

Denver Fire Department



Post Incident Analysis

18-02

Structure Fire- Apartment Under Construction
07 March 2018

1833 N. Emerson Street

Post Incident Analysis Description

The main purpose of a Post Incident Analysis (PIA) is to learn from the incident. When an incident occurs, regardless of type or outcome, a PIA may be initiated. Facts are gathered through dispatch transcripts, FD 707 written reports, and individual interviews. Every effort is made to ensure the analysis is accurate. The PIA committee, composed of members of the Denver Fire Department representing ranks from Firefighter to Assistant Chief, will review all information and begin building the PIA. The report will include background information, incident overview, a final analysis, and recommendations. The success of the PIA Team is dependent upon the cooperation of all members. The process will provide an enhanced method to disseminate critical lessons learned during an incident, thus allowing us to learn from actions taken and improve our current strategy and tactics.

Fraternally,
The Denver Fire Department PIA Committee

General Incident Overview

- Report of a structure fire at a multi-family residential apartment complex under construction at 1833 N. Emerson Street. Building was five stories of light-weight wood construction in the framing stage
- Engine 3 arrived on-scene and reported heavy fire, set up a deck gun for defensive attack, and stated workers appeared to be evacuated
- Truck 4 arrived on-scene, both rigs reported high heat levels, and reported parties trapped on 4th floor
- Reports came in of parties jumping from the building
- Chief 2 arrived on-scene, and assumed command
- Chief 2 requested two engines and a truck
- Within a minute Chief 2 determines that extreme levels of heat are being produced and calls for a 2nd Alarm assignment
- OPS 4 reports construction workers were in the building on 5th floor, 4th floor, and 3rd floor at the time the fire started
- Chief 4 (Charlie Division) and Rescue 1 report auto exposure to nearby buildings
- Multiple exposures required protection including a surgical office with patients currently in surgery, who were unable to ambulate or evacuate, parties were sheltered in place
- Cars began to catch fire from radiant heat on Alpha and Charlie side
- Reports of power lines down and 100# propane cylinders exposed to flames
- Within 13 minutes fire went to a 3rd alarm assignment
- Tower 15 states that there is collapse potential
- Multiple truck and tower companies were operating elevated master streams; multiple engine companies were also putting handlines in service to protect and extinguish exposures and extinguish vehicles
- Fire response included sixteen engines, nine trucks, two rescues, and eight Chiefs; additional units were called in for rescue, recovery, and investigative efforts (120+ personnel). Dispatch notified command that they were 2 trucks and 1 engine over a third alarm
- Companies started to experience water issues due to the large demand for water caused by suppression efforts, Denver Water was contacted to assist in boosting pressures in area
- A Search Group was formed to search for additional buildings involved in Bravo Division, multiple exposures were determined to have fire involvement and embers on roof that had to be extinguished
- Rescue 2 assigned RIT, later re-assigned to Engine 12
- Evacuees of the fire building were sent to 18th and Ogden to be interviewed
- One firefighter transported for 2nd degree burns sustained due to radiant heat
- Rescue 1, Rescue 2, Engine 1, Tower 1, and Collapse Unit were utilized to search fire building due to technical nature of search after cleared by DFD building engineers...two civilians who were unaccounted for were later found deceased in fire building

Site Overview



© Google Maps 2018

911 Calls

12:10:12

Dispatcher: Denver Fire Dispatch

911 Call Taker: 18th and Emerson

Dispatcher: 18th and Emerson, go ahead caller...Denver Fire Dispatch

Caller: Hello?

Dispatcher: Denver Fire Dispatch

Caller: (unintelligible)...Got a big 'ol blaze going on, new construction at 18th and Emerson

Dispatcher: Okay, what type of building is that

Caller: Well...uh...it's gonna be an apartment building

Dispatcher: Okay, a high rise?

Caller: Yup...four story...flames we see are burning up the whole south side

Dispatcher: Okay, and this is at 18th and Emerson...correct?

Caller: Yep

Dispatcher: Okay, I have fire trucks headed that way, thank you...

12:10:18

Dispatcher: Hello? What's going on?

911 call taker: 18th and Emerson

Caller: Hey...uh...we're at 1833 N Emerson Street...um...wood frame construction and the building is on fire now

Dispatcher: Okay, 1833?

Caller: 1833 N. Emerson, it's on the corner of 18th and Emerson

Dispatcher: all right, and how did it start

Caller: uh...we have no idea

Dispatcher: What's burning?

Caller: The building is burning, it's a wood frame building

Dispatcher: all right, we're on our way

Caller: All right man, thank you...

12:11:02

Dispatcher: Fire Dispatch

911 call taker: Adding you in 846 E. 18th Avenue...across the street

Dispatcher: go ahead caller...Denver Fire Dispatch

Caller: There's a huge fire at the new construction building next door...it's Emerson Street

Dispatch: okay

Caller: and Park Ave.

Dispatcher: 18th and Emerson?

Caller: 18th and Emerson...Park and Emerson

Dispatcher: Okay

Caller: Hurry up..it's huge...it's fricking huge

Dispatcher: I have fire trucks responding

Caller: Awesome...thank you...

(Multiple additional calls for the fire were handled by dispatch)

Operations

*** Due to the length and complexity of this incident only pertinent portions of the radio and phone transcript are included, times are approximate and were pulled off multiple radio channels***

- 12:10:23 – “Engine 3 responding” (Engine 3)
- 12:10:51 – “All units on the air stand-by...fire is coming out in District 2” (Dispatch)
“Truck 4 available” (Truck 4)
“Engine 3...we have smoke in the air, go ahead and put us on that and get someone to cover us at Ronald McDonald” (Engine 3)
- 12:11:46- “Engine 3 is on-scene...we have a four-story building under construction, fire showing Alpha side, Engine 3 is on the plug...looks like all workers are evacuated” (Engine 3)
“(Long Ring) ...Attention this is going to be map page India 24 for a multi-family structure fire...1833 N. Emerson St. for Rescue 1, Engine 1, Engine 6, Engine 11, Tower 1, Tower 9, Chief 2, Chief 6, OPS 2, Truck 12 is your RIT...Engine 3 is on-scene they do have fire showing and it’s a construction site, all units operate on TAC2” (Dispatch)
“Dispatch from Tower 15...we’re available if we can help you on that from 10th and Fillmore”
“Truck 4...We’re available if you need us...if we’re closer” (Truck 4)
- As the initial dispatch was going out multiple rigs requested to be added to the incident before the call was completely aired and responding units acknowledged.*
- “Engine 8 Dispatch...we need you to cover in for Engine 3 for a fall 1300 E. 21st” (Dispatch)
“Yeah we copy...we’re responding” (Engine 8)
“Engine 3 is going at this with the deck gun and also a 2 ½”...guys this will be a defensive fire” (Engine 3)
“Dispatch Truck 4...we’re available if you need us on that fire”
“go ahead I’ll drop you on it” (Dispatch)
- 12:12:27 “Fire Dispatch...Bureau 6 is responding”
- 12:13:18 “All companies responding we are now getting reports of people on the third floor” (Engine 3)
- 12:13:19 “Dispatch Chief 4...I don’t know if I’m closer, but I can take that Emerson if you would like”
“Copy Chief 4 I’ll drop you on it” (Dispatch)
- 12:14:01 Notification from police dispatch that multiple people are still in the building according to officers on-scene

Operations

12:14:17 “Fire dispatch...drop OPS 4 on that fire”
12:14:32 “Truck 4 is on-scene, we’re going to be setting up our stick...we’re going to be on the Park Avenue side at 19th”

12:15:02 “Truck 4 is on-scene, we have reports of people stuck on the fourth floor, heavy fire showing, Truck 4 is going to have their stick up...next due engine supply the water to the back of Truck 4”

12:15:26 “Ambulance 28...we’re on-scene”

12:15:41 “Chief 2 is on-scene...Chief 2 will assume command...Chief 2 is on-scene 1833 Emerson...Large body of fire, multiple floors, open construction, we’re going to set up for tower operations as soon as possible”

12:15:59 “Command - Rescue 1...on-scene waiting for an assignment...would you like us to go to the fourth-floor start rescue”

12:16:07 “Copy Tower 4 (actually Rescue 1 calling) ...you’re going to have to come in so we can see where you can get access, if they’re on the fourth-floor is doesn’t look great” (Chief 2)

12:16:10 “Fire dispatch from OPS 1, can you put me on that fire” “Copy OPS 1 we’ll go ahead and drop you on it” (Dispatch)

12:16:32 {Xcel Energy calls dispatch regarding fire, sending gas and electric to area}

12:16:48 “Dispatch start me an additional truck and engine” (Command)

12:16:53 “TRUCK 1 STOP RIGHT THERE...IT’S TOO HOT...IT’S TOO HOT” (Engine 3)

::** Multiple units arriving on-scene and locating around building

12:17:00 “Command - Chief 4...I’m on-scene”

12:17:02 “Copy Chief 4 can you get on the back side of this and let me know if we have fire through this whole thing” (Dispatch)

12:17:13 “Command – OPS 4” “Command bye” “Construction workers are reporting they had people on 5th floor, 4th floor, and 3rd floor” (OPS 4)

12:17:50 “I have reports from on-scene personnel that they have personnel on the alley side 4th floor jumping from the building, I’m going to get eyes on it now” (unknown)

Operations

- 12:18:02 “Copy...first available truck company to the alley...what’s that tower company...head to the alley I see you pulling up” (Command)
- 12:18:10 “Command from Chief 4...we need an engine company and a truck company on the alley SW side of this building we have it exposing to the building across the alley and the one to the south of that”
- 12:18:18 “Dispatch – Truck 12...can you cover for us we’re having rig issues”
- Truck 12, who was originally assigned RIT, experienced mechanical issues en-route to the fire.*
- 12:18:24 “Copy...Engine 1 hit the alley...Tower 1...or a... Tower 9 hit the alley and dispatch start me a second” (Command) “Copy Engine 1 is going to the alley on the west side”
- 12:18:38 “Command... Bureau 6 is on-scene” “Copy Bureau 6 let me know on systems I don’t know if we have them set up yet” (Command)
- Bureau 6 is given one assignment, IC requests Bureau 6 to set-up systems.*
- 12:19:01 “Command from Chief 4 we’re going to need Xcel energy over here too we have powerlines blowing up all over the place...if we can get 18th shut down as well too I’ve got cars coming through here as well”
- 12:19:13 “dispatch start me some more PD...we’re actually going to shut down Park” (Command)
- 12:19:21 “Going to a second and Xcel is responding” (Dispatch)
- 12:20:30 “Command from Chief 4...I recommend you give me Charlie Division here...I have a couple buildings that are auto exposing...I’ve got Engine 8 on-scene right now with Tower 9, Engine 1, with those we can get this side secured” (Chief 4/Charlie Division) “Copy Chief 4 you’re now Charlie Division and you can take those companies you just listed...I’m also seeing I’ve got exposure issues on the Alpha/Bravo side as well, what does the exposure look like on the Charlie side”
- 12:21:01 “Charlie Division...Rescue 1” (Rescue 1) “Charlie Division...go ahead” (Charlie Division) “yes sir we’re making our way to 1818 Clarkson at this time...we have extension already into the building with smoke showing from the roof, we are making entry now” (Rescue 1)
- 12:21:28 “Urgent message to all companies be aware we are starting to have collapse and we’ve got extension off the Alpha side...beware of collapse” (Command)
- 12:21:51 “OPS 2...Just a couple blocks out” (OPS 2) “Copy meet me on the Alpha side...I’m on the Emerson side when you get here” (Command)

Operations

- 12:22:25 “Start me another ambulance...we have reports of parties jumping...have we located the party that jumped” (Command) “that’s negative...report is they jumped from 5th floor...unknown location” (Dispatch)
- 12:22:44 “Command...OPS 4...on the Delta division you have collapse” (OPS 4) “Copy collapse on Delta division” (Command)
- 12:22:54 “Command...Truck 4...Alpha side exposures across the street the trees are about to go on the medical building...the two-story medical building” (Truck 4) “Copy...first available engine company I need you to the Alpha/Bravo corner as fast as possible...we’re going to try to get this Bravo and Alpha exposure covered” (Command)
- 12:23:36 “Dispatch start me a 3rd alarm” (Command)
- 12:23:58 “Charlie Division from Rescue 1...I’m in unit 107 (exposure building) we have heavy fire...exposure building Charlie side making a search now...we need a hose line” (Rescue 1) “Copy that I have Engine 8 headed into one building and Engine 1 headed into the other you should have water shortly” (Charlie Division)
- 12:24:20 “OPS 2 – I’m on-scene”
- 12:24:28 “Okay group page India 24...we’re going to start a 2nd...Engine 7 Engine 10 Engine 5 Tower 23 Truck 19 Chief 3 respond...1833 Emerson St.” (Dispatch)
- 12:24:31 “Okay I’m going to need companies...I’m going to lose this Bravo exposure” (Command)
- 12:24:37 “Command...Bureau 6...reports of parties in the basement” (Bureau 6) “parties in the basement of which building” (Command) “the fire building” (Bureau 6) “copy we’re not sending crews in” (Command) “stand-by on the basement, nobody is going inside right now...we have building collapse” (Command)
- It is unclear where Bureau 6 is operating, who they are assigned to, and what their assigned tasks include. They are operating in an IDLH environment independently.*
- Multiple members of the Denver Fire Department arrived on scene outside of the CAD/Tablet Command system creating staging and accountability issues.*
- 12:24:24 “Charlie Division...Rescue 1...at this time we have lost unit 107 to fire...primary search is negative...we’ve backed out to unit 106 and I need a hose line” (Rescue 1)

Operations

12:25:53 “Engine 8...Charlie Division...are you working a hose line in there...Rescue 1 needs it now”

12:26:03 “Command...Charlie Division...do you have an available company to get an additional hand line off of 8’s”

12:26:21 “This will be a third alarm response Group India 24 1833 Emerson St. Engine 21 Engine 19 Engine 15 Truck 8 Truck 16 Chief 5”

After Command requested a 2nd alarm it took six minutes for dispatch to build and dispatch assignments, and an additional three minutes were required for the third alarm.

12:26:24 “Five-inch company (Engine 26) I want you to come in you’re going to report to Chief Drennan...he’s going to be OPS 1 in charge of Bravo division...We’re starting a Bravo Division” (Command) “Copy checking in with Bravo Division Supervisor” (Engine 26)

12:26:45 “Engine 11 I need you guys to get a line over here exposure protection for this 1900 Emerson, just here to your right” (Bravo Division)

12:26:55 “Alright I’m in 1800 Emerson, I’m going to need an engine so we can get a water supply in here I got no extension into 1800 Emerson now” (Engine 11)

12:27:06 “Copy 1800 Emerson is clear, is that correct” (Command) “1800 Emerson I have cracked windows but no extension” (Engine 11) “1800 cracked windows no extension, copy, do you have an engine company with a lined stretched in there?” (Command) “I have a line stretched but my engineer does not have water to supply it if we need it” (Engine 11) “Copy let’s start water” (Command)

Both Command and the Bravo Division Supervisor are communicating with a single resource (Engine 11), It is unclear as to who Engine 11 is reporting to.

12:27:37 “Next due engine company assigned to Bravo Division I need hose line protection for the exposure 1800 Emerson we have people being operated on that we can not evacuate” (Bravo Division)

12:27:53 “Bravo Division Supervisor from Engine 26, where do you need us?” (Engine 26) “18th and Emerson, you probably can come down Park Ave. to 18th” (Bravo Division) “Willco”

12:28:10 “Chief 2...Dispatch” “Chief 2” “Ma’am I have got your third alarm filled out, do you want those numbers, or do you want them to roll in there and put them to work?” (Dispatch) “I want all those companies to the parking lot at about 19th and Park, and by then I will have a staging officer” “As soon as I have a staging officer I will have them coordinate that” (Command) “Dispatch copies”

Operations

- 12:28:21 “This is Tower 15 we were assigned to 1849 Emerson on a box, this is due north of the fire and has a potential collapse hazard, there is no way we are going to be able to reset that box”
- 12:29:02 “Command...Engine 9 is on-scene, do want us at 18th and Emerson” (Engine 9)
“Engine 9 you’re going to come to the Alpha side, you’re going to be my protection for the Alpha exposure” (Command) “Copy, Alpha side”
- 12:29:18 “Command from Charlie Division” “Charlie Division” “I just had Engine 9 show up, can I take command of them for another attack line coming in off of Clarkson?” (Charlie Division) “Sorry Charlie what was that, you need them for what?” (Command) “I need another handline coming in off of Clarkson, we’ve got exposure up into the attic, I have Engine 9 right here if you don’t have an assignment for them I could use them” (Charlie Division) “Engine 9 you’re with Charlie Division” (Command) “Willco” (Engine 9)
- 12:29:50 “Command...Bureau 6 from 1800 we have a non-ambulatory patient in here we are starting to have windows cracking from heat exposure” “Give me that address again?” (Command) “This is the medical office building directly across from 1800” (Bureau 6) “Copy, next available engine, do I have an available engine?” (Command) “Yeah Command, that’s assigned to the Bravo Division, my next available engine is supposed to come over here on the Bravo side to give me a hand with that, I also have an exposure I need them for as well so I’m going to need that engine company right away” (Bravo Division) “Copy, next in available engine you’re going to Bravo Division, second in engine after that I need you on Alpha” (Command)

Bureau 6 and Engine 11 are operating independently inside of the 1800 Emerson exposure, it is unclear if they are in contact or not but they appear to be giving redundant information. Bravo Division Supervisor assumed control over 1800 Emerson.

- 12:30:32 {Assistant Master Mechanic contacted dispatch to see if support was needed including mechanics and fuel, due to extended operations resources were sent}
- 12:30:34 “Command from Charlie Division, just to confirm I have put Engine 9 to work on Clarkson at 1818” “Copy Engine 9 on Charlie side on the corner” (Command)
- 12:30:54 “Fire Dispatch OPS 4 on FIRE 1 I’m going to move all non-essential radio traffic to Fire-Command 2, I’m going to setting up an EMS Branch” “OPS 4 will be EMS Branch”

OPS 4 creates an EMS Branch and assigns a radio channel outside of command.

Operations

- 12:31:38 {Multiple units arriving on-scene} “Truck 8 when you get chance get your stick up” “Engine 7 you’re going to go Bravo, Engine 10 I need you on Alpha” (Command)
- 12:32:08 “I think I have Engine 7 over here on Bravo, I need you to get a water supply and I need you to supply Tower 9 and pull some exposure protection lines for me I have a couple of buildings over here with embers on the roof” (Bravo Division)
- 12:32:31 “Truck 19 I’m going to move out of your way and you’re going right here and get your stick in the air” (Command)
- 12:32:42 “Bravo how are you doing on trucks?” (Command) “I’m doing all-right right now I’ve got Tower 1, Tower 9 I’m just getting water to, once I get a couple more engine companies I’m good over here” (Bravo Division) “Copy, Charlie how are you doing on truck companies?” (Command)
- 12:33:37 {Multiple companies arriving on-scene} “Command Rescue 2 is on-scene as well” “Copy Rescue 2 you are going to remain my RIT until I have another assignment” (Command)
- 12:33:40 “Command...Bureau 6 from the 1800 medical office building we are effecting a rescue of the non-ambulatory patient we are doing this with hospital staff right now, otherwise the top floor is clear” “Copy you have Engine 10, that will be your fire protection shortly” (Command)
- Bureau 6 is reporting to Command instead of the Bravo Division Supervisor.*
- 12:33:59 “Charlie Division to Rescue 1 go ahead” “Yes sir update on Charlie side, you do have heavy floor collapse of the fire structure, you also have numerous vehicles on the Charlie side catching fire now, that is what you hear popping” (Rescue 1) “Charlie Division I copy that , we have Engine 9 stretching a line as we speak, break, Command from Charlie side, if you don’t have an assignment for Tower 15 I could use them on the Clarkson side” (Charlie Division) “Copy that...do you need them more on the Clarkson side? I’ve got a void on the Bravo side, but my eyes on that aren’t great” (Command) “Uh...copy we have fire on the roof of 1818 Clarkson, hoping to get a Tower over here and get above it” (Charlie Division) “Copy Tower 15 that’s you” (Command)
- 12:35:11 “Charlie Division from Tower 15...go ahead” “Yeah if you are going to reposition your rig your best access is off of 18th and Clarkson, you’re going to have to run over hose lines, but I’m going to have to have you” (Charlie Division)
- 12:35:43 “Command Fire Dispatch” “Command bye” “Command all your resources are showing on scene, for your third alarm you are heavy two trucks and one engine” (Dispatch)

Operations

12:35:55 “Engine 19 I see you in staging, come over here off Washington, 1700 block for me, I need to get you some water to Tower 9, Command did you copy I’m taking Engine 19 from you, come over off of Washington Engine 19, come down there I have fire in one of the exposures I need you to take a look at” (Bravo Division)
“Copy Engine 19 to Bravo Division” (Command)

Upon creation of a Bravo Division, the supervisor superseded command and ordered a single resource from staging to his division.

12:36:28 “Command to all units, 1756 Clarkson is the building that has smoke coming from the roof, any available units come over to me to help” (OPS1-A- Operations Admin Assistant Chief) “I got that in Bravo Division, I have Engine 19 coming over to give us a hand” (Bravo Division) “Copy I am getting access now” (OPS-1A) “Truck 16 why don’t you join them on the Bravo Division” (Command)

OPS-1A on the Bravo side of the building superseded the Bravo Division Supervisor, and Command, and puts out an order for any available single resource.

12:36:59 “Rescue 1...Charlie Division” “Rescue One” “Yeah 9’s should be making their way to you right now, if you can meet them outside and help direct them in that will save some time, also I have Tower 15 headed this direction we’re going to get the stick up to knock that roof, I’ll send them in to help with any search and rescue that you need” (Charlie Division)

12:37:20 “Engine 5 you’re in staging I could use you here in the Bravo Division to get water to Tower 9” (Bravo Division) “Copy, Engine 5 going to Bravo Division to supply Tower 9” “Did you copy that command I have Engine 5 on Bravo with me?” (Bravo Division) “Command copies, Engine 5 is in Bravo”

The Bravo Division supervisor superseded command again and ordered a single resource from staging to their division.

12:37:38 “Command...Bureau 6, you have exposed 100 pound propane tanks right where the porta-john’s just set on fire” “that’s going to be on the 18th and Emerson side right between the two buildings on the Alpha Bravo side” (Bureau 6) “Copy Alpha/Bravo...Bravo Division are you aware of this?” (Command) “I have a ground monitor hoping to protect that, just getting supplied now” (Bravo Division)

Bureau 6 continues operating independently, his location is unknown, and he is reporting directly to command, even though his last known location was in 1800 Emerson, which was assumed into the Bravo Division.

12:38:34 “Command from Engine 8” “Command bye” “were on the roof of Charlie, think we have the roof cut off, so I think we’ll be good to protect the exposure” (Engine

Operations

8) “Copy you’re on the roof on Charlie, is that correct?” (Command) “affirmative we have a flat roof and we have access to it and have a hose line up there” (Engine 8) “Copy” (Command)

Engine 8 is reporting directly to Command instead of the Charlie Division Supervisor.

12:39:01 “Charlie Division...Rescue 1” “Rescue 1 for Charlie go ahead” “Yes sir I’m in #107 we have one hose line in place with Engine 8 actively fighting fire, I have Engine 9 ground floor hitting the cars on Charlie side of the fire building” (Rescue 1) “Charlie Division did you copy” (Command) “no that’s negative Rescue 1 can you repeat? I understood you have one hose line in place with Engine 8, they are on the roof to my knowledge, Engine 9 should be working their way in to you right now” (Charlie Division) “okay that’s affirmative on Engine 8 we are on the roof actively putting out this fire, Engine 9 is on the first floor actively hitting fire in 107 Charlie side and the fire building” (Rescue 1) “Okay...that I copy Rescue 1, I’ve also got Tower 15 I’m going to send them your direction to make sure we have a complete primary of 1818 Clarkson which is C-side building” “If I can have Truck 15 go to unit 106” (Charlie Division) “Copy Tower 15 to 106” “Tower 15 copies all, Charlie Division from Tower 15 we are trying to get access now, we are waiting for a cop to move his car”

Access into area was limited by traffic and also by police and other support vehicles with no means to easily move vehicles to provide access for responding apparatus.

12:40:37 “Command from Engine 7, we have Engine 7 crew and Engine 10 crew we have two lines flowing Bravo side for exposures” “Copy...at this time do I have any available units on-scene” (Command)

12:40:59 “That’s negative guys I need you both over here, Engine 19 1756 Clarkson to make sure that building isn’t on fire and Engine 5 I need water supply to Tower 9 over here off of 18th” (Bravo Division) “Command copies...Dispatch can you send me two more engines and a truck” (Command) “two more engines and a truck copy that” (Dispatch)

12:41:22 “Bravo Division from Charlie Division” “Go ahead” (Bravo Division) “yes sir I believe Truck 16 was assigned to you and I have them on Clarkson I do have a master stream on the Charlie side exposure” (Charlie Division) “what truck is that?” (Bravo Division) “Truck 1-6” “Truck 1-6...Stand-by” (Bravo Division)

12:43:04 {Multiple move up assignments are occurring throughout city} “Command to all companies Alpha division is started, Chief 6 in charge of Alpha Division” (Command)

Operations

- 12:43:34 “Command from Bravo Division, I have Xcel here and they have this whole grid shut down here for us” (Bravo Division)
- 12:44:00 “Command...Dispatch...You’re 30 minutes into your incident” “Command copies 30 minutes in”
- 12:44:06 “Tower 15 from Charlie Division” “Tower 15” “Yeah I have Truck 16 crew standing by...are you going to need more man power to complete search?” (Charlie Division) “we’re making our way up now, we just finished setting up the aerial” Tower 15) “okay copy be advised you’re going to have Engine 9, Rescue 1 in there to help you” (Charlie Division) “Copy that Engine 9 Rescue 1 both at 1818 Marion” (Tower 15)
- 12:44:36 “Command to Alpha, Bravo, Charlie Divisions can you split up your truck companies to get primaries of these exposure buildings and report back”
- 12:44:52 “Command...Chief 6” “Command bye” “yeah I got an all clear on 1800 Emerson they checked it no patients and no exposure hazard” (Chief 6/Alpha Division) “I copy...and you’re my Alpha Division now” (Command) “I believe Division Chief Fulton was, but I don’t see him...I’m going to be it now” (Alpha Division) “Copy...I see him...I’ll double check...stay on the Alpha side and I’ll check back” (Command)
- Chief 6 is now reporting on the condition of 1800 Emerson, Command and Chief 6 appear to be unaware of who was/is actually the Alpha Division Supervisor, until the confusion is cleared up.*
- 12:45:26 “Charlie Division from Rescue 1” “Rescue 1 for Charlie Division go ahead” “yes sir unit 106 negative on primary and also all fire has been extinguished in unit 106” (Rescue 1) “I copy 106 primary negative...break Command from Charlie Division I have truck 16 and Tower 15 doing primaries on 1818 Clarkson, that is your C-side exposure”
- 12:46:19 “Command to Chief 6 to confirm you are Alpha Division” “Copy Chief 6 I will assume Alpha Division”
- 12:47:18 “Bravo Division from Engine 19 1756 Clarkson checks clear there are some embers on the roof”
- 12:48:15 {Multiple companies are attempting to set up additional water supplies into area} “Command do I have an additional truck company” “Truck 8 available” “Truck 8 I need you to clear my Delta exposure” (Command)
- 12:48:43 “Command...Dispatch what is the location of your staging area” (Dispatch) “Staging area is at 19th and Emerson” “We have it so jammed up it may be point of direction at this point” (Command)

Operations

- 12:49:02 “Command from Charlie Division” “Command bye” “yes ma’am I was just notified by the Denver Health Supervisor our rehab is set up at 18th and Ogden, it is ready whenever we need it”
- 12:49:39 “Charlie Division from Tower 15” “Tower 15 for Charlie Division go ahead” “1818 Marion primary clear” (Tower 15)
- 12:50:03 “Dispatch from Command” “Go ahead” “I have an Alpha side water issue, they are tapped... can you start me a 5” company they are going to have to lay in from a couple blocks out to ensure we have a proper water supply” {dispatch notified command that all 5” companies were on-scene except one, command determined to leave company available for city}
- 12:50:35 “Dispatch you should get a hold of Denver Water to see if they can boost the pressure as much as they can, are they on that? (Bravo Division)” “Dispatch you copy that” (Command) “Dispatch we copy that all” {Dispatch contacted Denver Water via landline to boost water pressure in area}
- 12:51:00 “Dispatch...OPS 4 on FIRE 1, yeah just to make you aware we put all non-essential radio traffic on COMMAND 2”
- 12:53:20 “Command from Truck 8 Delta exposure 1849 Emerson is negative” “Copy Delta exposure is negative” (Command)
- 12:53:59 “Charlie Division...Rescue 1” “Rescue 1 for Charlie go ahead” “1818 units 106-103 check negative on searches” (Rescue 1)
- 12:54:42 “Charlie Division...Command” “Command from Charlie” “Charlie Division be aware we have reports you are beginning to lose some electrical poles”
- 12:54:50 {On COMMAND 2} “OPS2 from OPS4 I have Engine 23 here staged do you have an assignment for them?”

OPS-2 was assigned as the Incident Safety Officer (ISO) at the time of initial dispatch for this fire. On arrival, OPS-2 reported to the ICP and was assigned by the IC to stay at the ICP and assist as needed. OPS-2 was not given a title by the IC but the assignment at this incident meets the criteria for the definition of Deputy IC.

Later in the incident (exact time unknown) when TRNG-01 (Division Chief of Training) arrived on scene he was designated as the Incident Safety Officer. Multiple 360's of the incident were completed by the ISO. Hazards that were noted were weakened/downed power lines, structurally weakened power poles, and compromised gas meters/gas lines on exposure buildings. The initial strategy employed by the ISO was to notify those in the area of the hazards to avoid them.

Operations

Next, the ISO informed Xcel representatives of hazard locations when Xcel arrived on scene and Xcel mitigated the hazards.

The ISO noted that all apparatus/personnel were outside of the collapse zone. A determining factor of this was the radiant heat from the fire which in effect set the distance of the collapse zone.

During the multiple 360's the Safety Officer also checked in with the Division Supervisors to ascertain if they had encountered any safety issues that needed to be addressed.

The Safety Officer did not designate any Assistant Safety Officers but felt that each Division Supervisor was also acting as a Safety Officer.

- 12:54:51 "Charlie I copy...1818 Clarkson all fire in that building is knocked, primary complete, working on secondary now" (Charlie Division)
- 12:55:02 {OPS 4 is assigned as the Rehab officer by OPS 2}
- 12:56:25 "Command to Alpha, Bravo, Charlie divisions...who needs more water?" "Bravo I'm good over here Command...to give you an FYI I'm going to start putting a search group together Chief Bower is going to be the Search Group Supervisor to just start going around all these exposures on the Bravo side to make sure we don't have anyone to protect in place and any exposure issues" (Bravo Division) "Copy Bravo Division you are starting a Search Group" (Command)

The Bravo Division supervisor created a Search Group, assigned a search group supervisor and gave an assignment. His communications suggested that the search group will be operating underneath the Bravo Division.

- 12:56:59 "Command...Alpha Division" "Alpha Division how are you doing on water, I have a 5" company available to get water from a further plug if you need it" (Command) "I think at this point we are okay, I am going to have Tower 19 shut down just briefly so we can run a handline to some of these vehicles and then we will be back on it with the master streams" (Alpha Division) "Charlie Division how are you doing on water?" (Command) "Command from Charlie Division we are good over here we have the fire in this building knocked, I do have a couple extra companies if you need manpower somewhere else" "Copy stand-by I'll let you know" (Command) "I could use those over here Charlie Division for this search group just to go through all these buildings on the Bravo side" (Bravo Division)
- 12:58:07 "All available companies check into command" {Command Initiates a PAR}

Operations

- 12:58:20 “OPS 2 from Rehab” “Go ahead” “I’ll have rehab set up in about two minutes if you want to start cycling crews through” (OPS 4) “Do you have the airlight” (Command) “Negative but I have the Denver Health trailer here” {Rehab is set up at 18th and Ogden}
- 12:59:20 “To the companies operating in the alley here on the Bravo side you need to back-out we have a power pole that’s getting ready to come down, Engine 1 is one of them it’s just to your right” (Believed to be transmitted by TRNG-01/Safety Officer) “All companies did you copy the urgent message on the Bravo side?” (Command)
- 13:00:24 “Search Group Supervisor you have Engine 23 assigned to you coming this way once you get them come up with a plan to make sure all these buildings are searched, and we have no extension with fire on the roofs with embers (Bravo Division)”
- 13:02:57 “Command from Bravo Division just to give you a heads up, my search group, or the search group rather, will be on TAC-2A, I have Engine 26 assigned and I believe Engine 23 is coming this way as well” (Bravo Division) “Copy, that’s correct you have E23 and you will be on Tac 2A running your search group.”
- 13:04:00 “...Truck 8 you’re going to be my Delta Division” (Command) “Copy Delta Division” (Truck 8)
- 13:04:28 “Command if we don’t have anybody working right now that is standing by their rig if they can send them over here to report to Chief Don Bower, the Search Group Supervisor so we can start coordinating this, I had reports from PD the we had embers as far west as Washington so I want to make sure we get all these buildings clear before we go any further” (Bravo Division) “Copy what is Chief Bower’s location?” (Command) “on 18th in between Emerson and Clarkson by the alley” (Bravo Division) “18th and Clarkson... and he’s going to run through you? Or he’s going to be a separate search group through me?” (Command) “yeah he’s assigned to you...just giving you an FYI” (Bravo Division) “Copy, Chief Bower is my Search Group Supervisor, I can get him Engine 14...Engine 14 can you meet Chief Bower 18th and Clarkson” (Command)
- 13:06:52 {OPS 2 requests Arson and DFD Building Engineers on COMMAND-2}
“Command from Bravo Division just for an update it looks like we have the majority of the fire knocked over here...right now I have no active fire that I can see...I do have my companies reassigned...I am going to pull them all out, get a PAR of my Bravo Division and then we’re going to start working and beef up that Search Group to make sure we don’t have any more fires popping up”
- 13:07:27 “Command to Alpha, Bravo, Charlie, and Delta can you make sure we have PAR and let me know” “Bravo Division to Command for an update I have no active fire over here companies are pulling back a bit, we do have some safety concerns

Operations

down this alley that we are addressing right now with a power pole, I will be pulling everyone back for a PAR momentarily” “Copy and Bravo Division when you can release one of your companies for rehab” (Command)

- 13:08:09 “Charlie Division from Command” “Charlie go-ahead” “Once you know you have PAR let me know and why don’t you release one of your companies for rehab” (Command)
- 13:09:17 “Alpha Division from Command” “standing-by” “once you guys know you are PAR why don’t you release one of your companies to rehab” (Command)
- 13:15:00 {Rehab requests Air-Light to respond to rehab...Air-Light is unable to make it to 18th and Ogden due to multiple un-manned DPD vehicles }
- 13:17:09 “Dispatch from Command” “go ahead” “Command we’re going to start coordinating bringing in the Collapse Team” “Copy ma’am we will get the Collapse Team started your way” {Rescue 2 who was assigned RIT was requested to pick-up Collapse Rig, RIT was re-assigned to Engine 5...ultimately Collapse Rig was picked-up by off-duty member who was training }
- 13:27:35 “Command to Alpha and Charlie Divisions once you guys are comfortable let’s start shutting down water, were going to have to start working on getting access and searching this main body of fire, so once you’re comfortable I need to start shutting down some of these master streams” “Command from Bravo...if I can recommend prior to the start of searching those since we did have a collapse lets get our Rescue 1, Rescue 2, and our Collapse rig in here so they can start ascertaining integrity before we search too far” “already happening thanks” (Command)
- 13:29:08 “Just to let you know Command we have about maybe a block...block and a half with confirmed embers from DPD so I’m doing a pretty systematic search over here...we have found fire in two buildings currently, so I want to make sure we get this completed before we release companies unless you need them for something pretty important” (Bravo Division)
- 13:33:00 {Tower 23 is assigned Division Delta }
- 13:42:00 {Technical Rescue Group created with Chief 5 as Technical Rescue Group Supervisor on TAC-2B with Rescue 1, Rescue 2, Engine 1, and Tower 1 }
- *** At this point in operations the fire was placed under control and units are started to be released to rehab...units remained on-scene assisting the Search Group to clear multiple exposures and check for hot spots on main fire building. The Collapse Rig and members from the Technical Rescue Team began to search the fire building for two civilian parties who were unaccounted for once the structure of the building was determined to be safe for entry by DFD Building Engineers.

Operations

Both parties were found deceased in the main fire building after an extensive search.

Additional Observations:

The scale of incident made communication and liaison with officials difficult.

Apparatus requested to reposition for coverage did not respond immediately as requested by dispatch.

Companies not directly involved in the incident were extremely busy and Fire Department coverage was at a minimum throughout the city.

Surrounding agencies were not notified about the situation Denver Fire was involved in, and the possible need for mutual aid.

During interviews it was mentioned that rigs were entering the scene rapidly, nearly missing a firefighter.

ICS Recommendations

Observation 1: Accountability and Staging

Reference: Denver Fire Department Standard Operating Guideline 2110.03, 2111.06

Analysis:

Bureau 6 is given one assignment, to set-up systems. Throughout the fire it is unclear where Bureau 6 is operating, who they are assigned to, and what their assigned tasks include. They are operating in an IDLH environment independently. In addition, multiple members of the Denver Fire Department arrived on scene outside of the CAD/Tablet Command system creating potential staging and accountability issues.

Recommendations:

- Members who arrive as individuals should not operate independently. To do so may place them in danger and could compromise accountability tracking. On large and/or complex incidents Level II accountability should be considered and an Accountability Officer should be designated. (DFD SOG 2110.03)

- A system should be put into place for members arriving on scene as individuals for accountability purposes.. Implementation of a Staging Manager/Officer (per SOG) as early as possible on an incident should create a process for support staff to check in with the Incident Commander and will allow for accountability and utilization of all personnel on scene. Early implementation of Staging would allow Incident Command to track and assign rigs and personnel upon arrival and enhance over all accountability and efficiency. Level 2 staging was utilized on this incident with a staging area designated at 19th and Park but a Staging Officer/Manager was not assigned to facilitate resource allocation. (DFD SOG 2111.06)

Observation 2: Proper Utilization of the ICS/NIMS System

Reference: Denver Fire Department Standard Operating Guideline 2111.20

Analysis:

Bureau 6 for much of the fire was reporting directly to Command instead of Bravo Division.

OPS 4 created an EMS Branch and assigned a radio channel outside of command.

The Bravo Division Supervisor superseded the IC multiple times and requested resources and created a Search Group around the IC.

Engine 8 was reporting directly to Command instead of the Charlie Division Supervisor

Throughout the incident multiple agencies were operating on-scene without a strong unified command structure.

ICS Recommendations

A thorough understanding by company officers, chief officers, and command staff is essential in properly and efficiently handling emergency scenes.

Recommendations:

- All members must adhere to the chain of command inside of the ICS system. By ordering resources directly into a division it creates potential to compromise accountability and planning by the Incident Commander. The Incident commander's authority to assign resources should be recognized and respected to avoid miscommunication (such as answering that E9 was going to Bravo Division instead of E19). Resources need to be requested, not taken and then given a "heads up" or an "FYI".
- Resources must ensure that they know who their direct supervisor is on all incidents at all times in order to eliminate confusion.
- All members assigned as Division or Group Supervisors must adhere to ICS structure. While ICS is flexible, the operational flexibility should be at the discretion of the Incident commander, section leader, or branch director if one is assigned. By creating a "Search Group", the Bravo Division created confusion for the IC, who did not expect it, and was initially led to believe that the search group was operating inside the Bravo Division. (DFD SOG 2111.20)
- ICS standards including the following should always be adhered to:
 - A. Divisions and Groups are equals, they do not report to each other.
 - B. Divisions and groups can only be created by the next higher level in the ICS system, in this case the IC.
- Identification of a Division's geographical boundaries need to be clear. Without defining the boundaries, locations can be missed.
- Assignment of Division/Group Supervisors should only be made by the next level in the ICS system. If an assignment is given around the next level supervisors knowledge, redundant supervision can be put in place, leading to confusion.
- The use of ambiguous terms like "next available engine" should be avoided. Resources should be called by their unit identifier to minimize confusion, providing a staging area and appointing a Staging Manager/Officer can help alleviate confusion.
- Large scale complex incidents should use an expanded ICS system. The magnitude of this incident and it's drain on resources should have triggered an expansion of the ICS system to allow for the delegation of resource management, fire operations, planning, logistics and any other needs of the incident more efficiently.

ICS Recommendations

- There was an opportunity for unified command. Denver Health set up rehab around the Group Supervisor and multiple police officer's cars had to be moved for responding apparatus to get to their assignments. Establishing a unified command post would allow for issues such as these and other issues which might arise to be addressed.

-Review and additional ICS/NIMS training would be beneficial to all officer staff, chief staff, and command staff.

- The Denver Fire Department could benefit from an Incident Management Team (IMT) or could pre-designate ICS command staff positions. Establishment of this type of system would support the efficient management of a large-scale incident.

Observation 3: Incident Safety Officer

Reference: Denver Fire Department Standard Operating Guideline 2110.05

Analysis:

- OPS-2 was assigned as the Incident Safety Officer (ISO) at the time of initial dispatch for this fire. On arrival, OPS-2 reported to the ICP and was assigned by the IC to stay at the ICP and assist as needed. OPS-2 was not given a title by the IC but the assignment at this incident meets the criteria for the definition of Deputy IC (it can be said that managing accountability in this incident was necessary from a safety standpoint, however that left gaps in the role of an Incident Safety officer).

- Later in the incident (exact time unknown) when TRNG-01 (Division Chief of Training) arrived on scene he was designated as the Incident Safety Officer. Multiple 360's of the incident were completed by the ISO. Hazards that were noted were weakened/downed power lines, structurally weakened power poles, and compromised gas meters/gas lines on exposure buildings. The initial strategy employed by the ISO was to notify those in the area of the hazards to avoid them. Next, the ISO informed Xcel representatives of hazard locations when Xcel arrived on scene and Xcel mitigated the hazards.

- The ISO noted that all apparatus/personnel were outside of the collapse zone. A determining factor of this was the radiant heat from the fire which in effect set the distance of the collapse zone.

- During the multiple 360's the Safety Officer also checked in with the Division Supervisors to ascertain if they had encountered any safety issues that needed to be addressed.

- The Safety Officer did not designate any Assistant Safety Officers but felt that each Division Supervisor was also acting as a Safety Officer.

ICS Recommendations

Recommendation:

-The Denver Fire Department should have a dedicated Incident Safety Officer for all structure fire incidents/technical rescues that is dispatched on the initial alarm and the Incident Safety Officer should not be available to the Incident Commander to be assigned in different positions or assigned to complete other tasks. Although all personnel at an incident should be vigilant for unsafe acts/conditions, the Incident Safety Officer should be a stand-alone role with the focus on safety being their only responsibility/task. At a sizeable or technical incident, Assistant Safety Officers may be designated to assist the Incident Safety Officer with his/her duties. (DFD SOG 2110.05)

Dispatch/Communications Recommendations

Observation 4: Requested Re-Assignments

Reference: Dispatch Interviews

Analysis:

As the initial dispatch was going out multiple rigs requested to be added to the incident before the call was completely aired and responding units acknowledged.

Recommendation:

- Rigs should maintain radio discipline and allow dispatch to air the call completely before making any requests to be added to an incident, especially during rapidly evolving incidents to reduce workload at dispatch.

Observation 5: Extended Time to Dispatch Additional Alarms

Reference: Radio Logs

Analysis:

After Command requested a 2nd alarm it took six minutes for dispatch to build and dispatch assignments, and an additional three minutes were required for the third alarm.

Recommendation:

- In a rapidly expanding incident additional resources are critical in order to control the incident. Priority should be placed on allocating requested resources in order to allow for a proper response and to provide for safety and efficiency on-scene.

Observation 6: Rig Reposition Requests Were Not Immediately Heeded

Reference: Denver Fire Department Standard Operating Guideline 2102.09

Analysis:

Apparatus who were requested to reposition to other stations to provide coverage did not respond in a timely manner.

Recommendation:

- Officers need to recognize that when a reposition request is made there is an immediate need for the rig to re-locate. Often times this will position the rig closer to the incident which could allow the rig to be requested in the event multiple alarms are requested. (DFD SOG 2102.09)

Dispatch/Communications Recommendations

Observation 7: Fire Resources Throughout the City Were Heavily Taxed

Reference: Dispatch Interviews and Radio Logs

Analysis:

This incident entailed a three-alarm response with an additional two engines and a truck, quickly depleting the resources available for additional incidents throughout the city.

Recommendation:

- A threshold in which Emergency Callback is utilized should be defined during greater alarm incidents, natural disasters, or other occasions where an extremely large number of resources are expected to be unavailable for an extended period of time.
- Much like the previous recommendation, a threshold should be defined in which surrounding jurisdictions are notified of our situation and that mutual aid may be requested if another incident were to occur such as technical rescue, Haz-Mat, fire, etc.

Observation 8: Incident Communications

Reference: Incident Interviews

Analysis:

Communications during the incident were occasionally hampered by activity in the area and ambient noise conditions.

Recommendation:

- Consider the use of the COMD-DEN (Command Van) for large incidents to provide facilities for IC. Possible uses include monitoring of multiple radio channels, area for staff and officials to assist in establishing unified command, and logistical capabilities such as mapping and access to real-time data. The Command Van was utilized but a timelier response may have helped facilitate a means for a more unified command (DFD, DPD, DHMC).

General Recommendations

Observation 9: Apparatus Mechanical Issues

Reference: Interviews and Radio Logs

Analysis:

Truck 12 was out of service mechanically for an extremely long period of time when the city was already short Truck and Rescue companies.

Recommendation:

- Develop a SOG that under certain specific conditions, the ready reserve apparatus are more quickly and easily released to the scene, or company in need of such apparatus. Under certain circumstances this could include shop personnel responding with ready reserve/reserve apparatus to facilitate apparatus being placed back in service rapidly.

Observation 10: Vehicles Blocking Access

Reference: Incident Interviews and Radio Logs

Analysis:

Access into the incident was limited by traffic and also by police and other support vehicles with no means to easily move vehicles to provide access for responding apparatus.

Recommendation:

- Discuss with Police and other agencies the importance of leaving routes clear for emergency traffic especially in rapidly changing incidents.

Observation 11: Firefighter Was Nearly Struck On-scene

Reference: Incident Interviews

Analysis:

Reports were made that a firefighter on-scene was almost struck by one of the responding apparatus

Recommendation:

- When entering scenes extra caution should be used by all apparatus due to dangers posed by other apparatus and especially by firefighters and civilians on foot in the area.