with witness interview IC
Follow-up with phone records & medical reports

**3/7/09**

Briefing with WO
Briefing with RF
Team continues to review accident file & starts on SAIT report
Phone interviews with CRWB1, FAL1 and FAL2
Chain saw evaluation section of SAIT Report
Work on Time Line
Read and update Facts
Print and update Map corrections

**3/7/09**

Work on getting records
Plan site visit

**3/8/09**

Team continues to review accident file and starts on SAIT report
Phone interviews with SEC and BS
Continue development of Time Line
Update Daily Log
Add air photos
Continue reading reports, statements, & technical report
Memorandum of Interview (MOI) phone with FAL1
Obtain Forest Service Chain Saw Policy
Obtain OSHA Regulations for field first aid kits
Obtain Park Service Regulations on Chainsaw operations
Military first aid kits specifications
Obtain IC records
Complete MOI's (3)
Plan for Redding visit to obtain Iron Complex Files & Records

**3/9/09**

Team continues to review accident file and starts on SAIT report
Phone interviews with SEC and FAL1
Obtain CPR, First Aid records for EM
Continue developing maps for report
Continue working on Chainsaw Technical Report/adding photos/site map/address first aid and CPR
Redding visit to obtain Iron Complex files and records
Continue to work on Facts
GIS departs for home unit

**3/10/09**

Briefing to WO
Briefing to RF
MOI phone with USCLO, OBDt, DRHS and CAPT
Organize case records file
Continue Time Line development
Research first aid kit information
Continue Facts development
Obtain International dealer information/receipts
Obtain SafeNet information
Obtain IC Team information
Obtain credit card information
Obtain IAP's
Follow-up interviews
Continue development of Executive & Narrative Summary

**3/10/09**

Obtain telephone bills
TL1 departs for home unit

**3/11/09**

MOI phone interviews with CRWB2, THS, HHSFB, NPSA2, and HHS
Continue with Time Line
Complete MOI's
Mail witness statement
Follow-up interview with CRWB2
Continue with Map process
Work on narrative
Continue Chainsaw Technical Report development
Make plans for site visit on Friday
Obtained SafeNet filings (3)
Request IC Team incident within an incident Standard Operating Procedures (SOP) and overall SOP for Team

**3/12/09**

Site visit
Finalize maps
Organize case files
Review statements and MOI's
Follow up on missing documents
Contact North Ops to obtain USCG information
Obtain National Park Service vehicle breakdown protocol
Obtain medical information from Mercy Air
Obtain credit card records
Request IC Team incident within an incident SOP and overall SOP for Team

**3/13/09**

Brief WO
Brief RF
MOI phone with TFLDt
Obtain JHA's on felling & driving, tail gate sessions
Continue Time Line development
Review Work/Rest guidelines related to EM
TL1 returns from home unit
1822 MOI phone interview with CRWB2t
Complete additional MOI's
Obtain additional IAP's
Obtain agreement with National Guard helicopter
Continue Facts development
CI and GIS continues work on SAIT Narrative and Maps
Review Management Evaluation Report

**3/13/09**

GIS returns from home unit

**3/14/09**

Brief WO
Brief RF
Review and finalize witness statements
GIS finalize maps
Continue development of Chainsaw Technical Report and Facts Report
Work on filing and witness statements
Obtain MTDC first aid kit information
Edit to Factual Report
Obtain additional telephone records from National Park Service

**3/15/09**

Update Facts report
Continue Time Line and Facts reports review
Obtain additional SOP's from National Park Service
Sign witness statements
Request Extension for SAIT investigation to WO
Schedule conference call with WO for update

**3/16/09**

Obtained Medical SOP from IMT
MOI phone with ACA and RASO
Continue reviewing witness statements
Log in Box documents checked, cataloged and updated
Continue Facts review
Schedule update date meeting and complete letter of extension
GIS makes final MAP updates
TLt and GIS depart for home units
Team review of factual report

**3/17/09**

Brief WO
Brief RF
Brief DRF
MOI phone interview with COML and DIC
File witness statements and update log in box documents
Request Area Command Aviation Coordinator's Iron Complex Team records
TL1 departs for home unit

**3/18/09**

Brief WO
Brief RF
MOI phone interview with COMD and RHOS

**3/18/09**

File witness statements
Review and finalize witness statements
Read and edit report
Develop individual thoughts on findings

**3/19/09**

Brief WO
Brief RF
0830 MOI phone interview with International Service Representative (Redding)
Print 2008 Red Book information
Obtain crew driving qualifications & defensive driver training records
Continue Time Line and Facts review
Review Chainsaw Technical Report
Started Causal and Contributing Factors Report
SAIT requests ground transportation unit log (7/25/08)
Second request for Area Command Team 4 Aviation Coordinator's records

**3/20/09**

MOI phone interview with RFM
SAIT day off (14 day)
TL1 receives incident within an incident SOP from IC Team
TL1 email to WOS to plan ARB in April
TL1 returns from home unit

**3/21/09**

Obtain IC Team incident within an incident SOP
Finalize and sign witness statements
GIS update and finalize Map Report
1050 MOI phone interview with AIR
Continue work on Factual Report
Final edit Chainsaw Technical Report
Update witness designator list
Update and alphabetize witness designator list
Continue Time Line and Facts review
Update Daily Log

**3/22/09**

Continue Facts record review
1454 MOI phone interview with CRWB2t
1545 MOI phone interview with CRWB2t
Search for air quality and visibility information for 20-26 July timeframe
Review and finalize Chainsaw Technical Report
Review and finalize Timeline Report
Update Daily Log
TL1 departs for home unit

**3/23/09**

GIS review of SAIT Narrative and Timeline Report
Continue Facts record review
TL1 briefing with RF, DRF and WOS

**3/23/09**

TL2 requests EM information from local unit
Requests defensive driving training records, Class B certificate, Job Hazard Analysis documenting work related safety tailgate secessions, First-aid training certificates and driving records from EM's Unit Fleet Manager
TECH update Chainsaw Technical Report
1100 TL1, TL2 and CI, Accident Review Board (ARB) conference call with WOS to confirm 6 May date
1314 Redding Airport Instrument Flight Rules (IFR) information from NCSC-NOPS
1513 Shasta County Air Resources Board sends link for Air Quality information
MOI phone interview with RFSM
MOI phone interview with TFLDt
Update Daily Log

**3/24/09**

TECH departs for Region 5 Saw Meeting McClellan California
TL1 review Chainsaw Technical Report, Timeline Report and Facts Report
TL1 requests Delegation of Authority letter from STFS to IC
TL1 briefing with DRF
TL2 MOI phone interview with Law Enforcement and NPSM
CI MOI phone interview with FAL1 and CRWB2t to clarify SAIT questions
SAIT start on Findings Report
Update Daily Log

**3/25/09**

SO departs for home unit, am
CI and GIS continue work on SAIT Narrative
TECH returns from Region 5 Saw Meeting McClellan California, pm
SAIT continues development of Findings, Causal, Contributing, Recommendations and Other Findings Reports
TECH review and finalizes incident site visit MOIs for 7/28/08 and 3/9/09
TL1 briefing with RF and WOS
TL1 requests Delegation of Authority letter from STFS to IC
TL1 requests Radio/Telephone Logs for 7/25/08 to 8/01/08 Iron Complex from STFS
TL2 and CI MOI phone interview with Nor Cal EMS
Update Daily Log
UR departs for home unit, pm

**3/26/09**

TECH final updates to Chainsaw Technical Report
TL1 requests Delegation of Authority letter from STFS to IC
TL1 receives Delegation of Authority letter from STFS to Area Command to IC
TL1 receives Radio/Telephone Logs for 7/25/08 to 8/01/08 Iron Complex
TL1 briefing with RF and WOS

**3/26/09**

SAIT review, finalize Report Narrative and Executive Summary
SAIT continues development of Findings, Causal, Contributing, Recommendations and Other Findings Reports.
TL2 departs for home unit, pm
Update Daily Log

**3/27/09**

TLt departs for home unit, am
UR returns from home unit, am
TL1 briefing with RF and WOS
CI and TL1 obtain key for McClellan Business Center from RFSM
TECH final draft Chainsaw Technical Report
TECH develops Safety Alert for GSA Type IV First-Aid Kit content update
TECH develops Lessons Learned for training on saw limits and accepting assignments
DSI update SAIT Case File
CI updates SAIT Photo Log and starts Final SAIT Report Development
CI and DSI final updates to Report: Executive Summary, Narrative, Photo Log, Findings/Other Findings, Causal/Contributing Factors, Recommendations and Witness Designator List.
CI and TL1 develop list for thank you notes
Update Daily Log

**3/28/09**

TL2 returns from home unit, am
TECH completes Chainsaw Technical Report
TECH develops Lessons Learned for training on saw limits and accepting saw assignments.
DSI update SAIT Case File
TL1 briefing with RF and DRF
CI completes SAIT Photo Log and starts Final SAIT Report Development
Complete Report: Executive Summary, Narrative, Findings/Other Findings, Causal/Contributing Factors, Recommendations and Witness Designator List.
CI and TL1 develop list for thank you notes
Purchase final office and duplication supplies
TL2 departs for home unit, pm
Update Daily Log

**3/29/09**

CI, TLS and SAIT final review of Draft Factual and Management Evaluation Report
TL2 returns from home unit, am
CI and TL1 write thank you notes
TECH departs for home unit, pm
TL2 departs for home unit, pm
TL1 departs for home unit, pm
Update Daily Log

**3/30/09**

TL2 returns from home unit, am
TL2 departs for home unit, pm
Update Daily Log.
CI and TL1 send thank you notes
CI and TLS briefing with RF and WOS
GIS departs for home unit, pm
TL1 returns from home unit, pm
UR departs for home unit, pm
CI to retain package for later shipment to WOS

**3/31/09**

CI and TL1 send thank you notes
CI briefing with TLS
CI and DS1 depart for home units, am

**4/01/09**

RFSM send thank you to SAIT

**4/06/09**

TL2 briefing with US Attorney's Office
TL2 briefing with TL1 and CI on process of interviewing FC2 and FC3
CI receives CAPT witness statement

**4/07/09**

CI sent WO Safety Alert for type IV belt first aid kit created by SAIT

**4/08/09**

CI sent TL1 and TL2 email about rescheduling ARB

**4/09/09**

TL1 updated TL2 and CI on plans ARB in July

**4/10/09**

TL1 updates TL2 and CI on plan to have final Factual and Management Evaluation Report in mail by 6/1/09

**4/13/09**

CI sent email to TL1, TL2, SAIT, RF, DRF, STFS, RSFM, WO on updated that final report will be in mail by 6/1/09.

**4/14/09**

WO concurs with plans to hold ARB 7/1/09
CI receives CRWB2t witness statement

**4/21/09**

CI sends email to TL1 and TL2 to schedule SAIT to review final report as a group

**4/23/09**

TL2 updated TL1 and CI on status for interview process of FC2 and FC3

**4/27/09**

CI emails SAIT to reconvene 5/15-18/09 to review, finalize, and bind reports
TL2 briefing with US Attorney's Office

**5/12/09**

CI emails SAIT a reminder to reconvene 5/15-18/09
WO updated CI on status of bringing Type IV Belt first aid kits up to compliance
TL2 briefing with US Attorney's Office

**5/14/09**

1400 TLt arrived
1600 CI, UR, and SO met in Sacramento, CA, Marriott TownPlace Suites, Cal Expo, set up meeting room
2000 GIS arrived

**5/15/09**

0800 CI, SO, GIS, TLt, and TECH meet
0845 TL2 arrived
0900 UR arrived
1100 TL1 arrived
SAIT reviewed final Factual Report

**5/16/09**

0800 SAIT reviewed final Factual Report and Management Evaluation Report
1100 DS1 arrived
Copy records for report

**5/17/09**

SAIT reviewed final Factual Report and Management Evaluation Report
Copy records for report
TL2 returns to home unit

**5/18/09**

SAIT bind and prepare report for shipping to WO
SAIT duplicate (**Five**) Draft Factual and Management Evaluation Reports
CI package for shipment and FedEx **(Five Copies)** of Draft Factual and Management Evaluation Report with SAIT Case File
DC1, GIS, UR, TECH, SO, TL1 returns to home unit

**5/19/09**

CI and TLt return to home unit

**7/01/09**

TLS, TLt and C1 conduct ARB in WO (Yates Building), Chief's Conference (McArdle) Room, from 1000 to 1700 EDT