

**GRAND JUNCTION CITY COUNCIL
WORKSHOP**

**MONDAY, SEPTEMBER 16, 2013, 11:30 A.M.
ADMINISTRATION CONFERENCE ROOM
2ND FLOOR CITY HALL
250 N. 5TH STREET**

To become the most livable community west of the Rockies by 2025

- 1. Museum of Western Colorado (MWC) Director Peter Booth:** The MWC would like to discuss with the City Council members and key City staff several issues now confronting the MWC's downtown institution, the Museum of the West. [Attach W-1](#)
- 2. Release of the 7th Street Natural Gas Leak - After Action Report:** The 7th Street Natural Gas Leak Task Force has completed the After Action Report (AAR) on the gas leak incident that occurred on March 19, 2013. A presentation will be made to City Council to review the executive summary and findings and recommendations sections of the report. In addition, Council will be briefed on any comparisons or lessons learned from the White Hall Fire AAR that were applied. [Attach W-2](#)
- 3. Other Business**

Greetings from the Museum of Western Colorado,

It is impressive how much the Grand Junction community has supported the Museum of Western Colorado (MWC) since its creation in 1964. The community can be proud of the museum they have helped build. Largely due to this support, the MWC is now one of only 13 American Alliance of Museum-accredited museums in Colorado, one of only two on the Western Slope. There are 17,500 museums in the U.S. and only 750 are accredited. This puts MWC in the top 4% of museums in the country. In addition, the MWC was the 24th in the nation to be accredited and the Museum has successfully gone through the re-accreditation process four times (one of only 1% of accredited museums to have done so). Due to our community's support, the MWC is truly one of the elite institutions in the nation. As a museum professional, it is very gratifying to know that the Museum is serving a community that appreciates the value of its mission.

This being said, Grand Junction's tourism-oriented community, which includes the MWC, is having a hard time educating the community about the importance of investing in an infrastructure that helps promote visitation and economic development. The tourism-oriented organizations can work hard to develop that which will appeal to out-of-town visitors, yet we have very little ability to develop the infrastructure that will help bring and service these valued guests to our community. These are tasks that are best fulfilled by the City of Grand Junction.

With this in mind, the MWC would like to discuss with the City Council members and key City staff several issues now confronting the MWC's downtown institution, the *Museum of the West*. Though our concerns involve our museum, what we have to discuss impacts not only the MWC, but the entire tourism-oriented community.

We would like to formally request a workshop with the City Councilors and Staff sometime soon. Specifically, we want to discuss with the City:

- The value of the MWC,
- The need for improved "way-finding" signage in the City,
- The need to develop a positive Grand Junction homeless policy,
- The need to address the petty crime in the parking lot at our Museum location,
- The need to improve the downtown neighborhood,
- The need for an increase in the promotion of the City,
- The condition of our *Museum of the West* facilities.

Value of the MWC within Mesa County and Grand Junction

The time and resources that have been dedicated by the supporters and partners of the MWC constitute a solid investment. In addition to helping create a well-respected and accredited institution, the MWC actively contributes to the community in four key ways:

1. *MWC is an important part of the local tourism economy, bringing regional, statewide and international visitors to our area.*

Heritage tourism is an ever-increasing industry that creates jobs, provides new and unique business opportunities and frequently makes preservation of history and culture possible. According to the U.S. Travel Association, in 2011, tourism directly

contributed \$759 billion to the U.S. economy. In Mesa County alone, there was \$269 million in direct spending in 2012 alone (Dean Runyan & Associates Colorado Travel Impacts, June 2013). Travel and tourism are two of America's largest employers, directly employing more than 7.4 million people and creating a payroll income of \$188 billion. In addition, when you look specifically at heritage tourists, these are some of the most valued travelers. These visitors to our community spend, on average, \$994 per-trip compared to \$611 for all U.S. travelers (*Cultural & Heritage Traveler Study, Mandel Research, LLC*). Heritage tourists stay longer and spend more. Based on these facts and figures, we can safely say that the MWC plays an integral role in Mesa County's and Grand Junction's very significant tourism industry.

2. *MWC plays a significant role in preserving and showcasing the unique heritage of the Western Slope, Mesa County and the Grand Valley.*

The MWC is the largest depository of historical, anthropological and paleontological artifacts on the Western Slope. These artifacts tell the story of Grand Junction's rich heritage as well as that of the Western Slope. The Museum makes these stories available to the public through our exhibits, research, educational programs, events, tours and more. More importantly though, the Museum is actively working with the others to help the community preserve its heritage and tell its story.

3. *The Heritage that is being shared at the MWC's museums provides an exceptional asset to Mesa County residents.*

Many of Mesa County's residents have come to value the museum as a beneficial amenity of living in the Grand Valley. As the largest Grand Junction museum, the MWC is proud to serve as a leader in the local cultural community. The museum is honored to provide exhibits, programs, workshops, lectures, trips, and more to our community. Approximately 95% of the MWC's 1,800 members come from Mesa County, most of who live in Grand Junction proper. Nearly 50% of these are Family members who regularly bring their children to the MWC.

The availability of these cultural offerings also plays a key role attracting businesses and well-educated employees to Mesa County. Quality of life is ranked as one of the top five factors companies and highly sought employees consider when looking to relocate (or retire).

4. *Our local School District, as well as other area educational facilities, use the MWC extensively to supplement their educational mission.*

In 2011 alone, 7,072 school children visited MWC. While a majority of these children came from School District 51, the MWC welcomed kids from several other Western Slope communities including Delta, Cedaredge, Aspen, Vail, Telluride and more as well as area private schools and home school families. In addition, MWC regularly works with CMU in providing valuable internship opportunities.

Need for Improved "Way-finding" Signage

The lack of adequate "way-finding" signage is a major issue for the *Museum of Western Colorado*. As you know, signage is extremely important. Grand Junction and the DDA have taken this subject seriously in the past and major efforts have been made. However, there are several key aspects of signage that remain incomplete and are critically important. In a current Visitor Survey that the MWC is now doing in conjunction with CMU, we have discovered that 24% of the visitors to our Fruita museum, *Dinosaur Journey*, reach that

location thanks to signage. This is in contrast to only 11% that find *Museum of the West* thanks to signage. We believe this one of the reasons that we see a huge disparity in the visitation numbers. *Dinosaur Journey* gets nearly four times the number of visitors as the *Museum of the West* in Grand Junction. Signage makes a significant difference.

We did an informal survey of city signage leading people to the *Museum of the West*. The good news is that for travelers coming into town on Highway 50 from the south, there seems to be a good trail of signs leading to the *Museum of the West*. From what I understand, in the recent past, the Museum spoke with the City in regards to a more noticeable sign on Ute Avenue in front of the Museum's parking lot and I would like to return to that discussion at some point, but the directional signs from the south do lead to the Museum. Likewise, the directional signage coming in on Hwy 340, over the Colorado River, and turning onto I-70B/50 also successfully leads the driver around to the Museum.

However, one of main areas needing to be addressed for the Museum (and the Downtown) is that the signs coming from Horizon Drive and turning on 7th Street don't lead the drivers to their destination. Though 7th Street crosses Main Street (and the edge of Downtown) there doesn't seem to be a sign to point the driver (who is not familiar with our town) to Downtown, which they pass on the right. Likewise, there is no sign telling these southbound drivers (who have been following the signs) to turn on Ute Avenue to go to the Museum. If they follow the directional signs as they are currently placed, the visitor will reach the Botanical Gardens instead.

Similarly, there are signs on Grand Avenue (though the one between 4th and 3rd is obscured by trees—as are several signs are around town) that indicates that the Museum and Downtown is to the south of Grand Avenue, but there are no follow-up signs to help the visitors who are trying to find the Museum.

In regard to the Horizon Drive signs, I noticed that the Museum doesn't appear on these signs until the driver is nearly at 7th Street. Is there a way for us to get a presence closer to Horizon Drive? Similarly, what are the efforts to get signs as close to the I-70 exit as possible?

On a related subject, if the visitor has successfully made it to Downtown, there are no signs on Main Street or Colorado Avenue indicating where the Museum is. This is one of our biggest concerns. We want to explore getting *Museum of the West* signage on Main Street and Colorado Avenue, leading people from Main Street to the Museum. Likewise, it would be good to get signage from the *Museum of the West* up to Main Street.

Also, I want to ask about signage coming toward downtown on I-70B both from the west and east. I would guess that a significant amount of the traffic coming in to town is following one of these two routes. On the west I-70B route, I don't remember seeing a sign for Downtown or the Museum until you get to I-70B and Main Street. Can there be such a sign at the exit ramp off of I-70? Likewise, it would be very helpful for Grand Junction's tourism economy to have similar signage on the I-70B route coming in from the east.

Next, I have noticed that some of the City's directional signs are quite fresh and look great. Others have started to fade and, in a couple situations, they have been tagged with graffiti. Is there a plan to maintain these signs?

Finally in regard to signs, the City's tourism industry really needs a presence on I-70 for Grand Junction's attractions. As the *Daily Sentinel* indicated a few months ago, hotel revenue is down largely because of the drop in business travelers. The statement then was that the City needs to turn to the tourist traffic to help make up the loss. However, a more recent *Daily Sentinel* article indicated that Grand Junction is falling behind in its promotion of tourism. The lack of signage on I-70 doesn't help (in fact it hurts very significantly). Both Palisade (wine) and Fruita (*Dinosaur Journey* and the Monument) have found a way to promote their attractions on the highway. Our Museum sees the benefit of the City of Fruita's efforts at our *Dinosaur Journey* museum. Can the City of Grand Junction help develop this key aspect of the tourism economy by investing in signage? Of course, the MWC would like to cooperate with the City on getting these signage issues addressed.

Need for a Positive Homeless Policy

Whitman Park, right across the street from the *Museum of the West*, has become a significant gathering spot for the homeless. The combination of transportation, available outreach services and the lack of an alternative solution to their plight has resulted in the Museum being located right next to what is a critical concern.

This is not a critique of the people who have found themselves in that unfortunate situation. Many of those individuals are quite respectable and given an alternative, we are sure that many of those individuals would like to find a way to improve their lives.

However, trying to run an educational facility and tourist attraction next to Whitman Park is very difficult. Visitors to our museum get concerned leaving their vehicles unattended in our parking lot or walking their children to our museum. Their concerns are most likely unfounded, but the tourism industry is based largely on perception and the perception being presented to visitors at Whitman Park is not favorable.

We recognize that this is a very complex issue and it calls for a complex, multi-faceted and calculated solution. The MWC would be willing to help in developing a positive Homeless Strategy or Policy that benefits the City along with those who are willing to accept help in hopes of improving their lives. By not developing such a policy, then the City is agreeing to an unofficial homeless policy that congregates the city's unfortunate in and around Whitman Park. By extension, this situation is forcing the Board of the MWC to think hard about the wisdom of investing in the downtown *Museum of the West* location.

Addressing Petty Crime

The MWC sees a presence of petty crime at the *Museum of the West*. This includes vandalism to vehicles, using our parking lot as a bathroom, trespassers sleeping on the roof of the Whitman building, homeless sleeping on our museum steps, and, on at least one occasion, individuals using our parking lot for their romantic rendezvous. This may not be directly linked to the residents of Whitman Park and truthfully, it is all rather minor. Nevertheless, the predominance of this petty crime increases the feeling among staff, volunteers and our visitors that the *Museum of the West* is not in a safe location. To further reinforce this negative image, the police have recently (and rightly) recommended that our staff not work late at the *Museum of the West* for their own safety.

Need for Neighborhood Improvement

Related to the conditions of Whitman Park and the petty crime is the overall condition of the immediate neighborhood. There are some wonderful historic structures in the area, yet very few businesses and people want to invest in the area due to its current state. For the

Museum of the West to truly grow, we need to expand our building, improve our entrance, and better utilize our parking lot. Additionally, we would want to take the learning experience outside and, working with the City, create an historical-themed educational landscape in Whitman Park. The MWC really would also like to attract other cultural institutions and tourism partners to the area. However, with boarded up houses along the park, deteriorating building in the neighborhood, the presence of petty crime and a visible concentration of the homeless, it is very hard to convince the MWC board, much less other partners, into investing in the Whitman Park neighborhood.

Need for Increased Tourism Promotion

The success of attracting visitors to Grand Junction depends significantly on the community's ability to widely promote itself and what it has to offer. According to tourism industry standards, a museum of the MWC's size should have a promotional budget equaling 5% - 8% of its overall budget. MWC's available resources for promotion are just under \$17,000 or less than 1% of our overall budget. This is a similar situation with the other cultural tourism sites in Grand Junction.

For this reason, we cooperate heavily with groups such as the Grand Junction Visitor and Convention Bureau (GJVCB). Barbara Bowman, Debbie Kovalik and others at the GJVCB are extremely cooperative and have worked tirelessly to promote the community. The concern is not with their efforts, but with the lack of resources available to them. Mesa County as a whole lags behind the State in the amount of resources dedicated to promoting the Grand Valley as a destination. As a result, Grand Junction lags behind the rest of the State in the growth of tourism.

Grand Junction's tourism industry depends on the GJVCB being the strongest partner it can possibly be. We would like to ask the City to strengthen the local VCB so it can enhance its marketing efforts of Grand Junction as a destination with significant cultural offerings.

Condition of the Building

Currently, the *Museum of the West* building is in need of some serious repairs. A leaky roof and a HVAC that needs immediate attention are two of the more serious issues. In addition, the Whitman Building also has some serious roof leaks, boilers that date back to the 1960s, and some potentially serious cracks materializing on the outside walls.

Beyond these immediate needs, there are some improvements that are needed. The C.D. Smith building was not built to be a museum. To be the most effective and attractive museum it can be, some improvements need to be made.

While we would very much appreciate the City's help with these needs, the reason I am bringing these facility improvements to your attention is not to ask for City resources. Instead, we need the City's partnership in insuring that any improvement to our downtown facility will be a wise investment. At this point, it will be difficult to convince the donors, foundations and the MWC Board to upgrade the *Museum of the West* because of the issues that I have detailed previously. The fear is that any resources spent on improving the *Museum of the West* would be a bad investment. The desire is to see the signage improve, the City develop a positive homeless policy that helps the needy by still promoting tourism to our area, help limit the crime issues in our neighborhood, develop a plan to address the condition of the Whitman Park neighborhood and augment the ability of the GJVCB to more effectively promote our community.

A Few Suggestions

The MWC is not qualified to suggest any course of action regarding crime, homelessness and neighborhood development. However, we are very willing to be part of the discussions that might lead to a solution.

However, the MWC can comment on developing the Grand Junction's tourism infrastructure that will promote economic development. Any action needs to be done wisely and after careful consideration. To help guide the community's development of its tourism industry, we would like to suggest the following course of action.

1. We would first propose a visitor survey of those coming to the museums and other tourist sites. The MWC's cooperative study being done this summer in conjunction with CMU can be used as a model for a larger community-wide study. Using this data, we would be in a better position to determine tourism's economic impact.
2. The visitor study would be coupled with a study on how other municipalities have successfully developed and profited from tourism.
3. Using the data coming from these studies, we would suggest a valley-wide Economic and Tourism Infrastructure Development Master Plan. This would need to involve all the key economic development entities (City, Chamber, GJEP, Fruita, Palisade, etc.) together with the groups generating the tourism (museums, downtown, wineries, etc). Collectively, this group can develop the needed goals, strategies, and action plans that will help guide public policy, private efforts and community investments as it relates to growing the local tourism industry.

We hope that sometime soon, we can ask for an opportunity to discuss these issues. Many of these are subjects that fall outside the ability of the museum and the other tourism organizations to address. We need the City to address many of these concerns. We would welcome a chance to come speak to the council about these issues or, as an alternative, we would like to invite the Council to have a work session at the Museum.

We feel that the Museum is a major contributing organization in the Grand Junction community. We would hope that the City of Grand Junction feels the same way.

Thank you,
Peter MacMillan Booth, Ph.D.
Executive Director



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Date: September 12, 2013

Author: Ken Watkins

Title/ Phone Ext: Fire Chief, 5801

Proposed Meeting Date:

September 16, 2013

CITY COUNCIL STAFF REPORT WORKSHOP SESSION

Attach W-2

Topic: Release of the 7th Street Natural Gas Leak - After Action Report

Staff (Name & Title): Ken Watkins, Fire Chief

Summary:

The 7th Street Natural Gas Leak Task Force has completed the After Action Report (AAR) on the gas leak incident that occurred on March 19, 2013. A presentation will be made to City Council to review the executive summary and findings and recommendations sections of the report. In addition, Council will be briefed on any comparisons or lessons learned from the White Hall Fire AAR that were applied.

Background, Analysis and Options:

On March 19, 2013, multiple departments from the City of Grand Junction responded to a major emergency incident at North 7th Street and Orchard. During underground utility work, an intermediate pressure natural gas line was breached creating a gas leak that migrated into the surrounding ground, the sanitary sewer system, and surrounding structures. Three houses were damaged by explosion and fire resulting in eight victims, three of which sustained burn and soft tissue injuries. Evacuation areas were established up to an 8-10 block area displacing numerous residents up to four days. A summary of this report is attached with more detail.

Within a week after the incident the Fire Department conducted a Post-Incident Analysis with a majority of the City employees that were involved. From this information, a task force was formed from involved departments to complete a more in-depth AAR of the incident. The AAR is intended to be an educational tool for improving the overall management and mitigation of emergency incidents. The general direction of the task force was to evaluate this incident and document successes and areas for improvement for future incidents of this magnitude.

Board or Committee Recommendation:

Report contains recommendations from the 7th Street Natural Gas Leak Task Force.

Financial Impact/Budget:

No financial or budget impact

Legal issues:

This report is a review of incident operations and not for determining official legal positions/responses to claims.

Other issues:

No other issues.

Previously presented or discussed:

On April 15, 2013 a Post Incident Update was presented to City Council.

Attachments:

7th Street Natural Gas Leak AAR Summary

7th Street Natural Leak – After Action Report

Executive Summary

Incident Information

On March 19, 2013, the City of Grand Junction responded to a significant incident involving multiple City departments, private companies, and outside agencies that had the potential to escalate beyond local capabilities. The incident began when utility workers using a boring machine, ruptured a 6 inch intermediate pressure natural gas line at a busy intersection. The pressurized gas was initially contained underground until it migrated into the sewer system. From the sewer system, gas ventilated from manholes and into surrounding structures resulting in explosion and fire and the evacuation of approximately 187 homes in an 8-10 block area. Eight victims (three with burn and soft tissue injuries and five uninjured) were displaced from two homes that were destroyed and a third home incurred exterior fire damage. The evacuation area also included 29 business/non-residential structures, three schools, one day care, and two churches. Xcel Energy estimated that 104 buildings were without power and gas, including the Colorado Mesa University campus. During the initial hours, the Grand Junction Regional Communications Center received 700-800 calls for service. The incident grew quickly and all personnel involved worked closely under the incident command system to bring the situation under control as quickly and safely as possible. After the initial 12 hour emergency phase, the incident transitioned into a recovery phase for additional three days. During this time, City departments, relief agencies and businesses assisted the evacuated residents with food, shelter and personal needs. Natural gas readings continued to be taken for weeks after the incident until readings were consistently negative and discontinued on May 9, 2013.

After Action Report Information

This After Action Report (AAR) is created by the City of Grand Junction and intended to be an educational tool for improving the overall management and mitigation of emergency incidents. The development of the AAR was suggested by City of Grand Junction Administration and created by a task force made up of City personnel from all involved departments. The general direction of the task force was to evaluate this incident and document successes and areas for improvement for future incidents of this magnitude.

The AAR process consisted of interviews of those involved, review of radio communications and any other information developed as part of this incident. An attempt was made to contact and interview every person that was involved in this incident. This included public safety employees from the Grand Junction Fire Department, Grand Junction Police Department, and Grand Junction Regional Communication Center. Interviews were also conducted with employees of the City of Grand Junction Public Works, Utilities, and Planning Department and City Administration. Outside interviews were conducted with Grand Valley Traffic Control, Mesa County Valley School District 51, the Western Colorado Chapter of the American Red Cross, and Xcel Energy (Xcel). Apeiron Utility Construction (Apeiron), and Safe Site Utility Field Services (Safe Site) were contacted but declined to respond to the interviews. The information obtained from these interviews and the Post-Incident Analysis (PIA) conducted directly after the incident was used to develop this report.

Findings and Recommendations

During the interview process of those involved, common successes emerged that should be recognized and celebrated. Overall, the City and all employees worked very hard to provide the best service to the community and bring this incident to a close. There was excellent cooperation between all entities on scene, all working towards a common goal of supporting the City of Grand Junction residents. There were no fatalities to the public or any injuries to any workers on the scene.

Common themes also emerged for areas of improvement including; incident command, operations, incident communications, public communications, recovery, and prevention.

Full implementation of the Incident Management Team emerged as an area for improvement under command and operations. A unified command was established but there were no formal positions identified to support command. According to the Federal Emergency Management Agency (FEMA) and the United States Fire Administration (USFA) an Incident Management Team consists of an incident commander and the appropriate command and general staff personnel assigned to an incident. Both FEMA and the USFA define unified command as incidents involving multiple jurisdictions, a single jurisdiction with multi-agency involvement, or multiple jurisdictions with multi-agency involvement. Unified command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability. Had an Incident Management Team been assigned under the unified command there would have been better control of information and resources. For example, by appointing a Planning Section Chief, each operational period would have been identified and plans for subsequent days would have been outlined and needs addressed before they occurred. Other command and general staff positions would have also brought information together to fully support the incident. A Joint Information Center (JIC) was established but there was a breakdown in the flow of information out of the command post without sufficient support from command and general staff.

A number of recommendations to include education of key players within the City of Grand Junction and the implementation of incident command training are paramount in preparing for major incidents in the City of Grand Junction. The possibility of creating a Type 4 Incident Management Team should be explored to handle similar large or complicated incidents in the future.

Since the incident, both the City of Grand Junction and Xcel Energy have made procedural changes to prevent a similar incident in the future. Complete details of the findings and recommendations are contained in the report.

Background - Emergency Phase

Address:	North 7 th Street and Orchard Avenue
Utility Locates Started:	March 14, 2013
Incident Date:	March 19, 2013
City Departments/Divisions Involved:	Administration, Fire, Police, Public Works, and Communications Center
Companies/Outside Agencies Involved:	Apeiron Utility Construction, Art Center, Colorado Public Utilities Commission, Grand Valley Traffic Control, Mesa County Sheriff's Office, Mesa County Valley School District, Safe Site Utility Field Services, Western Colorado Chapter of the American Red Cross, and Xcel Energy

Benchmarks:

Estimated Time of Gas Line Breach:	11:39 a.m.
911 Call for Gas Line Breach:	11:54 a.m.
Reverse 911 Call (shelter in place/evacuate area):	12:38 p.m.
First Evacuation Area Established:	12:41 p.m.
Tope Elementary School Shelter in Place:	12:44 p.m.
First Report of Explosion:	12:48 p.m.
Patient Transport:	1:09 p.m.
Structure Evacuation of Fire Crews:	1:29 p.m.
Main Gas Leak Controlled:	1:55 p.m.
Main Gas Leak Repaired:	5:40 p.m.
Gas Shut Off to Fire Damaged Structures:	8:48 p.m.
Fire Extinguished:	9:13 p.m.
Incident Command Terminated:	11:29 p.m.

Situation Description

Pre-Incident Description

On March 14, 2013 utility locates began at the intersection of North 7th Street and Orchard Avenue and the surrounding area to prepare for routine upgrades and improvements to the traffic signal. City street

division personnel were popping open manhole lids and measuring down to pipes for storm water and irrigation systems. These measurements were provided to Apeiron Utility Construction along with a hand written map showing the depths and locations of storm sewer and irrigation lines.

On March 15 all utilities at the intersection of North 7th Street and Orchard Avenue had been located. City street and traffic divisions were on site with Apeiron and Safe Site. Apeiron personnel were inquiring from Safe Site about the locations of two gas lines that were located and marked close together.

On March 18 City streets division personnel were at the intersection performing jack-hammering to remove concrete around pole bases. While working they observed Apeiron and Safe Site discussing the verification of gas lines that were exposed by potholing.

On March 19 at 11:00 a.m. a City traffic division supervisor arrived and spoke with Apeiron personnel. Apeiron indicated they had questions about the existing conduits in the traffic signal cabinet. At approximately 11:15 other City traffic personnel arrived to discuss a rattle Apeiron heard as they were boring from west to east under North 7th Street. At approximately 11:22 a City locator and street division employee was consulted about the possibility of there being an abandoned water line in the street. At 11:39 traffic division personnel opened the cabinet door and began to look at and expose the existing conduits in the cabinet. Shortly after opening the door they heard a gurgling sound and pressurized mud blew out of the bore hole onto the traffic division employees. The estimated time of the gas line breach and subsequent gas release was 11:39. At this time the cabinet door was closed.

Incident Description

At 11:40 a.m. a City traffic department employee opened the cabinet again and put the intersection signal into "flash" mode. At 11:41 the signal was placed into "black" mode to eliminate any switch arcing that could be a potential ignition source and workers on scene could begin to manually control traffic. For the next several minutes scene operations included calling 911, blocking off the intersection, trying to control traffic and people, contacting supervisors, and making notifications regarding the incident that just occurred.

At 11:55 Grand Junction Fire Department Truck 3 was dispatched non-emergent to the intersection of North 7th Street and Orchard Avenue for a report of a punctured gas line. After the initial update from dispatch, Captain 3 requested dispatch notify Xcel to respond with an estimated time of arrival of 15 minutes. Upon arrival at 12:04 Captain 3 found construction crews around a bore hole in the intersection of North 7th Street and Orchard Avenue. Crews from the City and Apeiron were discussing the line break and Captain 3 could see natural gas vapors venting out of the bore hole with increasing volume. Truck 3 was pulled past the scene to the south of North 7th Street and Orchard Avenue to place them upwind of the incident. Firefighter 3 was assigned to walk the perimeter with the ITX gas monitor (ITX) to determine the lower explosive limit (LEL) in parts per million (PPM) of the air. Nothing significant outside of the immediate area of the bore hole was registered.

Captain 3 made contact with the City and Apeiron representatives in the area to determine needs from the fire department. Traffic control measures were moved back an additional block in each direction,

contact was attempted with residents/businesses in the three houses and the Art Center at the intersection of 7th and Orchard, and air continued to be monitored with the ITX.

At 12:13 p.m. the incident was moved to a tactical radio channel for the operation. At 12:14 Captain 3 requested Water and/or Persigo Wastewater division representatives respond due to visible natural gas venting from the manhole in the intersection. At 12:17 dispatch advised that they notified the water department who had a response time of 15 minutes and Persigo who had a response time of 20 minutes.

At 12:20 City utility division supervisors arrived on scene and responded to the intersection of North 6th Street and Orchard Avenue and contacted the City locator who was attempting to control traffic at that location. They assisted with traffic control, conducted an assessment, and began to remove manhole covers in an attempt to provide early ventilation.

At 12:27 Truck 3 pulled a hand line for protection of the workers that were preparing to dig up the street. At approximately 12:30 Captain 3 met with a representative from Persigo who stated they have no way to shut off the gas and suggested they pull the manhole covers in the immediate area and the City employees started to lift the covers.

At 12:30 a Persigo supervisor arrived on scene and consulted with Captain 3. Based on gas emitting from the manhole, his knowledge of the underground piping systems, and where this gas would go, he recommended to Captain 3 that they enlarge the initial scene area. At this time a Persigo truck and crew were northbound on North 7th Street and were nearly on scene. Upon their arrival they began to remove manhole lids as well.

At 12:38 Captain 3 requested a reverse 911 call to advise residents and businesses in a two-block radius to stay away or shelter in place, turn off HVAC units, and close windows and doors.

At 12:41 Captain 3 requested a second engine to respond to the area for additional personnel to begin an evacuation of the immediate area of 7th and Orchard (fire crews never completed this evacuation due to the explosion and fire. Grand Junction Police Officer's arrived on scene and completed the evacuation of both sides of 7th from Orchard to Elm). At 12:42 Truck 1 was dispatched, went enroute, and made contact with Truck 3 for an assignment. Truck 3 was noted to be "on air" while updating Truck 1. They were assigned to stage with Truck 3 and then to meet face-to-face once on scene. Two City utility division supervisors walked to North 7th Street and Orchard Avenue and within a couple of minutes heard a loud explosion. This turned out to be the house explosion at 1752 N. 7th Street. At 12:44 Tope Elementary School sheltered in place.

At 12:48 Firefighter 3 notified Captain 3 of an explosion to the south of the intersection. At the same time Engineer 3 notified dispatch on Fire Primary Channel that they needed two additional engines to the location of the gas leak for a house explosion with visible fire. Captain 3 then advised dispatch on Tac 1 that an ambulance and structure response was needed one block south of the intersection. Dispatch advised they would send a full structure assignment. Truck 1 upgraded their response to emergent from North 7th Street and North Avenue and Battalion 1 responded emergent from North 7th Street and Ouray Avenue. Ambulance 3 and Engine 2 were monitoring the radio and responded upon

hearing the request for additional resources. Dispatch advised that Ambulance 2 should also go ahead and respond to the location.

At 12:50 Captain 3 stated that they have a fully involved house fire with an associated explosion at 1752 North 7th Street, he needed a second ambulance with the balance of the structure assignment, and he established 7th Street Command. Upon arrival, Ambulance 3 was assigned to staff the protection line for the workers digging in the intersection of North 7th Street and Orchard Ave.

At 12:51 Engine 4 was dispatched as the fourth engine in the structure assignment and Truck 1 and Battalion 1 both arrived on scene. When Captain 1 arrived he noted a pancake collapse of the structure at 1752 North 7th Street (Exposure 0 structure) with a small amount of fire in the interior. Firefighter 3 was providing exposure protection to the structure at 1742 North 7th Street (Delta 1 structure) and providing extinguishment of the exterior siding of 1806 North 7th Street (Bravo 1 structure). *See photo to the left showing the location and description of structures.* Captain 1 met face-to-face with Captain 3 who stated that the Exposure 0, Delta 1, Delta 2, and Bravo 1 structures were evacuated and clear (Bravo structures were north of 1742 North 7th Street and Delta structures were south of 1742 North 7th Street). Captain 3 assigned exposure protection of the Delta 1 structure to Truck 1. Upon arrival Battalion 1 contacted Captain 3 to assume command. Captain 3 stated that Truck 3 and Truck 1 were performing exposure protection to the Bravo 1 and Delta 1 structures along with extinguishment of the Exposure 0 structure and that there was gas in the sewer system. Captain 3 stated that the Bravo 1 and all Delta structures were evacuated and clear and the rest of the homes needed to be cleared. He also stated that there were two victims located with a PD unit at the church south of the incident. Battalion 1 copied and assumed 7th Street command and requested a Personal Accountability Report (PAR) of all crews on scene due to the initial explosion. Captain 3 stated that there was a full PAR on scene.

A Grand Junction Police Department Sergeant notified command stating that he had three burn victims at his vehicle located in the church parking lot south of the incident. Battalion 1 copied and assigned Ambulance 2 to respond to that location for patient treatment and transport.

At 12:55 Captain 1 notified command that the Delta 1 structure was now involved with fire and Battalion 1 assigned Engine 2 to assist with exposure protection on the Delta 1 structure upon their arrival. Battalion 1 also requested Engine 5 to respond for Rapid Intervention Team (RIT) and an additional ambulance to respond to the scene. Ambulance 6 stated that they were in the area and could respond if needed. They were assigned to respond to the church parking lot south of the incident to assist with patient care. Dispatch advised that they could send one Incident Dispatch Team (IDT) member to the scene if needed. Battalion 1 accepted the request and requested they respond to the command post in the Art Center parking lot just south of Orchard Avenue on North 7th Street.

At 12:59 Engine 4 arrived on scene and was assigned search of all the Bravo structures north of the incident. Upon their arrival they noted that the Exposure 0 structure had collapsed and that there was fire in the roof area of the Delta 1 structure. They also noted gas coming from the open manhole in the street ½ block south of Orchard Avenue on North 7th Street. Due to the visible gas, Engineer 4 moved their apparatus to the parking lot of the Art Center away from the incident. Ambulance 2 advised that Ambulance 6 would be transporting all patients to the hospital and were available for re-assignment. Battalion 1 assigned them to stage on scene as medical.

At 1:01 p.m. Captain 2 advised that there appeared to be fire on the interior of the Delta 1 structure and that they would be making an interior attack to extinguish the fire and save the house. Captain 1 established Delta Division to supervise the operations of the Delta 1 structure. Upon entering the Delta 1 structure, Captain 2 stated he had an all clear of the residence and they continued to search and extinguish fire in the attic area of that house.

Captain 4 advised that the Bravo 1 structure was clear and that the eaves of the Delta 1 structure appeared to be on fire. Engine 5 arrived and was assigned to clear the remaining Bravo structures with Engine 4 and then stage as a Rapid Intervention Team (RIT).

Captain 1 advised that the smoke was building in the eaves on the bravo side of the Delta 1 structure. Captain 2 stated that they had extinguished the room and contents fire on the first floor, were going to the second floor and needed a second hose line brought to the first floor for protection. Once on the second floor they attempted to access the fire in the attic and extinguish. Efforts were hampered in accessing the attic due to multiple ceiling layers and the type of material used to cover the ceiling. The interior crew stated they had to use a chainsaw in order to access the attic area due to this ceiling material. Ambulance 1 advised crews on scene that there was fire on the roof line of the Charlie side of the Delta 1 structure. Captain 2 requested a Conditions–Actions–Needs (CAN) report from the Delta Division who stated that there was fire coming from the eaves on side Bravo with some light to moderate gray smoke pushing from the rest of the eaves on the second floor. Captain 1 advised that Truck 1 would be assisting with interior operations of the Delta 1 structure. The fire on the first floor started burning again and Truck 1 extinguished the remaining fire on the first floor. Once the fire was extinguished on the first floor, Truck 1 moved to the second floor to assist with extinguishment of the attic area. Battalion 1 reminded Captain 3 that since this was a gas fed fire it should not be completely extinguished in the Exposure 0 structure.

At 1:04 Tope Elementary School was evacuated and students transported to West Middle School by bus. At 1:06 evacuation area expanded north on both sides of 7th Street from Orchard to Bookcliff and south to include Grand Junction High School. Students evacuated to Sherwood Park. At 1:24 Battalion 1 established a unified command with the Grand Junction Police Chief at the north parking lot of the Grand Junction High School. This area also served as a staging area for incoming units. A PAR check was completed with a full PAR from all units on scene.

At 1:29 Captain 3 notified command that there was gas venting and burning from a vent pipe on top of the Delta 1 structure and he recommends they move to a defensive operation. Truck 1 notified command that they copied the traffic to evacuate from Captain 3 and stated that they were leaving the structure. The Incident Safety Officer called for emergency evacuation horns to be sounded and Engineer 1 sounded the signal. Captain 1 hearing the emergency evacuation signal continued to quickly exit the Delta 1 structure. Upon Truck 1 exiting the Delta 1 structure they gave a full PAR. A PAR check was then completed for all units on scene giving a full PAR and this incident became a defensive operation at this point.

The Grand Junction Regional Communication Center (GJRCC) Mobile Communications vehicle was requested to respond to the command post at 1:36 p.m. with one supervisor and one driver. At 1:44 a Joint Information Center (JIC) was established with multiple Public Information Officers (PIOs) and the

American Red Cross was notified to contact IDT 1. Five press conferences were held through the day (Appendix L).

Units on scene commented that the utilities to all of the homes on both sides of North 7th Street were secured and a tow truck was called to remove vehicles parked on the Charlie/delta corner of the Delta 1 structure to prevent any damage from the fires. Captain 3 advised that the area was safe to drive a tow truck as readings were negative on the ITX. Crews started to again remove manhole covers in the surrounding area of the original gas leak to allow for gas to vent out of the sewer system.

At 1:51 Battalion 1 passed command to Battalion 2 in the unified command post and Battalion 1 became the Operation Section Chief (Ops) and was mobile on the fire ground. The location of the unified command post was established in the parking lot of Grand Junction High School. Efforts began in the command post to get key individuals with decision making capacity from the various businesses/entities/agencies that were assisting—including Xcel Energy, Apeiron, Persigo, and the City Streets division. Once back on scene Ops performed a face-to-face with all crews to determine the next phase of the operation of continuing to provide exposure protection to the Bravo 1 and Delta 2 structures. The fire in the Exposure 0 and Delta 1 structures would be monitored but allowed to burn so that the flowing gas in the area would not pose a greater problem. The gas to the main line had been shut off at 1:55 but residual gas in the lines was burning off through the fires. Firefighters in full personal protective equipment including self-contained breathing apparatus began opening manhole covers in a greater perimeter to facilitate the venting of gas out of the sewer. This included the area south of Bookcliff Avenue to Glenwood Avenue and from North 6th Street to North 8th Street.

Delta Division requested an engine to re-locate to the Charlie side of the Delta 1 structure to protect structures in that area from the changing winds and blowing the smoke column across the alley. Engine 4 was re-assigned to that location to assist the Delta Division with exposure protection.

At 2:27 p.m. a personnel rehab area with food and drink was established in the Grand Junction High School for all law enforcement units and at the Art Center for all fire units.

During the defensive operations, flames were kept from spreading to other exposures with hand lines from Truck 3, Truck 1, Engine 2, and Engine 4. Engine 5 maintained their position as RIT and Captain 5 continued to function as the Incident Safety Officer. Ambulance 1 and Ambulance 2 worked on their assignment to remove all of the manhole covers in the area. The situation was continually monitored and fires kept from spreading to additional homes. Xcel continued to try to isolate the gas lines feeding the Exposure 0 and Delta 1 structures so that they could be completely extinguished. Over the next four hours all fire crews were continually rotated through personnel rehab to allow the crews rest and hydration. At 2:45 the first press conference was conducted by the JIC.

At 2:58 Xcel began repair work on the original gas leak. A specialized Xcel crew was called in from out of the area to handle the permanent repair. Fire crews again staffed a hand line for protection of the workers in the intersection of North 7th Street and Orchard Avenue. An intrinsically safe fan was placed over the manhole south of Orchard Avenue on North 7th Street to assist with the removal of gas from the sewer line.

At 3:07 p.m. the evacuation expanded to 6th to 9th and from North to Bookcliff. At 4:00 and 5:30 press conferences two and three were conducted by the JIC. At 5:40 the main gas leak had been repaired and efforts from Xcel were directed at shutting off the gas to the Exposure 0 and Delta 1 structures. At 6:29 p.m. the evacuation area retracted to 6th to 8th from Orchard to Walnut on the north and both sides of 7th from Orchard to Elm on the south. This remained the evacuation area over night.

At 7:30 press conference four was conducted by the JIC. At 8:30 p.m. Battalion 1 transitioned from Ops back into the unified command post and Captain 3 assumed Ops. Once it was determined that the area would remain evacuated, Ambulance 1 began to shuttle residents into the evacuation area so they could retrieve necessary items from their homes that they would need through the night. Ambulance 1 continued this shuttle until 11:00 p.m.

By 8:34 the fan placed over the sewer manhole had evacuated enough of the gas from the sewer line that Engine 5 was getting zero parts per million (PPM) of the Lower Explosive Limit (LEL) readings on their ITX monitor.

At 8:48 Xcel had shut off the gas to the Exposure 0 and Delta 1 structures and final mop up was initiated. All fire was extinguished at 9:13 p.m. with a final foam blanket placed over the two structures. At 9:14 Xcel had checked the two manholes where the fans were placed and they too had a zero PPM reading and the use of the fans to evacuate the sewer lines was discontinued.

At 9:45 fire units started to clear from the scene with a complete extinguishment of the fires. At 10:45 press conference five was conducted by the JIC. By 11:29 p.m. all units had cleared and command was terminated. Persigo crews stayed on scene all night continuing to monitor gas levels and to ventilate the sewer system and the Grand Junction Police Department provided scene security throughout the night as well.

Post-Incident Description

After midnight on March, 20 2013, Persigo crews worked through the night and into the next day ventilating and monitoring gas readings. These gas readings continued on an hourly basis for the next several days.

At 7:00 a.m. representatives from the City and Xcel discussed returning the evacuated citizens back into their homes. Xcel representatives stated they had utility technicians available to accompany residents in order to restore service to their home. City utility division supervisors were concerned that the gas level readings in the sewer were still too high to allow residents back into their homes. Residents were beginning to gather in the parking lot of the Grand Junction Seventh-Day Adventist Church at the corner of North 7th Street and Mesa Avenue while discussions between the City and Xcel continued, eventually settling on not allowing residents to return until readings were lower and sewer lines were flushed.

The power to the church had not been returned so two school buses were brought in as a place for residents to wait while a decision was made on when they could return to their homes. The City conducted informational meetings with the displaced citizens and media three times daily, usually at 8:00 a.m., 1:00 p.m., and 5:00 p.m. Once Xcel restored power and heat to the Grand Junction Seventh-Day Adventist Church, this building became the temporary evacuation center for the displaced residents and for meetings between representatives on scene. City staff began to assess what they could do to

assist displaced residents once it was determined that they could not return to their homes in the affected area on both sides of North 7th Street south of Orchard Avenue and north of Elm Avenue. The gas levels were monitored throughout the morning and when it was determined that the evacuation area be retracted to this perimeter, residents were given vouchers for rooms at the Grand Vista Hotel by the City and the American Red Cross.

The American Red Cross and the Salvation Army took the lead in providing shelter to the displaced residents. They along with the Grand Junction Police Department Victim Advocates assessed individual and family needs and provided any necessary assistance. The City financially supported the American Red Cross and Salvation Army in this effort by funding approximately \$3,400 for temporary lodging and \$4,900 in Albertsons and Safeway gift cards to help residents meet their needs and help cover the cost of food that had to be discarded due to utilities being shut-off. All three agencies worked to identify the needs and issued the cards accordingly. During the incident and post incident, Pantuso's restaurant provided 287 meals (breakfast, lunch, dinner) over an eight day period at no cost, for residents that were displaced from their homes. Over 100 citizen contacts were made as a result of working with displaced individuals and families. Other ancillary costs involved \$1,200 for the purchase of vented manhole covers and approximately \$9,000 for traffic control.

At approximately 2:00 p.m. on March 21 the evacuation area was reduced to homes on both sides of North 7th Street south of Orchard Avenue and north of Mesa Avenue. Residents that were allowed back into their homes were escorted by Xcel and Grand Junction Fire Department employees to monitor the air in the homes and to restore services to the homes. The City continued citizen meetings on a regular basis in an effort to provide updated incident information. Xcel Energy began to drill bore holes through the asphalt to take gas readings in the soil below the street. This continued for the next couple of days. A "Hot Line" was set up in the evening to provide information to the public and was staffed by Grand Junction Police Department volunteers.

By the end of the day on March 22, all residents had been allowed back into their homes along North 7th Street with the exception of residents of the two structures involved in the fire. These residents continued to use the hotel vouchers until other accommodations could be made. City utility division workers continued to monitor the air for gas in the sewer and surrounding area.

On March 26, residence assistance transferred from City Administration to a Grand Junction Fire Department Captain who continued working with the American Red Cross to provide assistance to the remaining victims displaced by the fire in the two homes. All but two of the residents of the homes destroyed had made temporary housing arrangements and all were offered housing by Colorado Mesa University since they were students. The offer was declined and these two individuals used one additional night of lodging at the Grand Vista Hotel as they had secured more permanent housing. Hilltop also offered a house for residents use but it was not needed.

By March 27 all displaced students had found housing and Grand Junction Police Department Victim Advocacy Coordinator and the American Red Cross filled the contact roles for any future requests regarding this incident.

Persigo crews continued monitoring area gas readings several times daily through May 9, 2013 at which time monitoring was discontinued as the gas PPM returned to a normal reading of zero.

Findings and Recommendations

Throughout this incident there were many successes. Overall, the City along with representatives from private companies and other agencies worked very hard to provide the best service to the community and bring this incident to a close. There was excellent cooperation between all entities on scene, all working towards a common goal of supporting the City of Grand Junction residents. During the interviews with everyone involved in this incident the following successes emerged and should be recognized.

- The community came together with emotional and financial support, food, clothing and housing for those in need.
- All City departments, their employees, and the private contractors worked well together to bring this incident under control.
- There were no deaths as a result of the explosion or ensuing fires.
- There were no injuries to any workers on the scene.
- The City working with the American Red Cross, provided resources to the displaced citizens in the form of meal vouchers and room vouchers.
- The spread of fire was limited to three structures.
- The volunteer staff worked hard to take care of the needs of the displaced citizens.
- The communications truck worked well as the command post and unified command was a good idea to institute with some changes needed in future incidents.
- Evacuations went well considering the continually changing perimeter.
- Having the ability to staff the tactical radio channel with two dispatchers to listen and document all of the traffic to make sure nothing was missed worked well.
- The staffing level of the communications center was at full staff and the ability of administration and IT staff to assist in the center was beneficial.
- The fire crews were disciplined in their assigned task when the emergency evacuation was ordered of the delta exposure structure.
- Ability to receive mutual aid from other county law enforcement agencies to assist with evacuations, scene security, and respond to additional calls for service worked well.
- Persigo crews were able to use their new gas monitors and they trusted the units. Each employee also had their own gas monitor which provided comfort for them while working in the hazard area.

Common themes also emerged for areas of improvement including: incident command, operations, incident communications, public communications, recovery, and prevention. These areas are outlined in the findings below along with recommendations for improvement.

Incident Command:

Finding:

Command and general Staff positions were not fully established, creating insufficient support of the initial incident and planning for subsequent operational periods. There was no designated lead agency in the unified command post which led to confusion in the structure of the Joint Information Center.

Recommendation:

Command Team and Call-Out Procedures

- Establish who the lead agency will be when involved in a unified command.
- Establish a “Command Team” concept at the City level to respond to expanding events.
 - Automatic dispatching fire department command officers to incidents
 - Automatic dispatching one Incident Dispatch Team member per agency to incidents
 - Develop notification procedure for City department heads
 - Assign a Battalion Aide position
 - Notification of the Mesa County Emergency Management Office

Incident Command Training

- Establish procedures for expanding the role of Incident Commanders. Training on development of Incident Action Plans and when to implement.
- Provide additional general Incident Command System (ICS) training to all other essential City departments.
 - General over view for GJRCC dispatchers
 - Include Grand Junction Rural Communication Center (GJRCC) personnel in department level training scenarios when ICS is utilized or established
 - General over view for department heads and essential supervisors
 - Include procedures to contact command units on emergency scenes
 - Include procedures for on-scene interactions between supervisors and command units
 - Provide training and exercises for public works employees on:
 - Scene awareness
 - Scene accountability
 - Reporting into the command post
 - Scene security
- Provide “Federal Emergency Management Agency (FEMA) ICS-300: Intermediate ICS for Expanding Incidents” and “FEMA ICS-400: Advanced ICS Command and General Staff – Complex Incidents” to all Grand Junction Fire Department Captains/Upgrade Captains and above, Grand Junction Police Department Sergeants and above, and

City of Grand Junction Advisory and Implementation Management Team (mid-level managers) and above.

- Evaluate the need to form a Type 4 (Municipal Level) Incident Management Team that would receive advanced ICS training (ICS-300 and ICS-400) classes.

Operations:

Finding:

Limited response resources to cover the City and geographic isolation created the inability to provide additional resources during prolonged operations at large or multiple incidents.

Recommendation:

- Develop a reliable call-back system for critical staffing positions.
- Develop a standardized list of units/agencies/department to be called as a group.
- Improve ability to provide sufficient fire and EMS capability by building and staffing additional stations and apparatus.
- Use of mutual aid agreements and the development of automatic aid agreements with other agencies.

Incident Communications:

Finding:

Limited and conflicting information was passed along to personnel working on the incident. Difficulty in contacting personnel on scene due to limited number of portable radios. Dispatch capabilities were not working in the communications vehicle when it responded to the incident.

Recommendation:

- Develop and distribute a "Command Team" phone list for department leaders, managers.
- Provide training to all personnel on emergency scene communications and proper procedures to ensure all orders are understood.
- Utilize one IDT member in the command post to fill the role of Communication Unit Leader under ICS.
- Provide a reliable system to replace or recharge cell phone batteries on incidents.
- Provide incident updates to all units upon dispatch regardless of when they are notified.
- Provide training on the use of cached 800 Megahertz (MHz) radios.
- Evaluate need for non-public safety departments to be on 800 MHz radio system.
- Place communication vehicle out of service whenever not available.

Public Communications:

Finding:

Information was immediately provided through multiple sources including social media and news media outlets as soon as it was released from the command post. However, notification of the citizens on how to access this information and how to receive emergency notifications was recognized as an area to improve upon.

Recommendation:

- Provide a designated location for public information such as an information booth or website.
- Differentiate between media briefings for command personnel vs. the media.
- Provide a “Hotline” earlier in the event. The ability to utilize a “211” information number in large events has already been coordinated for the future.
- Utilize the JIC website to distribute updated emergency information.
- The sheriff and police departments are working on coordinating posts to their Facebook pages so that immediate and consistent information can be posted.
- Continue to develop a monthly public awareness campaign to utilize the “Grand Junction Regional Communication Center Emergency and Community Notification System”.
 - Notices placed in City utility bills
 - Perform public outreach
 - Develop social media awareness campaigns
- School District 51 is working on a district wide text messaging system for students and parents to receive timely information.

Scene Security:

Finding:

Limited police personnel created an inability to control security at the scene. Bystanders and vehicles were able to enter the hazard area.

Recommendation:

- During large incidents consider the possibility of supplementing traffic control measures with private security companies or traffic control companies.

Recovery:

Finding:

As the incident transitioned from an emergency phase to a recovery phase there was no system to transfer command or maintain incident control.

Recommendation:

- Formalize the process to transfer command throughout the operational phases.

- Develop an Incident Command Chart that displays who is responsible for the recovery portion of different types of incidents.
- Recognition that large incidents may have continuing phases.
- Research feasibility of attending FEMA “E900 – IEMC: All Hazards Preparation and Response” Course.

Prevention:

Finding:

Need for stronger method to identify utilities and reduce the possibility of similar incidents.

Recommendation:

- Develop a checklist for notifications and assistance of all associated departments and contractors prior to beginning work.
- Provide mapping of utilities.

Adopted Prevention Methods:

The City of Grand Junction Public Works, Utilities, and Planning Department has established the following standard requirement on any street cut permit issued within the City or for any permit that may be issued for installations crossing parallel to Persigo Sewer System infrastructure.

- Any contractor installing utility conduits via a boring method, either crossing or longitudinal to Persigo Sewer System infrastructure, that may or may not be located in easement, tract, or street rights of way, shall provide Closed Circuit Television (CCTV) video documentation of the sewer main line and service line condition along the alignment of utility conduit installation. The CCTV documentation shall be conducted immediately after completing the new utility conduit installation. A video copy of the documentation with plan view schematic showing orientation of the sewer system and utility conduit alignment shall be provided to the City for review prior to approval of the work.

The following is the new Xcel process that must be adhered to when excavating around an Intermediate Pressure gas line. Xcel Energy has started this new policy in Mesa County and is trying to institute it statewide. ***Note: There is a difference between Safe Site and Site Wise. These are both utility locate companies.***

- Contractor/Excavator calls in a normal utility locate - 811
 - Xcel has created a Member Code for Intermediate Pressure (IP) gas lines. (The City has a Member Code because we do locates for our water and sewer lines, Xcel has a Member Code for their regular gas and electric lines, etc) The current contractor for Xcel to respond to these locate requests is "Site Wise".

- Regular utility locator for gas and electric lines (currently "Safe Site") will do their locates. If an IP gas line is in the excavation area, Safe Site will mark the IP gas line and then will contact Site Wise.
- Site Wise will notify contractor/excavator that an IP gas line is in the vicinity of their excavation or bore.
- If excavation/bore is within 10 feet of the IP gas line then Site Wise will send out a person to watch while excavation/bore takes place.

Xcel has adopted an internal policy to treat all Intermediate Pressure lines in the same manner as they currently treat High Pressure lines. This policy can be referenced in Appendix L.

Appendix A

Critical Incident Factors

Scene Description:

The incident included the primary gas leak in the intersection of North 7th Street and Orchard Avenue. The exposure zero structure was located at 1752 North 7th Street and the delta one exposure was located at 1742 North 7th Street. The initial command post was located at the Art Center south of the intersection of North 7th Street and Orchard Avenue and it then moved to the north parking lot of the Grand Junction High School. Scene security was difficult with such a large perimeter, ultimately 6th Street to 9th Street and from North Avenue to Bookcliff. The evacuation area changed six times over three days as listed below.

Gas Line Description:

The gas line breach occurred during boring operations in the intersection of North 7th Street and Orchard Avenue. The gas line was a 6 inch intermediate pressure (150 psi) supplying Colorado Mesa University and owned by Xcel. Gas migrated through the sewer system and ground. Gas readings were present until May 9th.

Fire Description:

The first structure to become involved in fire was the exposure zero structure at 1752 North 7th Street. This home exploded and became involved in fire spreading to the delta one structure at 1742 North 7th Street. Both of these fires were gas fed fires originating in the sewer system. A third structure, Bravo 1 at 1806 North 7th Street, sustained minor damage from radiant heat.

Medical Concerns:

There were three parties injured that lived in the residence at 1752 North 7th Street. All three sustained burn and soft tissue injuries during the initial blast. All three victims were moved to the parking lot of the Grand Junction Seventh-Day Adventist Church at the corner of North 7th Street and Mesa Avenue. An ambulance treated and transported all three victims to St. Mary's Hospital for further treatment. There were no injuries to responders.

Evacuation Description

During the four day event approximately 187 homes were evacuated along with a number of businesses and other facilities.

The American Red Cross established an evacuation center at the Grand Junction High School but only a limited number of residents took advantage of this center. Most displaced residents found accommodations on their own. The American Red Cross and the City of Grand Junction assisted with hotel and food vouchers for a displaced residents over four days event until they could either return to their home or find new housing. Pantuso's restaurant served 287 meals (breakfast, lunch, dinner) to displaced residents over an eight day period

The evacuation area changed six times as listed below:

March 19, 12:04 p.m. - Initial Gas Leak Area: Intersection of 7th and Orchard. Includes the three houses on the corners and the art center.

12:41 p.m. - Evacuation Area #1: Both sides of 7th from Orchard to Elm

1:06 p.m. - Evacuation Area #2: Both sides of 7th from Orchard to Bookcliff, including Tope Elementary and Grand Junction High School.

3:07 p.m. - Evacuation Area#3: 6th - 9th from North to Bookcliff

6:29 p.m. - Evacuation Area #4: 6th - 8th from Orchard to Walnut and south of Orchard both sides of 7th to Elm

March 20 - Evacuation Area #5: Both sides of 7th from Orchard to Elm

March 21 - Evacuation Area #6: Both sides of 7th from Orchard to Mesa (March 21)

Appendix B

Timeline

Pre-Incident Timeline

March 14, 2013	Utility locates began at the intersection North 7 th Street and Orchard Avenue
March 15, 2013	All utilities had been located
March 18, 2013	Apeiron and Safe Site employees discussed the verification of the gas line exposed during potholing
March 19, 2013	
11:00 a.m.	City supervisors and Apeiron discussed conduits in the area
11:15 a.m.	City traffic personnel arrived to discuss a rattle heard during boring
11:22 a.m.	Discussion took place regarding abandoned water lines
11:39 a.m.	Estimated time of gas line breach

Incident Timeline

March 19, 2013	
11:40 a.m.	Traffic signal put into “flash”
11:41 a.m.	Traffic signal put into “black”
11:54 a.m.	911 called for gas leak
11:55 a.m.	Dispatch Truck 3 for Gas Leak
11:57 a.m.	Request for Xcel to Respond
11:59 a.m.	Xcel has a 15 min ETA
12:04 p.m.	Truck 3 On Scene
12:13 p.m.	Crews Assigned Tactical Channel
12:14 p.m.	Request to Notify Water and Persigo of Gas in Sewer
12:27 p.m.	Protection Line Established for Excel
12:38 p.m.	Request for Reverse 911 Call to “Shelter in Place”
12:41 p.m.	Request for Manpower to assist with evacuations
12:42 p.m.	Dispatch Truck 1 for manpower to assist with evacuations
12:44 p.m.	Tope Elementary Shelter in Place

12:48 p.m.	First Report of Delta 0 Explosion
12:48 p.m.	Request for Full Structure Assignment
12:50 p.m.	Truck 1 Arrive on Scene
12:51 p.m.	Battalion 1 Arrives on Scene
12:52 p.m.	Battalion 1 Assumes Command
12:52 p.m.	JIC Notified
12:52 p.m.	GJPD on scene
12:55 p.m.	Delta 1 Exposure Exterior Involvement
12:58 p.m.	Ambulance 2, Ambulance 2, Engine 2 Arrive on Scene
12:57 p.m.	Request IDT at Command Post
1:01 p.m.	Delta 1 Interior Attack
1:04 p.m.	Evacuation Area #2 (includes Tope and GJHS)
1:06 p.m.	Engine 5 Arrives on Scene
1:09 p.m.	Patient Transport
1:13 p.m.	Confirmed Staging at Art Center
1:17 p.m.	RIT Established
1:21 p.m.	Engine 4 Arrives on Scene
1:24 p.m.	Battalion 1 Establishes Unified Command
1:29 p.m.	Recommendation for Defensive Ops
1:29 p.m.	Structure Evacuation with full PAR
1:36 p.m.	Request for Comm Van for ICP
1:44 p.m.	Joint Information Center Established
1:44 p.m.	Red Cross Requested
1:51 p.m.	Battalion 1 assumes Operations
1:55 p.m.	Main Gas Leak Control
2:32 p.m.	Firefighter Rehab at Art Center
2:35 p.m.	Police Officer Rehab at GJHS
3:07 p.m.	Evacuation Area #3
5:40 p.m.	Main Gas Leak Repaired

6:29 p.m. Evacuation Area #4
8:00 p.m. Evacuees Escorted to their Homes for Personal Items
8:30 p.m. Battalion 1 Assumes Command
8:48 p.m. Gas Shut Off to Delta 0 and Delta 1
9:13 p.m. Fire Out
9:45 p.m. Fire Mopped Up
11:29 p.m. All Units Cleared / Command Terminate

March 20, 2013 Evacuation Area #5
Crews from Persigo continued monitoring through the night
Grand Junction Police Department provided security through the night

March 21, 2013 Evacuation Area #6

May 9, 2013 Gas monitoring was finally discontinued

Appendix C

Diagrams of Incident

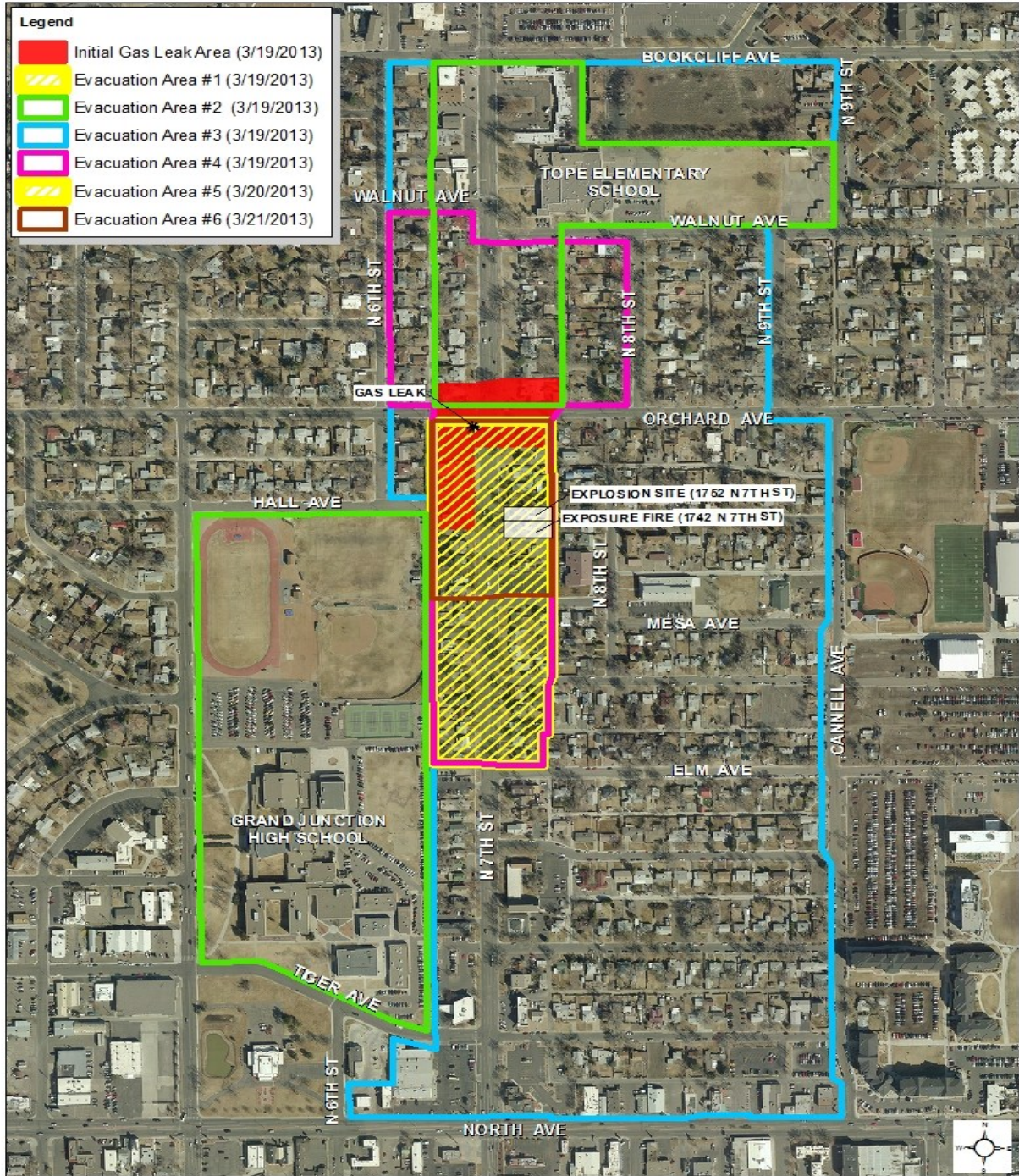
Area Involved:



Emergency Incident Location:



**Evacuation
Area:**



Utility Area:



Appendix D

Press Releases (in ascending order)



JOINT INFORMATION CENTER

Media Contacts:

Fred Eggleston- Xcel Energy, 970-216-1487

Sam Ranguet- City of Grand Junction, 970-244-1507

Gas Leak and Explosion on 7th St.
March 22, 2013 6:00pm

FOR IMMEDIATE RELEASE

MESA COUNTY, Colo – At approximately 3:00pm today, 7th St. and Orchard Ave. opened in all directions, and all lanes of traffic are open. Utility crews will continue to monitor the manhole at the intersection of 7th St. and Orchard Ave. where the initial gas line breach occurred to make sure the natural gas readings do not change. As a result, people driving in that area will occasionally see workers in that area taking readings for several more days.

Tope Elementary will be open Saturday, March 23 from 8 – 10 a.m. for parents to come by and collect any personal belongings that may have been left behind after Friday's evacuation.

There are representatives from multiple agencies doing simultaneous investigations, including the City of Grand Junction, Xcel Energy, and various insurance companies. A preliminary analysis of the emergency response to this incident shows the first 911 call came at 11:54am on March 19 from an employee of the company that was drilling at the intersection of 7th St. and Orchard Ave. The first fire truck arrived on scene at 12:04pm and Xcel Energy was also responding. During this time several citizens also called 911 to report the smell of gas in the area. Traffic was being diverted away from the area and firefighters set up hose lines near the source of the leak. At 12:38pm the firefighters advised dispatch they had a significant problem and requested additional fire units. At 12:48, as the second fire truck was arriving on scene, the house six properties away from the source of the gas leak exploded.

Timelines and information from the numerous parties involved with this incident are still being compiled and collected, as this extremely complicated investigation continues.

Previously released on March 22 at 9:45am

MESA COUNTY, Colo – All of the residents evacuated due to the gas leak and explosion are being allowed to return home this morning. Any residents returning home need to check in at the Seventh Day Adventist Church before going into their houses. Residents will be paired with an Xcel Energy employee who will go inside the home to turn on the gas and electricity, and to re-light pilot lights.

Xcel Energy and City of Grand Junction crews will remain in the area, including on streets that were not evacuated, continuing to test and evaluate the area to make sure it remains safe. This will be the case for several more days. Residents and workers in the area, including those in the nearby neighborhoods, should expect these workers, and should not be alarmed by their presence. They are simply there out of an abundance of caution.

For the next couple weeks, anyone who returns to their home needs to continue monitoring their toilets and drains, as part of the process for ventilating the gas out of the sewer system may have an effect on the sewer lines in the house. For example, if residents notice their toilets are not functioning properly, such as the water draining on its own or not refilling after being flushed, they should call 911 to report it. Also, if they smell any gas they should call 911 to report it.

7th St. will remain closed for now, to allow workers and their equipment access to the street, and to allow for any additional ventilating to occur. Residents needing to access their homes from 7th St. can do so by coming north from Elm Ave.

Previously Released on March 21 at 9:45am

MESA COUNTY, Colo – Tope Elementary School has been evacuated out of an abundance of caution after someone smelled natural gas coming from one of the manholes on the school property. All students are being bussed to West Middle School. Parents can meet at the commons area of the school starting at 10:00am to pick up their students.

Xcel Energy crews and City of Grand Junction crews have tested and evaluated the area around Tope Elementary. At this time there is no danger to the school or the surrounding neighborhood.

Previously released on March 21 at 2:30pm

MESA COUNTY, Colo – Some of the evacuees will be able to return to their homes today. The evacuation for homes south of Mesa Ave. has been lifted. Homes facing 7th St. between Orchard Ave. and Mesa Ave. are still evacuated at this time. The next update for evacuees is scheduled for tomorrow (Friday, March 22) at 9:00am at the Seventh Day Adventist Church.

The Evacuee Hotline will be staffed until midnight tonight, and will be staffed again tomorrow beginning at 6:00am. That number is 970-549-5130.

Anyone who is returning to their homes today needs to check in at the Seventh Day Adventist Church prior to going into their residence. Xcel Energy employees will go with the residents to turn on the gas and electricity and to re-light their pilot lights.

For the next couple weeks, anyone who returns to their home needs to continue monitoring their toilets and drains, as part of the process for ventilating the gas out of the sewer system may have an effect on the sewer lines in the house. For example, if residents notice their toilets are not functioning properly, such as the water draining on its own or not refilling after being flushed, they should call 911 to report it. Also, if they smell any gas they should call 911 to report it.

Previously Released on March 21 at 9:30am

MESA COUNTY, Colo – The evacuation boundaries remain the same, as there are still pockets of gas in the soil and sewer systems that make it unsafe for residents to return to their homes.

This morning Xcel Energy needs to check inside each of the evacuated homes. To do this, a resident from each home needs to report to the Seventh Day Adventist Church at 730 Mesa Ave. as soon as possible to be partnered with an Xcel Energy employee and a Grand Junction Firefighter. Together they will enter the homes one by one to check inside. The resident will also have approximately five minutes to gather any necessary items from inside their home at that time.

Any evacuated resident who needs transportation assistance can call the Evacuee Hotline and we will send a shuttle. The hotline number is 970-549-5130.

Additional specialized Xcel Energy equipment is expected to arrive at the scene early this afternoon to help purge the gas that is under the surface. Gas readings in the area improved overnight, but are not yet at a safe level. This morning's rain did not help the ventilation efforts that are underway, as the wet soil makes it more difficult for the gas to dissipate.

The next evacuee update is scheduled for 1:00pm today at the Seventh Day Adventist Church. The Evacuee Hotline will also be updated at that time. We will also let residents know during that briefing if they will be allowed to return to their homes this evening. Evacuees who have not already signed up with the Red Cross for a hotel room can do so by coming to the Seventh Day Adventist Church.

Previously released on March 20 at 5:00pm

MESA COUNTY, Colo - Xcel Energy is in the process of restoring electricity to part of the area affected by the power outage. Only the homes facing 7th St. between Orchard Ave. and Elm Ave. will remain without electricity tonight.

The evacuation area due to the gas that leaked remains the same: the homes facing 7th St. between Orchard Ave. and Elm Ave. This will remain in effect at least through the night, with Xcel Energy crews re-evaluating first thing in the morning. Gas readings in this area remain too high for people to be allowed back into their homes. Venting will continue throughout the night, with the hopes of getting the gas to dissipate overnight.

A hotline has been set up for evacuees: 970-549-5130

This hotline will have the latest information on the status of the evacuations, and will be manned until midnight tonight. There will be a recorded message until 6:00am tomorrow (Thursday, March 21), at which time it will be manned again throughout the day. If you call and get a recording before midnight comes, it means we are answering another caller. Leave your name and phone number and we will have someone return your call.

Anyone who is either in the evacuation zone or who is without electricity can check in with the Red Cross to receive a hotel voucher for tonight (Wednesday, March 20). Vouchers will be distributed until 7:00pm tonight. The Red Cross is set up at the Seventh Day Adventist Church at 730 Mesa Ave.

The next briefing for evacuees is scheduled for 9:00am tomorrow (Thursday, March 21) at the Seventh Day Adventist Church.

Grand Junction Police officers will again have extra patrols in the area to watch for suspicious activity in the evacuation area.

Tope Elementary will open on a normal schedule Thursday, March 21, 2013. Xcel Energy teamed up with District 51 to check for safety issues at the school throughout the day Wednesday. Through these extra steps of precaution, it has been determined that Tope Elementary is safe and ready for students.

Previously released on March 20 at 3:00pm

MESA COUNTY, Colo - Several dozen residences on 7th St. between Orchard Ave. and Elm Ave. remain evacuated because of gas in the area. Xcel Energy crews are constantly testing for gas in the evacuated area, and have found several gas bubbles that are not dissipating as quickly as they would like. Crews have been drilling holes in the street to help the gas escape.

Electricity remains turned off for customers from 7th to 8th Streets and Orchard Ave. to Texas Ave.

Anyone who is either in the evacuation zone or who is without electricity can check in with the Red Cross to receive a hotel voucher for tonight. Vouchers will be distributed until 7pm tonight. The Red Cross is set up at the Seventh Day Adventist Church at 730 Mesa Ave. Volunteers will also be going door to door this afternoon to make sure people who may have returned to their homes despite not having electricity are aware of the hotel vouchers.

Periodic updates for evacuees are being held at the Seventh Day Adventist Church. The next update is planned for approximately 3:30pm.

Previously released on March 19 at 11:00pm

MESA COUNTY, Colo - A meeting is planned for 8:00 a.m. tomorrow morning (Wednesday, March 20) at the Seventh Day Adventist Church at 730 Mesa Ave for anyone who is still evacuated. At that time, crews from Xcel Energy will team up with residents to go into individual homes and check for safety issues related to the gas leak and to re-light any pilot lights that went out. If the homes are deemed to be safe, residents will be allowed to remain in their homes.

The evacuation area continues to be within the following boundaries:

- both sides of 7th St from Elm St. to Walnut Ave
- Orchard Ave. to Walnut between 6th St. and 8th St.

The exact cause of the gas leak and subsequent explosion is still under investigation. At this point we know a private company contracted by the City of Grand Junction was boring into the ground as part of the process to upgrade the traffic signal at 7th St. and Walnut. At some point a gas line was struck, followed by the gas leak and explosion.

Xcel Energy has been able to stop the gas from leaking further, however it will take several more hours to repair the line. The American Red Cross is sheltering more than a dozen evacuated residents inside the Grand Junction High School gym.

The gas is now back on at Colorado Mesa University and all of the lines should be functioning normally at that location.

Grand Junction High School will be open as usual tomorrow (Wednesday, March 20), with TCAP testing beginning at 7:25am for 9th and 10th grade.

Tope Elementary will remain closed tomorrow (Wednesday, March 20).

Grand Junction Police officers will be patrolling the evacuation area to help provide added security and to look for any suspicious activity.

Previously released at 7:30pm

MESA COUNTY, Colo - Some residents who have been evacuated are being allowed back into their homes, however others will remain evacuated overnight. The current evacuated area includes approximately 75 homes within the following boundaries:

- both sides of 7th St from Elm St. Walnut Ave
- Orchard Ave. to Walnut between 6th St. and 8th St.

The American Red Cross is on scene at Grand Junction High School providing assistance and shelter for anyone who is still evacuated. Evacuees can get dinner at the Salvation Army building on 6th St.

This evening the Grand Junction Fire Department is taking residents who are in the evacuation zone into their homes to make brief checks and collect necessary items such as medications and pets. If you need to get into your home tonight, please meet at the command post in the GJHS parking lot prior to 11:00 p.m. so you can be teamed up with Fire personnel who will take you to your home.

Previously released at 5:30pm

MESA COUNTY, Colo - Of the three injured victims, one has been released from the hospital and the other two victims are being admitted for overnight observations at this time. The two homes, 1752 and 1742 North 7th Street, were a total loss and they remain on fire to burn off any escaping gas that continues to leak and because there is no structure to salvage.

Xcel Energy has determined the location of the gas leak, which is approximately seven feet underground in the area of 7th Street and Orchard Avenue. Xcel Energy has a crew enroute to the area to do the dangerous work of repairing the leak. The gas line leaking is a "transmission line" to Colorado Mesa University (CMU), and does not feed gas to area residential homes. The gas is leaking into the sewer lines, which is why the area remains evacuated.

CMU is currently without gas. There are also about 104 buildings without power as well. Officials are optimistic the evacuation area will be considerably shrunk before dark today. However, anyone needing services because of the evacuation can find the Red Cross at the Grand Junction High School.

Previously released at 4:00 pm

MESA COUNTY, Colo - The evacuation area for this incident has been expanded. The current evacuation zone is 6th Street to 9th Street, North Avenue to Bookcliff Avenue. Residents who have been evacuated and need a temporary place to use facilities can come the Grand Junction High School. If this incident lasts into the evening, GJHS will be opened as a shelter for evacuees, however that has not happened at this point.

Xcel Energy and Grand Junction Fire crews are removing manhole covers to release the gas from the sewer system, and Grand Junction Police officers are going door to door to make sure people have been evacuated.

School District 51 officials are on scene, and at this point are not expecting classes to be canceled for tomorrow. Should that change, school officials will notify parents later today.

Previously released at 2:45 pm

MESA COUNTY, Colo - At approximately 12:50 pm Grand Junction Fire crews were working with Xcel Energy on scene of a gas leak in the area of 7th St. and Orchard Ave. Fire fighters spotted a fire in the home at 1752 7th St. and called for more units. As the units were responding the house exploded due to gas inside the residence. Three people who were inside the home at the time of the explosion received significant injuries and were transported to the hospital.

The fire from the home that exploded spread to the house next door at 1742 7th St. That fire is being fought defensively, which means fire crews are working it from the outside only.

Approximately 30 fire personnel are currently on scene, as well as Grand Junction Police Department, Mesa County Sheriff's Office, Colorado State Patrol personnel, and City of Grand Junction personnel.

Residents in a two block radius of the explosion were evacuated, as were Tope Elementary School and Grand Junction High School. Tope students were bussed to West Middle School for parent pickup. GJHS students were evacuated to either the Salvation Army building or Sherwood Park for pickup.

All lanes of 7th St. from Patterson Rd. to North Ave. are closed.

Xcel Energy has shut off gas to the area and is assessing the extent of the outage at this time.

*** Media Note*** - A media staging area has been set up in the north parking lot at GJHS. The media hotline is 970-986-0950.

A news conference has been scheduled for 3pm in the GJHS parking lot.