# 2013

# Participant Guide

Prepared By: Gabe Donaldson

## [MUDD FIRE STAFF RIDE AUGUST 23RD, 2006]

## Outline:

***0830-0845:*** *Introductions*
***0845-0930:*** *Mudd Fire Summary, Outline, Pre-Mortem and PowerPoint*
***0830-0930:*** *Travel to the "Adobe Summit and Point of Origin"/ Stand #1*
***1030-1130:*** *Travel to the "The Snow-Bowl Y and Division Delta"/ Stand #2*
***1130-1300:*** *Travel to the "Seismic Station Road and the Entrapment" / Stand #3 / Hike to deployment site from seismic towers (~3/4 miles roundtrip)*
***1300-1400:*** *Travel back to Elko/ AAR/ Lessons Learned/Integration*

## Acknowledgments:

The Mudd Fire Staff Ride is the collective effort of the Elko District Fire and Aviation Program, including Gabriel Donaldson, Brian Deck, Dylan Rader, Craig Cunningham and Glen Uhlig. We would also like to acknowledge and thank those who contributed to the accident investigation and report.

## Introduction:

Northern Nevada was experiencing a record breaking fire season in 2006 with resources from throughout the nation either responding to incidents or staging in the Elko area. The Mudd fire started on August 23, 2006 at approximately 14:59 PST from diesel exhaust just northwest of Adobe Summit on state route 225. Interagency suppression forces were dispatched to the reported fire, 10 miles North of Elko, NV along State Route 225. Rapid fire growth and rugged topography dictated the need for several access routes into the emerging incident. With ground resources rendezvousing at different points around the fire, coordination of suppression tactics became increasingly difficult and some communication channels were either compromised or non-existent. The conditions and events that occurred during the Initial Attack phase of the Mudd Fire would, in the end, lead to a fire entrapment situation.

It is the hope that participants will have a broader understanding of the events leading up to the entrapment by walking through the Nevada fire situation, the events surrounding the choice to engage, the organization on the fire and division Delta and the events that led to the entrapment. It is the intent of this staff ride to explore all aspects of the decision making and risk management process as well as ask questions that aid in the development of every participant as firefighters. The Accident Investigation Factual Report and the Management Evaluation Report both serve as outstanding references and tools for understanding the specifics of the event (s), but there is also a great deal of value in seeing the terrain first hand, and understanding the position of the responding resources, leaders, managers and administrators.

Finally, it is the hope that participants and facilitators alike can apply and study many of the principles of High Reliability Organizing in order to contrast past and contemporary approaches to risk management.

# Introduction: "2006 Fire Season Overview and Entrapment Situational Analysis"

**Leader's Intent:** Through a PowerPoint presentation participants will have a broad understanding and frame of the Nevada fire situation in August, 2006 as well as the response and scope of the Mudd Fire.

**Location: Hotshot Training Room or Elko Interagency Dispatch Center**

**Summary:** This stand will give a broad overview of Elko District's fire activity, fuel and weather conditions encountered during the 2006 fire season as a prelude to the actual conditions observed on August 23, 2006. A PowerPoint presentation will include a thorough breakdown of the initial attack phase, evolving chain of command & complexity, communications, suppression forces locations and key decisions and events leading up to the Mudd Fire entrapment. Discussion of applicable Standard Fire Fighting Orders, LCES, and Watch Out Situations will follow presentations. Participants should have a full understanding of the scenario before travelling to the subsequent stands.

Please discuss any specific tactical or strategic questions or concerns you have, as if you were responding to this incident, with the Staff Ride Facilitator. Please fill out the "Situational Awareness Workbook" to track existing and missing S.A. components.

# Situational Awareness Workbook

- NOTES SECTION (FACILITATOR VERBAL DESCRIPTIONS AND QUOTES FROM INVESTIGATION REPORT)
- STAND DESCRIPTION WITH WRITTEN DATA/TIMELINE/DISPATCH COMMUNIQUES FOR THAT STAND
- BULLETS; CRITICAL DECISIONS, MOVEMENTS, ETC (FACILITATOR REMINDERS FOR DISCUSSION POINTS)
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TRACK IMPROVED SITUATIONAL AWARENESS FACTORS

*List any pertinent information or observations made in this stand*

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| Identified Hazards | | Mitigations | |
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**Incident Complexity Analysis (Type 3, 4, 5)**

| Fire Behavior | Yes | No | Organization (continued) | Yes | No |
|---|---|---|---|---|---|
| Fuels extremely dry and susceptible to long-range spotting or you are currently experiencing extreme fire behavior. | | | Unable to properly staff air operations. | | |
| Weather forecast indicating no significant relief or worsening conditions. | | | Limited local resources available for Initial Attack. | | |
| Current or predicted fire behavior dictates indirect control strategy with large amounts of fuel within planned perimeter. | | | Heavy commitment of local resources to logistical support. | | |
| **Firefighter Safety** | | | Existing forces worked for 24 hours without success. | | |
| Performance of firefighting resources affected by cumulative fatigue. | | | Resources unfamiliar with local conditions and tactics. | | |
| Overhead overextended mentally and/or physically. | | | **Values to be protected** | | |
| Communication ineffective with tactical resources or dispatch. | | | Urban interface; structures, developments, recreational facilities, or potential for evacuation. | | |
| **Organization** | | | Fire burning or threatening more than one jurisdiction and potential for unified command with different or conflicting management objectives. | | |
| Operations are at the limit of span of control. | | | Unique natural resources, special designation areas, critical municipal watershed. T&E species habitat, cultural value sites. | | |
| Incident action plans, briefings, etc. missing or poorly prepared. | | | Sensitive political concerns, media involvement or controversial fire policy | | |
| Variety of specialized operations, support personnel or equipment. | | | ***If you have checked "Yes" on 3 or more analysis boxes – consider next level of incident management support.*** | | |

# Stand #1: "Adobe Summit and Point of Origin"

**Leader's Intent:** Through active discussion and observation, participants will have a broad understanding of the direction of fire, fire behavior, resources responding, point of origin, trigger points for engagement and subsequent stand locations. Prior to leaving this stand, participants will have a general understanding of the fire's direction of spread, as well as differences between operations at the point of origin and division Delta.

**Logistics:** This stand should give the participants an excellent perspective from which to visually assess all key sites of the Mudd Fire while demonstrating how topography, fire activity and weather conditions may have played a role in how later events unfolded.

**Stand Location:**

**40® 54' 08.34" x 115 52' 37.78" - Elevation: 6561'**

**Summary:** The Mudd Fire Incident Commander, Elko Helitack, and the Elko District Tatra (1932 at the time and the last available engine in Elko) were working to build and establish an anchor at the point of origin off of State Route 225, northwest of Adobe Summit. A division had been established at the heel, led by the Elko Fire Operations Supervisor and another had been identified (Division Delta) near the head of the fire, southwest of the ridgeline above the Elko "Snow-Bowl". Multiple resources were responding to Division Delta, including 2 CDF Strike Teams and a BLM Task Force of Engines; other Elko City resources were in and around the Adobe Heights subdivision southeast of the fire. SEATS, Air Attack and the Elko Helicopter were still operational, despite the increasing winds and wind gusts, but visibility on the Northwest part of the fire was waning. Air Operations at the tactical level would cease at 1642.

Utilize the information you have gained so far to fill out the "Situational Awareness Workbook" and consider some concerns you have at this time. Also, take this time to discuss some of the Tactical Decision Games and Strategic Talking Points presented by your facilitator.

# Situational Awareness Workbook

- NOTES SECTION (FACILITATOR VERBAL DESCRIPTIONS AND QUOTES FROM INVESTIGATION REPORT)
- STAND DESCRIPTION WITH WRITTEN DATA/TIMELINE/DISPATCH COMMUNIQUES FOR THAT STAND
- BULLETS; CRITICAL DECISIONS, MOVEMENTS, ETC (FACILITATOR REMINDERS FOR DISCUSSION POINTS)
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TRACK IMPROVED SITUATIONAL AWARENESS FACTORS

*List any pertinent information or observations made in this stand*

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| Identified Hazards | | Mitigations | |
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**Incident Complexity Analysis (Type 3, 4, 5)**

| Fire Behavior | Yes | No | Organization (continued) | Yes | No |
|---|---|---|---|---|---|
| Fuels extremely dry and susceptible to long-range spotting or you are currently experiencing extreme fire behavior. | | | Unable to properly staff air operations. | | |
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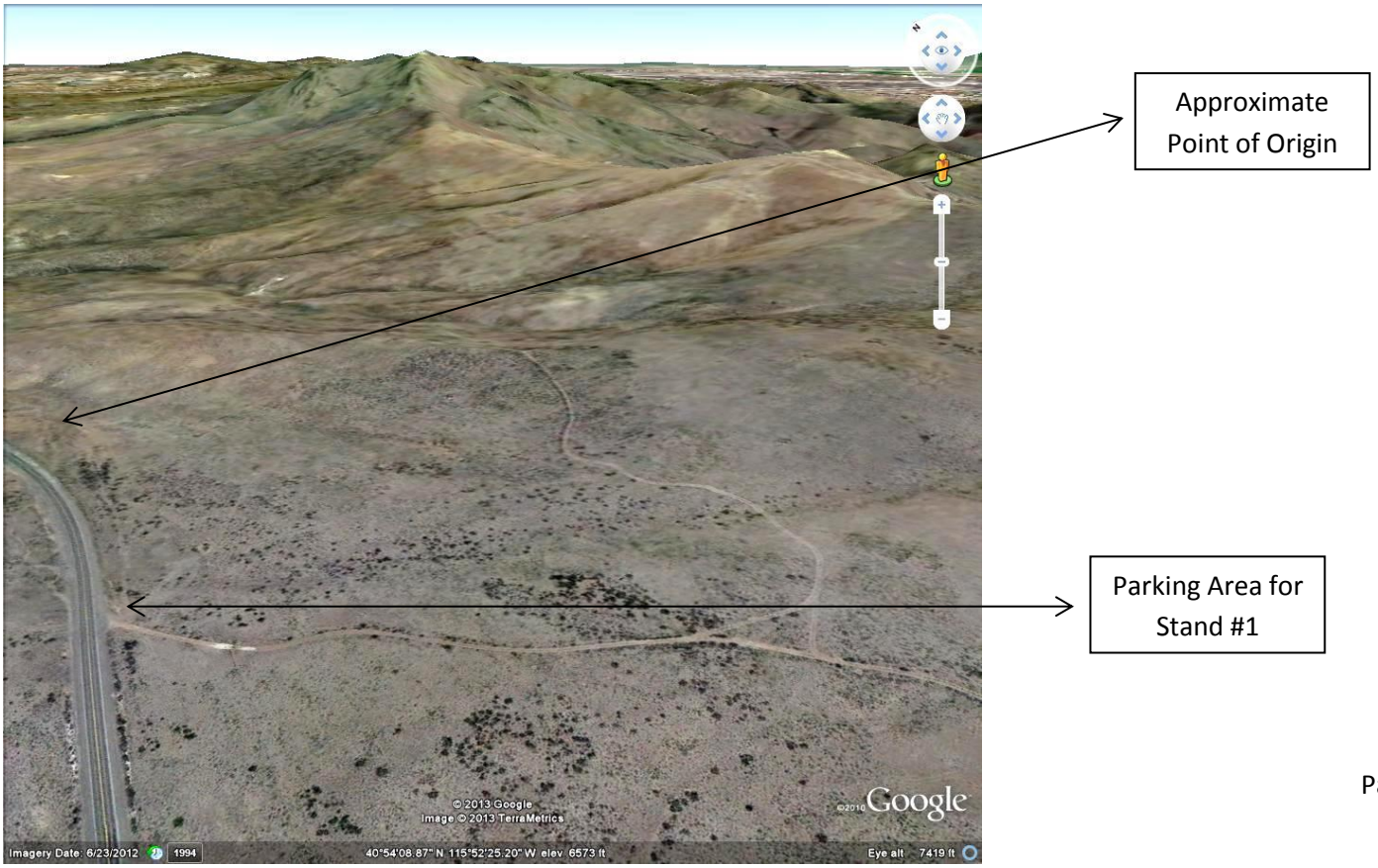
| **Firefighter Safety** | | | Existing forces worked for 24 hours without success. | | |
| Performance of firefighting resources affected by cumulative fatigue. | | | Resources unfamiliar with local conditions and tactics. | | |
| Overhead overextended mentally and/or physically. | | | **Values to be protected** | | |
| Communication ineffective with tactical resources or dispatch. | | | Urban interface; structures, developments, recreational facilities, or potential for evacuation. | | |
| **Organization** | | | Fire burning or threatening more than one jurisdiction and potential for unified command with different or conflicting management objectives. | | |
| Operations are at the limit of span of control. | | | Unique natural resources, special designation areas, critical municipal watershed. T&E species habitat, cultural value sites. | | |
| Incident action plans, briefings, etc. missing or poorly prepared. | | | Sensitive political concerns, media involvement or controversial fire policy | | |
| Variety of specialized operations, support personnel or equipment. | | | ***If you have checked "Yes" on 3 or more analysis boxes – consider next level of incident management support.*** | | |

Elko "Snow-Bowl"
Direction of Fire Spread
© 2013 Google
©2010 Google
Imagery Date: 6/23/2012
1994
40°54'19.54" N 115°52'08.53" W elev 6550 ft
Eye alt 9672 ft


Approximate Point of Origin
Parking Area for Stand #1
© 2013 Google
Image © 2013 TerraMetrics
©2010 Google
Imagery Date: 6/23/2012
1994
40°54'08.87" N 115°52'25.20" W elev 6573 ft
Eye alt 7419 ft

# Stand #2: "The Snow-Bowl Y and Division Delta"

**Leader's Intent:** Participants will have a clear understanding of the organization that was formed at the Division Delta meeting point (at the end of the Snow-Bowl road) as well as the scouting group that was formed; discussion will focus on chain of command, span of control and human factors influencing situational awareness.

**Logistics:**

**N 40® 53' 31.03" X 115® 49' 46.07" - Elevation: 5843'**

**Location: The Snow-Bowl "Y" on 5th Street**

**Summary:** A strike team of engines (E263 out of Kingman, AZ, E1947 out of Carlin, NV, E3943 out of Carson City, NV and E3144 out of Bakersfield, CA), made their way into a meeting point at the intersection of 5th Street and the road leading into the Elko "Snow-Bowl" (a local seasonal skiing area with ski lift). This area came to be identified as the "Snow-Bowl Y" and is the location of Stand #2. After arriving at the "Y" and speaking with Division Delta, the Engine Boss for 1947 became the Task Force Leader for the group of Engines. Engine 263 is accompanied by a chase vehicle and a scouting unit was formed from the engine bosses (and one crewmember) of E263, E1947, and E3144. While the Engine Bosses depart in the chase vehicle to try to identify options for burning out, the remainder of the Engine Operators and Crewmembers stay at the "Snow-Bowl Y" with the Engine boss of E3943.

After scouting roads near the seismic towers and the "Eight Mile Creek Crossing", The Task Force Leader (Engine Boss for 3144) calls the engines that are staged at 5th street and Snow-Bowl road to advance towards the scouting party's position. At this time the fire has split into two prominent heads, one of which is not seen by the scouting party or advancing engines. E3144 takes the lead in advancing towards the scouting party, and they turn left, beginning to advance up the Eight Mile Creek Road. E3144 quickly outpaces the remaining engines, and the scouting party reports that fire is advancing towards the engines location and 5th Street. The three engines located behind E3144 find a turn-around spot and head towards a safety zone adjacent to the Eight Mile Creek Road and 5th Street Junction and in view of the seismic towers to the north. Communication with E3144 had fallen off at this point, and they did not receive (or acknowledge) the call to turn around. Instead, they turned right (north) off of the Eight Mile Creek Road, and advanced up a primitive road towards a ridgeline shared with the seismic towers in line with the advancing fire.

# Situational Awareness Workbook

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- STAND DESCRIPTION WITH WRITTEN DATA/TIMELINE/DISPATCH COMMUNIQUES FOR THAT STAND
- BULLETS; CRITICAL DECISIONS, MOVEMENTS, ETC (FACILITATOR REMINDERS FOR DISCUSSION POINTS)
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TRACK IMPROVED SITUATIONAL AWARENESS FACTORS

*List any pertinent information or observations made in this stand*

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| Identified Hazards | | Mitigations | |
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**Incident Complexity Analysis (Type 3, 4, 5)**

| Fire Behavior | Yes | No | Organization (continued) | Yes | No |
|---|---|---|---|---|---|
| Fuels extremely dry and susceptible to long-range spotting or you are currently experiencing extreme fire behavior. | | | Unable to properly staff air operations. | | |
| Weather forecast indicating no significant relief or worsening conditions. | | | Limited local resources available for Initial Attack. | | |
| Current or predicted fire behavior dictates indirect control strategy with large amounts of fuel within planned perimeter. | | | Heavy commitment of local resources to logistical support. | | |
| **Firefighter Safety** | | | Existing forces worked for 24 hours without success. | | |
| Performance of firefighting resources affected by cumulative fatigue. | | | Resources unfamiliar with local conditions and tactics. | | |
| Overhead overextended mentally and/or physically. | | | **Values to be protected** | | |
| Communication ineffective with tactical resources or dispatch. | | | Urban interface; structures, developments, recreational facilities, or potential for evacuation. | | |
| **Organization** | | | Fire burning or threatening more than one jurisdiction and potential for unified command with different or conflicting management objectives. | | |
| Operations are at the limit of span of control. | | | Unique natural resources, special designation areas, critical municipal watershed. T&E species habitat, cultural value sites. | | |
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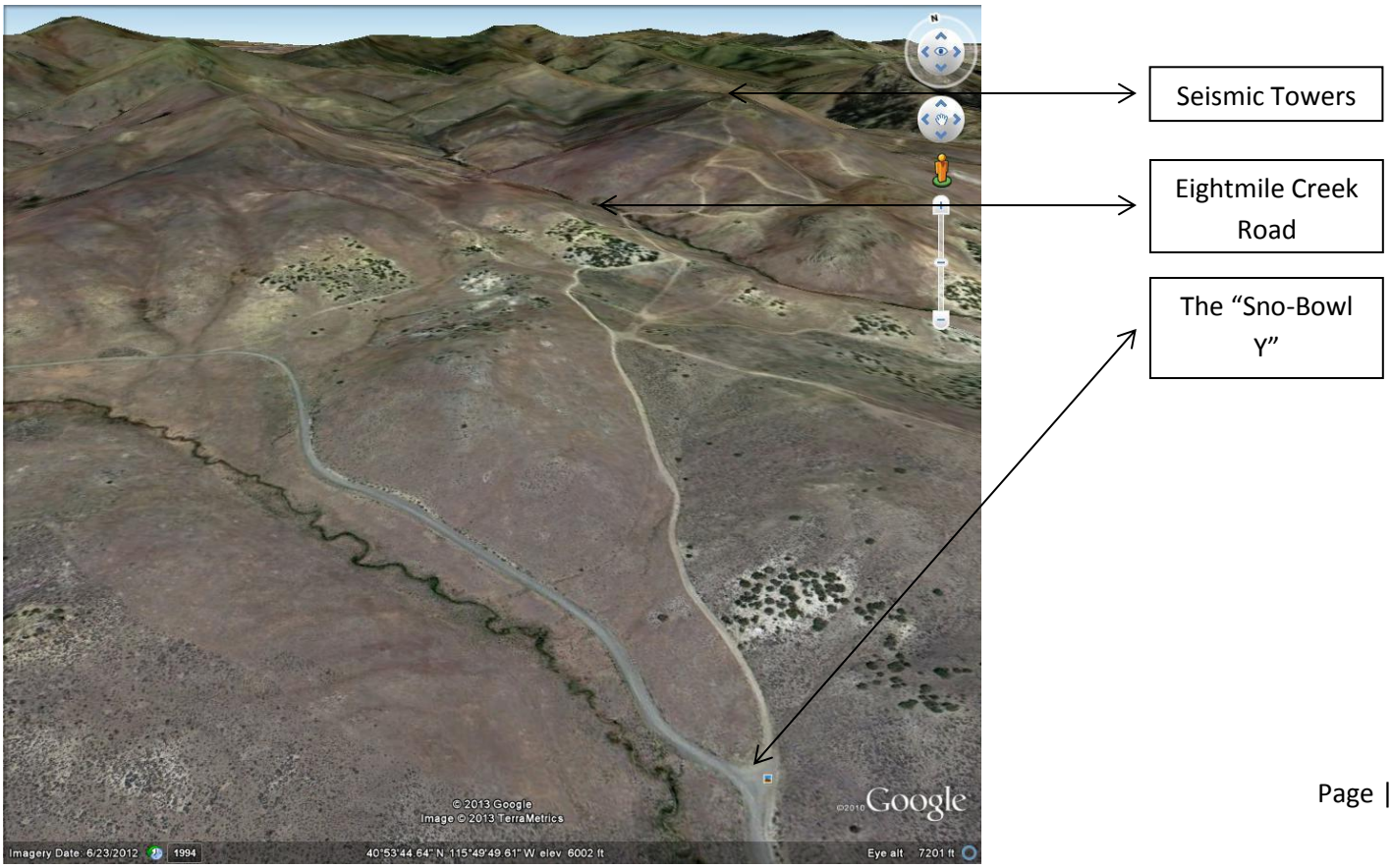
Elko "Snow-Bowl"
The "Snow-Bowl Y"
© 2013 Google
Image © 2013 TerraMetrics
Google
Imagery Date: 10/5/2012
1994
40°53'48.95" N 115°50'02.46" W elev 5919 ft
Eye alt 10528 ft


Seismic Towers
Eightmile Creek Road
The "Sno-Bowl Y"
© 2013 Google
Image © 2013 TerraMetrics
Google
Imagery Date: 6/23/2012
1994
40°53'44.64" N 115°49'49.61" W elev 6002 ft
Eye alt 7201 ft

# Stand #3: "Seismic Station Road and the Entrapment"

**Leader's Intent:** Participants will walk this stand through and to the deployment site, discussing the eighteen watch outs, fire orders, LCES and human factors influencing situational awareness.

**Logistics:** Drive to the ridge top on the Communication Site Road, and identify a place to park. Hike to the entrapment site. We will be approximately ½ mile from the vehicles, so consider taking some water. If you would like, put on your fire gear and make your way to the deployment site to try to understand the situation from the perspective of those who had to deploy.

**Location: Communication Site Road (Ridge Top) → E-3144 → Entrapment Site**

**Stand #3 Start/End: 40® 54' 48.17" X 115® 49' 04.65" – Elevation: 6625**

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|---|---|
| **E-3144s Final Stopping Point:** | **40 55' 10.41" x 115 49' 20.01"** |
| **Dropped Gear:** | **40 54' 57.80" x 115 49' 05.99"** |
| **Deployment (ENOP):** | **40 54' 57.12" x 115 49' 04.91"** |
| **Deployment (FFT2):** | **40 54' 52.21" x 115 48' 56.46"** |

**Summary:** E 3144 found an alternate road that led to the top of a ridge. The two track road they selected quickly flattened one of their rear dual tires and damaged the rim. Visibility was disappearing due to smoke and the engine continued on to the top of the ridge, despite one flat tire. Upon reaching the ridge top the engine slid off the road and became high centered.

> *"I call Fry asking for an update, hoping he had the engine in the safety zone. He responded and said they now had a flare rear duel tire . . . He said basically that he had nowhere to go (sic)" – Captain 3144*

In the meantime, the remaining task force of engines returned to a safety zone just below the seismic towers and adjacent to the Eight Mile Creek turn off; the scouting party continued up the Eight Mile Creek Road to a multiple road junction that would suffice as their safety zone as the head of the fire passed by and towards Kittridge Canyon.

With fire quickly approaching, the members of E 3144 decided to burn out around their engine, with the intent of applying water with the hardline to create a black line around their engine. They quickly abandoned this idea and the engine, and began making their way up the ridge towards the seismic towers (about a mile away). After making their way about a third of a mile up the road the Engine Operator made the decision that they needed to deploy their shelters. The two were separated by about 800 feet when they deployed.

Please discuss the actions of the task force and subsequent deployment. Consider current protocols that are taken for burn injuries, and consider communication barriers, and human factors which may have contributed to this entrapment.

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| Identified Hazards | | Mitigations | |
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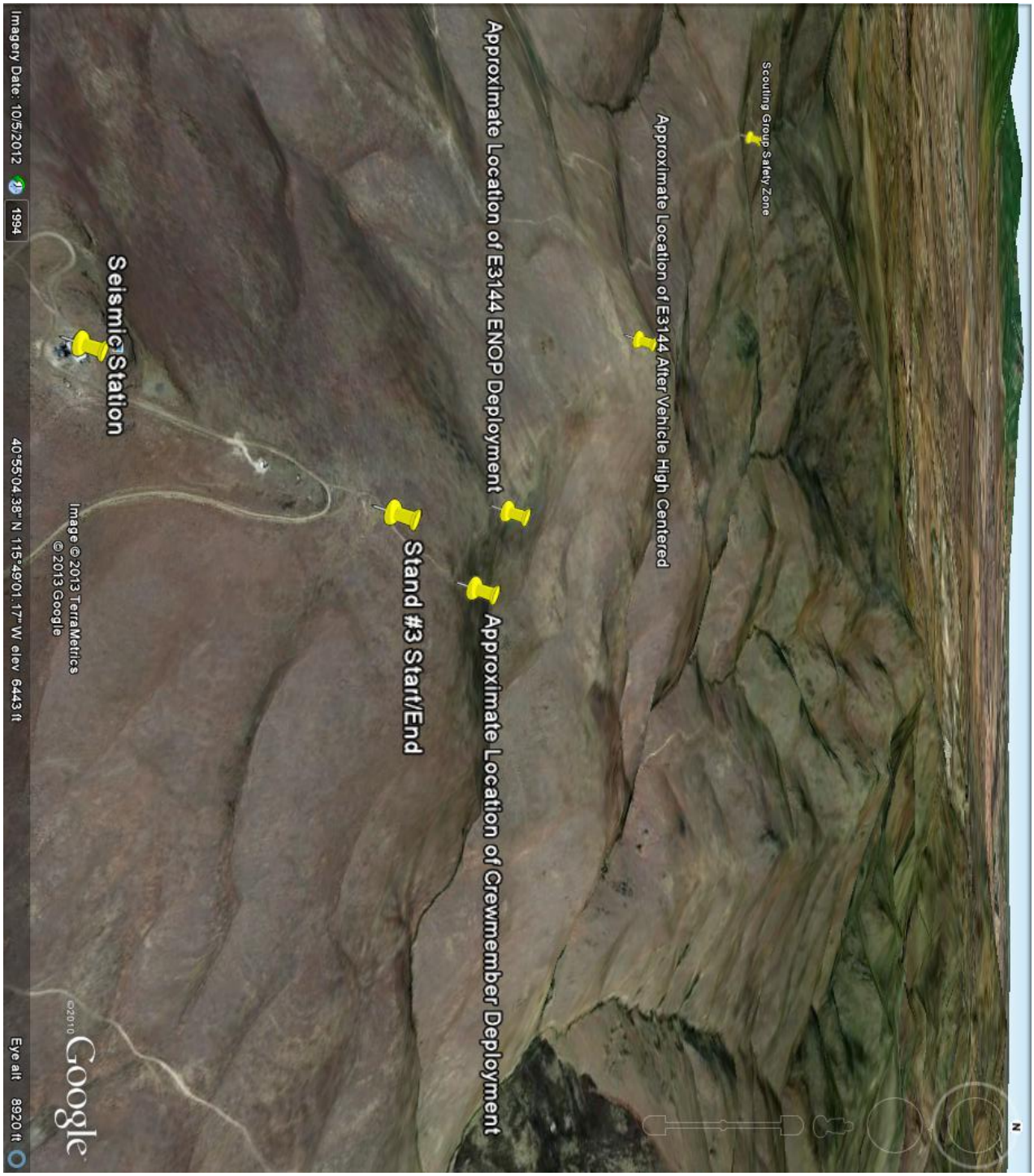
N
Safety Zone for E263, E1947 and E3943
Sno Bowl "Y" and Beginning of Stand #2
Image © 2013 TerraMetrics
© 2013 Google
©2010 Google
Imagery Date: 10/5/2012
1994
40°53'53.79" N 115°49'42.74" W elev 6041 ft
Eye alt 7159 ft

Scouting Group Safety Zone
Approximate Location of E3144 After Vehicle High Centered
E3144 Turns and Heads East on Primitive Road
Image © 2013 TerraMetrics
© 2013 Google
©2010 Google
Imagery Date: 10/5/2012
1994
40°55'20.33" N 115°49'37.77" W elev 6523 ft
Eye alt 9155 ft


Scouting Group Safety Zone
Approximate Location of E3144 After Vehicle High Centered
Approximate Location of E3144 ENOP Deployment
Approximate Location of Crewmember Deployment
Stand #3 Start/End
Seismic Station
Image © 2013 TerraMetrics
© 2013 Google
Imagery Date: 10/5/2012
1994
40°55'04.38" N 115°49'01.17" W elev 6443 ft
Eye alt 8920 ft
Google

## Compressed timeline taken from the Accident Investigation

1459: Mudd Fire is reported to EIDC

1520: BLM Engines 1947, 3144, 3943 and 263 (with chase) leave from Carlin to cover the Elko station; 1550 --> diverted to the Mudd Fire

1610: Engines arrive at the Snow-Bowl area; rendevous with Division Delta; Engine 1947 ENGB is designated as TFLD for Engine group

1620: Engines leave Snow-Bowl area for the 5th street and Snow-Bowl intersection

1642: Air Attack advises that 5 SEAT's in Elko cannot lift off due to wind; 1646: AA notes that fire is "making a run in multiple directions'

1640: Scouting group is formed from all engines and chase truck (engines are left at intersection); 1700: E 263 is positioned as lookout at top of canyon; communication is lost between E 263 module leader and E 263 ENGB

1708: E 1947 ENGB contacts E 1947 ENOP and directs him to lead all engines up the road to the scouting partys location; E 3144 leads the group

1723: E 3144 has out distanced the other engines and communication is lost

1737: E 3144 deploys on a ridge near a communication site

# INTEGRATION/AAR/LESSONS LEARNED

*This Stand is not "formally" built. Please use the attached Evaluation for specific recommendations on how to improve the overall Staff Ride outline and execution. Utilize this notes section for your benefit and reference. Interviews may be attached after print and will be handed out as an Appendix and ought to be referenced for use in this Stand.*

Notes:

## Evaluation (Please submit to Facilitator's at the completion of today's Staff Ride):

**Keep in mind this is Staff Ride "In Progress" and all input is valuable in improving future facilitation.*

Were the Participant Guides sufficient? Do you have any suggestions on additions, omissions or areas in the guide which can be improved?

Was the Facilitation of today's Staff Ride appropriate? Did the facilitator's adequately foster a "lessons learned" environment?

Was the level of pre-course work too difficult? Too easy?

Did the logistics and overall outline of today's Staff Ride promote a lessons learned environment safely?

Additional Comments: