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NEVADA COUNTY
BOARD OF SUPERVISORS

EACH SUPERVISOR REC'D.

CE: Planning
Counsel
CEO

Date: October 3, 2017

To: Nevada County Board of Supervisors

From: Kim Crevoiserat, Kenneth & Elise Stupi, Robert & Candace Burbage, Carter & Louise Taylor, Sterling & Connie Bailey, Dana and Fayrene Dickey, & Ron & Mary Arneson

Re: Appeal of Planning Commission's approval of the Northern Sierra Propane Development Permit (PLN16-0072; DVP16-8; EIS 16-002)

Hearing: October 10, 2017 at 1:30 PM in the Nevada County Board Chambers

REQUEST TO REJECT THE AIRPORT LAND USE COMMISSIONS RECOMMENDATION OR
ASK FOR RECONSIDERATION IN LIGHT OF NEW INFORMATION

The extent of information that needs to be covered at the October 10 hearing exceeds what can be communicated in the allotted time. Therefore, we are submitting detailed information in advance of the hearing that is relevant to the proceedings. The information will not be extensively covered but is important for your review and consideration.

Background:

1. The Planning Commission's Approval of the Northern Sierra Propane Development Permit (PLN16-0072; DVP16-8; EIS 16-002) was predicated on a recommendation by the Airport Land Use Commission (ALUC).
2. The Airport Land Use Compatibility Plan (ALUCP), which was adopted by the Board of Supervisors and deemed consistent with the General Plan and the Land Used Development Code (LUDC), prevents the placement of hazardous materials in the B2 Compatibility Zone of the airport.
3. The proposed location of the Northern Sierra Propane project falls in that B2 compatibility zone. It includes two 30,000 gallon above ground propane storage tanks, five propane delivery trucks, and several 100 gallon tanks.
4. Dan Landon, Executive Director of the Transportation Commission, was asked to prepare a compatibility recommendation to the Airport Land Use Commission that would disregard the code.
5. The recommendation was laced with misinformation, the opinion did not include a legal review, and the meeting lacked critical representation.
6. The Airport Land Use Commission was working in an advisory capacity.
7. The Board of Supervisors is not required to adhere to the recommendation by the Airport Land Use Commission. The Board has the authority to reject that recommendation or to ask for reconsideration in light of new information.

Action:

The first order of business at the October 10 hearing is for the Board of Supervisors to make a determination on whether the Airport Land Use Commission had all the facts before making their recommendation AND must decide if the information present here is new and significant enough to reject their opinion entirely or request reconsideration.

Understanding the seriousness of a propane incident is critical to being able to evaluate the risk involved. To help, we have included an attachment of a real-life scenario of a propane storage facility incident. It was studied and documented for use to train emergency responders to a propane facility fire. The training was on fireengineering.com. The Fire Engineering site provides training, education, and management information for fire and emergency services personnel worldwide. Articles are written by experts in the fire service and focus on lessons-learned. Feature articles cover real-life situations. The incident and response included here (end of document after page 15) occurred on September 1, 2011 in Mumford New York. It involved an explosion at the local propane distribution plant and is called "Propane Emergencies: Plan for Worst-Case Scenario."

We are of the opinion that the many of the items identified below were not known at the time of the ALUC hearing. We do believe the information to be relevant and pertinent. Had it been presented to the Commission, the outcome would have resulted in the rejection of the compatibility recommendation.

Relevant Code:

Following are the Nevada County Code sections that directly relate to the case.

Government Code Section 65302.3 establishes that each county and city affected by an Airport Land Use Compatibility Plan (ALUCP) must make its General Plan, any applicable Specific Plans and Zoning Ordinance consistent with the ALUCP.

The Nevada County General Plan was reviewed and found consistent with the NCALUCP. The Nevada County Airport Land Use Compatibility Plan (NCALUCP) was adopted by the Nevada County ALUC on September 21, 2011. While the Airport Land Use Commission (ALUC) has the sole authority to adopt the ALUCP and conduct compatibility reviews, the implementation of the compatibility policies rests with local governments.

NCALUCP Chp 2, 5.2.5 (c) establishes that above ground bulk storage of hazardous materials is not permitted in the B2 Compatibility Zone.

Hazardous Materials Storage: Construction of facilities for the manufacture or storage of materials that are flammable, explosive, corrosive, or toxic constitute special safety compatibility concerns to the extent that an aircraft accident could cause release of the

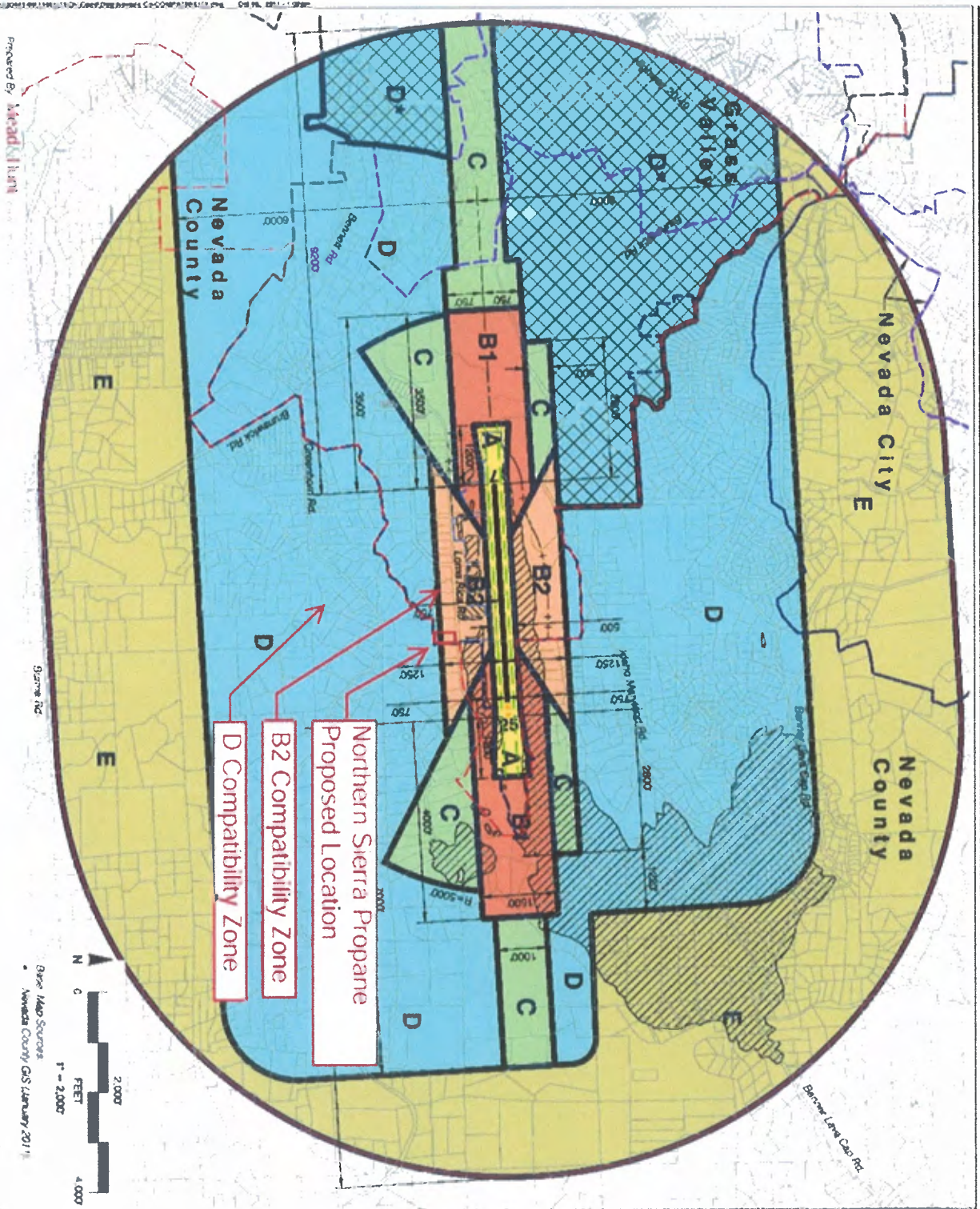
materials and thereby pose dangers to people and property in the vicinity. Therefore, the manufacture or storage of hazardous materials within the airport environs is restricted as follows:

(2) Within Compatibility Zones B1 and B2, only the following is permitted:

- Fuel or hazardous substances stored in underground tanks.*
- On-airport storage of aviation fuel and other aviation-related flammable materials.*
- Above ground storage of less than 6,000 gallons of nonaviation flammable materials (this limit coincides with a break-point used in the Uniform Fire Code to distinguish between different classes of tanks).*

APUCP Map of Proposed Project Location, B2 Compatibility Zone, & D Compatibility Zone

70-CES, CHAPTER 2



Prepared By: **Map Solutions**

Map Source: Nevada County GIS (January 2011)

Legend

- Boundary Lines
 - Proposed Airport Property Acquisition
 - City Limits
 - Grass Valley Planning Area
 - Grass Valley Sphere of Influence
 - Nevada City Sphere of Influence
 - Existing Runway (4,850')
 - Future Runway (4,650')
 - Object Free Area
 - Airport Influence Area

Compatibility Zones

- Zone A - Runway Clear Zone
- Zone B1 - Taxiway Approach Zone
- Zone B2 - Safety Zone
- Zone C - Inner Turning Zone & Extended Approach Zone
- Zone D - Traffic Pattern Zone
- Zone E - Other Airport Zones
- Other Airport Zones
- Height: Varies Quarterly

Notes

- See Chapter 2, Table 2A, Basic Compatibility Criteria

**Nevada County Airport
Land Use Compatibility Plan**
(Adopted September 2011)

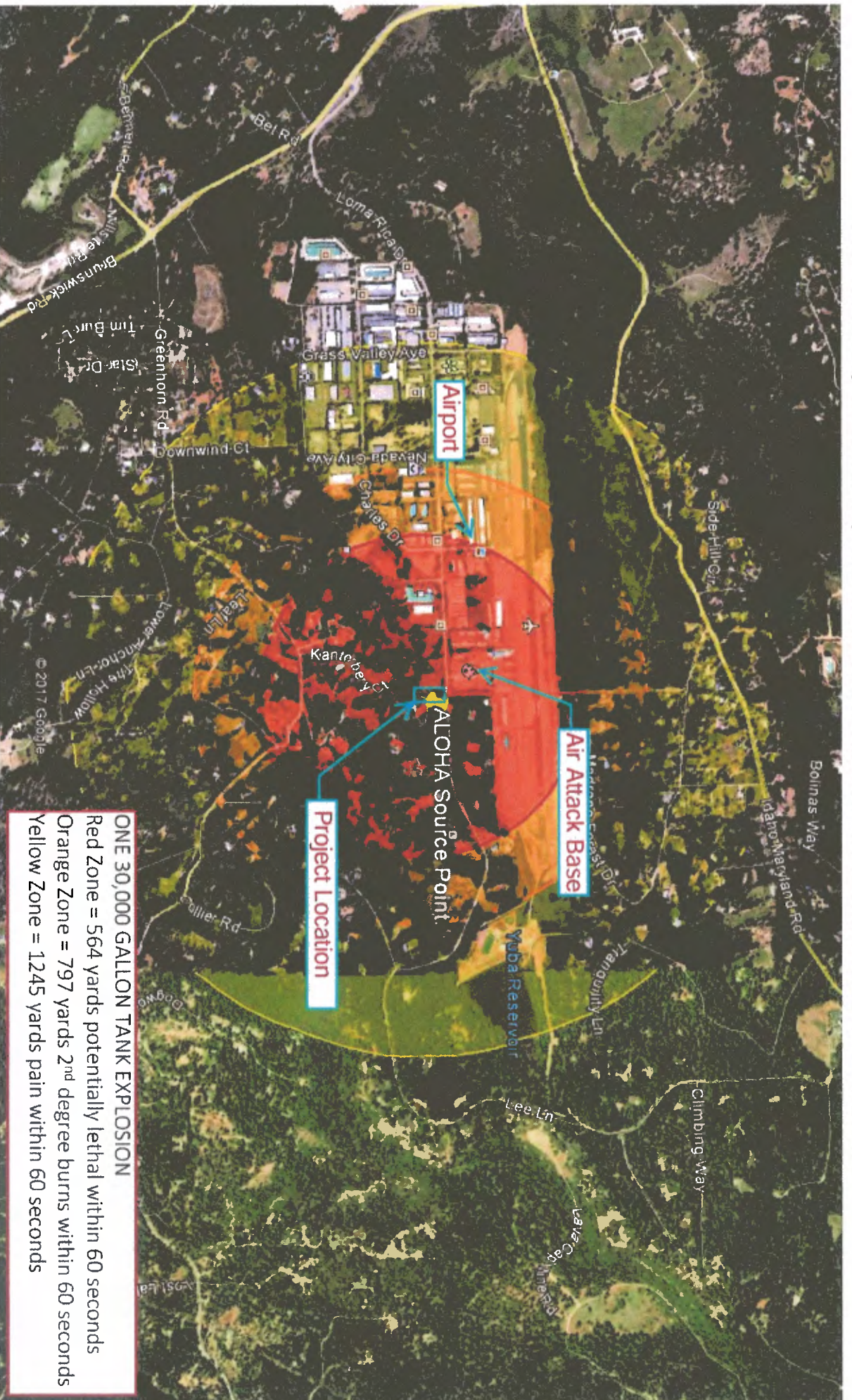
Map 2A
Compatibility Policy Map

The Northern Sierra Propane project location falls primarily in the B2 Zone but also falls in Zone D. The protections outlined for the B2 Zone are out of concern for risk exposure to critical facilities in the vicinity. Where above ground storage of hazardous materials is not permitted in the B2 Zone, placement of the same in Zone D still represents significant risk. Zone D accounts for 60% of all departure aviation accidents.

The APLUC recommendation places two 30,000 gallon storage tanks 1,100 feet from the center of the runway. The argument is to ignore the 1,250 feet outlined in the code and accept a 750 foot delineation outlined in a handbook. This would place the tanks 350 feet outside the B2 Zone. Whether we choose to acknowledge the code or the ALUC recommendation is less important than the reason for the delineation in the first place. The airport and CalFire Air Attack Base are both identified as critical infrastructure to Nevada County. 150 feet in or 350 feet out is less important than risk exposure created by the location of high volume hazardous material storage.

Not included in the ALUC analysis is a risk assessment to critical infrastructure should an airplane accident or any other natural or manmade disaster occur at the proposed location for the Northern Sierra Propane project. The National Oceanic and Atmospheric Administration (NOAA) in conjunction with the US Environmental Protection Agency (EPA) created a threat assessment software that is intended to be used by emergency response personnel. It is a hazard modeling program used for planning and responding to chemical emergencies. The software is called ALOHA which stands for Areal Locations of Hazardous Atmospheres. The intent is to make a threat assessment tool available to first responders so that they can do an on-site risk assessment to direct emergency response and evacuation measures. The tool uses input data to create an explosion radius and then enables the placement of that information onto a map. Following is the threat analysis depicting the explosion of one 30,000 gallon propane tank at the Northern Sierra Propane proposed location.

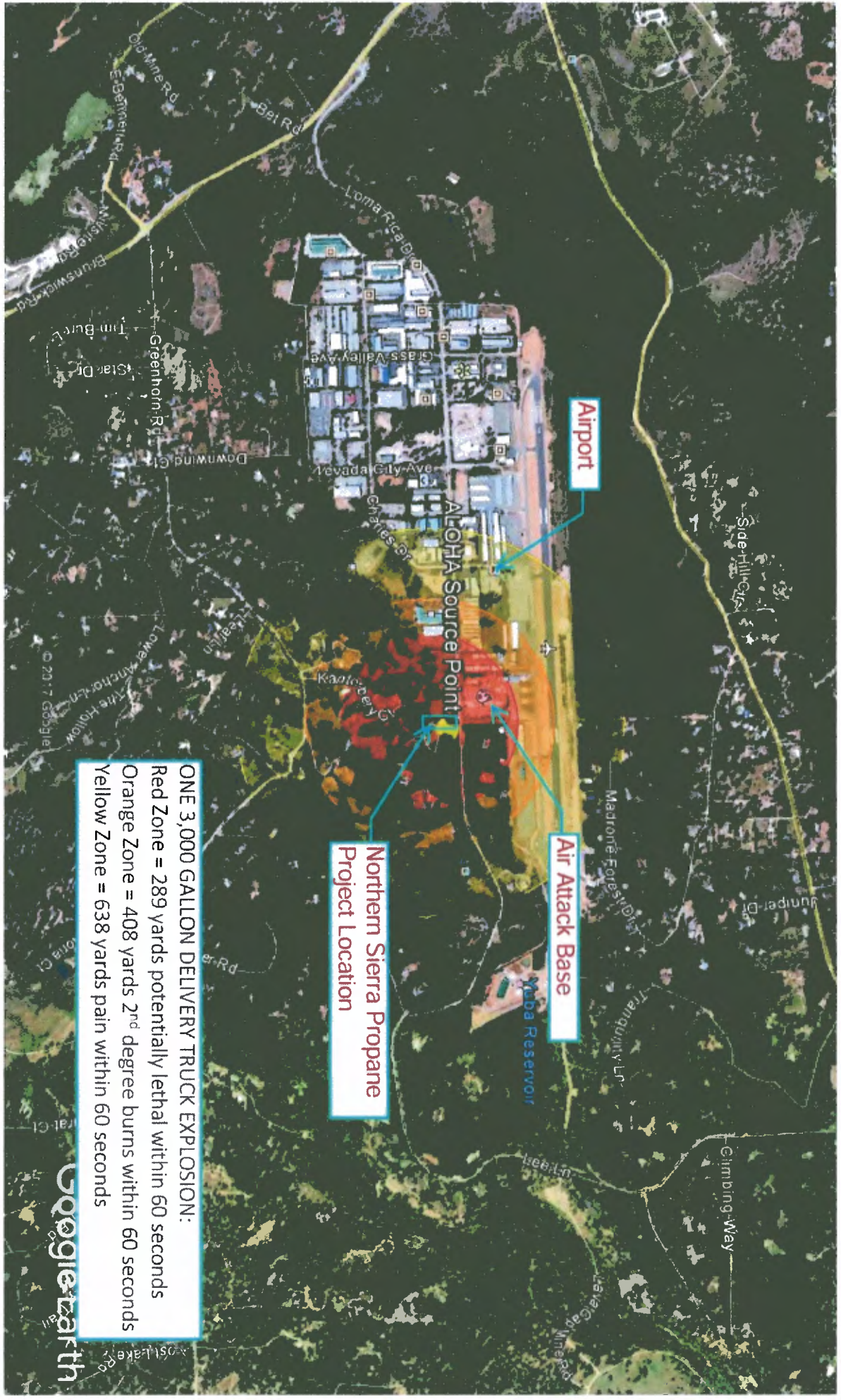
ALOHA Map of Risk Exposure Should One 30,000 Gallon Tank Explode



ONE 30,000 GALLON TANK EXPLOSION
 Red Zone = 564 yards potentially lethal within 60 seconds
 Orange Zone = 797 yards 2nd degree burns within 60 seconds
 Yellow Zone = 1245 yards pain within 60 seconds

Although many propane storage facility tank incidents are documented, there is a perception that large tanks are safe. In the interest of perspective, we have included here another image created by the ALOHA software that depicts hazard zones should one 3,000 gallon propane deliver truck tank explode (Northern Sierra Propane will be running 4 or 5 trucks out of their new location).

ALOHA Map of Risk Exposure Should One 3,000 Gallon Delivery Truck Tank Explode



ONE 3,000 GALLON DELIVERY TRUCK EXPLOSION:
Red Zone = 289 yards potentially lethal within 60 seconds
Orange Zone = 408 yards 2nd degree burns within 60 seconds
Yellow Zone = 638 yards pain within 60 seconds

Here in Nevada County, we have been fortunate that no propane storage facility accident has occurred. However, just because it never has does not mean it never will. We must identify the risk and prepare for a worst case scenario if we are to achieve a positive outcome. A little online research demonstrates the frequency of large tank storage facility incidents.

News articles of storage facility incidents:

- March 21, 2017 a leak from a 30,000 gallon propane tank in Ossipee, New Hampshire required an evacuation that included 85 residents of a nursing home. The cause of the leak was a bad seal.
- March 15, 2017 a propane leak from a 30,000 gallon tank in Ely, Minnesota required the evacuation of everyone in a 1 mile radius. The mandatory evacuation included 62 homes and half-dozen apartments. The company believes an emergency relief valve on a storage tank malfunctioned.
- July 29, 2016 propane tanks explode causing a seven-alarm fire at a propane storage facility in Gurnee, Illinois. The fire brought firefighters from 30 departments and closed roads for several hours.
- September 14, 2011 firefighters from three different counties responded to a fire at a commercial propane facility (Burnwell Propane in Mumford, New York) with 50,000 gallons of onsite storage. The after-action incident report detailed that the response required 300 fire fighters, 76 pieces of firefighting equipment, over 2 million gallons of water and more than 25 hours to extinguish. These resources were needed to keep the burning tank from overheating and exploding. Authorities said that if any one of three tanks had overheated and exploded it would likely have leveled the small town.
- August 03, 2011 a propane storage facility fire destroyed three houses and a commercial building in Rose Hill, Kansas. Propane canisters were being filled at the time of the initial fire or explosion. There were a series of explosions that shot 100-pound propane canisters like bottle rockets in all directions. One canister landed almost 1,000 feet away.
- December 10, 2009 a propane tank fire in Norfolk, Nebraska forces evacuation of all residents in a one mile radius. The tank was holding 35,000 gallons and burned for two days.
- December 29, 2003, Lancaster County, Pennsylvania, a large explosion and building fire occurred at a propane distribution facility. First-arriving fire units found a building demolished by an explosion and a sustained fire. Compounding the situation were multiple propane cylinders exposed to the intense heat. The exposed tanks ranged from 100-gallon portable cylinders to 30,000-gallon fixed bulk storage tanks. The incident required the response of fire departments from two counties: 49 fire apparatus, including 12 engine companies and 22 mobile water tankers.

ALUCP Appendix C (page 11) establishes that critical community infrastructure should be avoided in compatibility zones. The Grass Valley Air Attack Base is in the B2 Zone and is across the street from the proposed propane tanks. The seriousness of this threat is worthy of concern and probably why the code was written to specifies a wider (1,250 foot) distance.

(d) Critical Community Infrastructure:

(1) Construction of critical community infrastructure shall be restricted as follows:

- *Within Compatibility Zone A, all such uses are prohibited.*
- *Within Compatibility Zones B1 and B2, such uses are prohibited unless no other feasible alternative site exists and the facility is designed in a manner that minimizes its susceptibility to damage from an aircraft accident.*

(2) Critical community infrastructure includes power plants, electrical substations, public communications facilities, emergency services facilities (police and fire stations), and other facilities, the damage or destruction of which would cause significant adverse effects to public health and welfare well beyond the immediate vicinity of the facility. Susceptibility of the facility to damage by an aircraft accident, the availability of redundant or replacement facilities, the rapidity with which the facility could be repaired, and other such factors should all be considered in the determination of whether such a facility should be placed in a risky location.

The question becomes what is acceptable risk?

- The Nevada County Local Hazard Mitigation Plan identifies the Loma Rica Industrial Park and surrounding residential area as a “*Very High Fire Hazard Severity Zone*”.
- The National Fire Protection Agency (NFPA 58) requires propane storage facilities to have two high pressure (750 gallons per minute) hydrants at the front of the location.
- The current Nevada Irrigation Water District hydrant service in front of the airport does not provide sufficient pressure to mitigate fire from a propane tank.
- The heavily forested properties above the airport on Loma Rica Drive and directly adjacent to the Northern Sierra Propane project do not have any fire hydrants and fire suppression capability for the entire one mile stretch.
- The Local Hazard Mitigation Plan says the likelihood of a fire in the area is very high. A fire could start on any of the forested lots directly adjacent to this property and rapidly spread in the direction of the propane tanks.

Without fire suppression capability, the risk of incident is exponentially higher. This information impacts the risk exposure at this site and should have been included in the recommendation.

ADDITIONAL AREAS OF CONCERN INFLUENCING THE COMPATIBILITY DECISION

Failure To Provide Adequate Community Outreach

- As the property owner, on the eastern border of this project, I should have received notification from the Airport Land Use Commission that a meeting was being held to evaluate project compatibility.
- Additionally, the seriousness of this decision warrants more thorough community outreach and participation. Many businesses and property owners are affected by this

recommendation. In the interest of transparency, everyone in a one-mile radius should have been notified and given the opportunity to contribute.

- In the May 17 NCALUC meeting minutes:
 - Commissioner Arbuckle stated, “if there were a problem at the propane business, it would definitely affect those neighborhoods adjacent to the industrial zone.” A conversation was had about outreach to those residents. Executive Director Landon said, “He did not know” of any outreach.
- JD Trebec, Associate Planner with the Nevada County Planning Department, confirmed no notice was given concerning the NCALUC meeting and recommendation to waive safety zone B2 requirements as per the NCALUCP.

According to the minutes:

- The only notification was the “initial distribution of the project specification” requesting a Development Permit filed with the Planning Department.

The Nevada County Airport Land Use Commission meeting was held May 17, 2017 but the “initial distribution of the project specification” was dated and distributed after that meeting on July 17, 2017. There was no prior communication concerning the storage of propane tanks in the airport “compatibility zone.”

Ruling Was Made Without The Presence Of A Representative From The Nevada County Airport

- A ruling of such a critical nature warrants the presence of someone who is closely aligned with the rules and regulation of the NCALUCP. A representative from the Airport should have been present. If no one from the airport can attend, a legal representative should have attended in his/her place. If legal representation cannot be present, a formal report or document from legal counsel detailing their review and recommendation should have been required.

NCALUC meeting minutes:

- Commissioner Scofield stated, “He was surprised the Airport Manager was not present” and that “when the NCALUC is meeting, a representative from the Nevada County Airport should be in attendance.”

Project Description In Letter From Planning Department Is Misleading

- Included in the proposal to the NCALUC is a copy of the request for review from the Planning Department. At the meeting, part of the deciding factor was the lack of concern raised about the project by the organizations listed below. After reviewing the letter, it is clear that the risk associated with this project was downplayed as there is no mention of the two 30,000-gallon propane storage tanks, ONLY two buildings and a parking lot.

Distribution List:

- Department of Public Works
- Federal Aviation Admin
- Airport Manager

- Nevada County Consolidate Fire District
- Environmental Health Department
- Nevada County Transportation Commission
- CalTrans Aeronautics
- Tyler Barrington, Principal Planner

Project Description:

“An application to the Planning Commission for a Development Permit for a proposed 2,000 square foot office building, 2,016 square foot warehouse/garage and parking for a propane business.”

- This description is misleading and irresponsible on the part of the Planning Department. Its content suggests compatible development without risk to property of person. It raises no alarms nor suggests any concern should be had. With all the review documents coming across desks, it makes sense that this one would be ignored especially when more pressing hazards are on the table.

Letter From Project Planner, Kevin Nelson, With Nelson Engineering Is Deceptive

- Also included in the documents presented to the NCALUC is a letter from Kevin Nelson. The letter is titled “Re: Use Permit for Northern Sierra Propane, APN 06-920-10”. The application for this project is a Development Permit which has less restrictive review requirements. Kevin Nelson has implied the application is for a “Use Permit” which is misleading in that it suggests a stricter compliance review and a more comprehensive evaluation by the Planning Department. In situations where increased risk to person and property are being considered, calling the application a Use Permit is deceptive and delivers a false sense of security to those in a decision capacity.
- Also in Mr. Nelson’s letter is a suggestion that approval of this project is standard protocol and should not raise any flags because many similar projects have already been approved by the County. He says “Currently, there are two similar tanks within Zone B1, two others within the Zone B2, and six others within the Loma Rica Industrial Park.” This statement is misleading. There is no mention of business existence prior to the expansion of the airport and the creation of the Airport Land Use Compatibility Plan. There is no mention of the distance between other propane tanks and residential properties. There is no mention of defensible space built around these facilities. Also, the NCGP clearly states provisions are made for existing businesses BUT all new construction must comply with the stricter standards.

Deferral Of Responsibility Due To Misleading And Inaccurate Information

- It is clear in the minutes that the Airport Land Use Commission is deferring final review and analysis concerning airport safety and compatibility to the Planning Commission.

NCALUC meeting minutes:

“Commissioner Scofield clarified that this application would be going to the Nevada County Planning Commission. Mr. Landon confirmed that NCLUC would not be the final determination and approval of the project.”

Commissioner Scofield’s comment implies concern over the approval of this project and clearly wants to verify that additional review and analysis will occur.

There are a number of inconsistencies in the project presentation to the NCALUC and disregard for the reviews that should have been completed prior to making this recommendation. The NCAPLUC was given misleading and inaccurate information which led to a false sense of security and belief that the project would go through an additional review process by the County and so it was safe to approve.

In JD Trebec’s Staff Report and presentation to the Planning Commission, it is clear that all responsibility concerning the recommendation to reduce the Airport Compatibility Zone is being placed on the NCAPLUC. The presentation implies no additional review is necessary because of their recommendation. The Planning Department relies entirely on the decision of the NCALUC.

No Formal Review Nor Written Recommendation From Law Firm

- Chairman Jostes of the NCALUC asked “if this analysis of the boundaries would stand up in court if they were challenged.” Daniel Landon, Executive Director of the Nevada County Transportation Commission, replied “the airport land use consulting firm, Mead & Hunt, that prepared the NCALUCP, were never concerned from the beginning that the project would be a problem.” No formal review from Mead & Hunt was done nor did they write a recommendation. There is a reason hearsay is not allowed in a court of law. There is no documentation showing the information that was provided to Mead & Hunt. If they were appraised of the project using the Description (referenced on page 10) in the Request for Review provided by the Planning Department, it makes sense that Mead & Hunt were not concerned.

Mr. Landon’s comment implies the ALUC can have confidence that the recommended reduction of the airport compatibility zone is not only legal but safe. This irresponsible comment tipped the scale in favor of approval when in fact more serious review and consideration should have been undertaken.

No Environmental Impact Report Provided and Not Available Online

The project proposal does not include a copy of the Environmental Impact outlining the cumulative risk of exposure to Loma Rica Industrial Park Business' as well as Nevada County residents and the adjacent residential community.

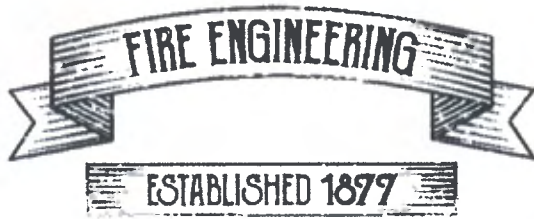
- Placement of explosive materials in the safety zone poses a higher risk of loss in Loma Rica Industrial Park because of the number of propane storage facilities in the immediate vicinity. There are a total of five bulk propane storage and distribution business that are more centrally located in the business park (as required by the Loma Rica Industrial Area Plan) and most are away from the airport safety zone (as required by the LCALUCP). There are 11 bulk storage tanks 30,000 gallons and more resulting in more than 450,000 gallons of propane being stored within 1 square mile. With the Northern Sierra Propane project being placed in the airport compatibility zone the safety hazard associated with an airport accident is higher due to the possibility of triggering multiple explosions. An accident at the Northern Sierra Propane location would block the main arterial road to Cal Fire and exposes the residential community to risk of delayed response from NC Consolidated Fire Department for the same reason.
- There aren't any fire hydrants nor water tanks on Loma Rica Drive providing fire protection to the residential community beyond the Industrial Park.
- False security is given in reference to a letter from Deputy Fire Marshal Terry McMahan indicating he did not have a problem with the application because the "tanks have a shut off valve." Tank shut off valves are immaterial in the case of an airport impact incident and do not provide protection from failure due to heat exposure from a forest fire.
- Additionally, there was no mention of the five propane delivery trucks and smaller storage tanks both with significantly less safety measures that will also be located in zone B2.
- Finally, in January 2005, a new California State Law became effective that extends defensible space requirements to 100 feet. The Northern Sierra Propane project proposed lot for development is heavily forested on three sides and abuts two residential properties. NO DEFENSIBLE SPACE from the five delivery trucks was incorporated into this project. All will be parked ten feet from the property line of a heavily forested lot. With a higher risk of airport impact accident, it is irresponsible to approve a project without defensible space measures being required.

Summary Of Reasons To Reject or Ask For Revaluation of NCALUC Resolution 17-01:

- Code clearly places lot in B2 compatibility zone.
- Above ground storage of hazardous materials is not permitted in the B2 zone.
- Businesses and residents alike have made investment decisions based on the code.
- Location of lot relative to airport creates a significant risk to critical facilities, business, and residents.

- A Conservative Risk Assessment using NOAA and EPA Software shows destruction of everything within 289 yards of an explosion of one 3,000 gallon delivery truck tank.
- Location has been identified in the Nevada County Local Hazard Mitigation Plan as a Very High Fire Hazard Zone.
- No fire suppression capability in the Wawona Madrono residential community (one mile stretch) to the east of the Loma Rica Business Park.
- Information provided to the ALUC was misleading.
- Project lacks transparency. It failed to provide adequate community outreach and inform the affected property owners.
- ALUC ruled on NCALUCP revision without the presence of a representative from the Nevada County Airport.
- "Project Description" in letter from planning department does not adequately convey seriousness of project and associated risk.
- Letter from project planner, Kevin Nelson, is inaccurate.
- ALUC was led to believe further review of recommendation would be done.
- No formal review nor written recommendation from legal counsel.
- Tank shut off valves are immaterial in the case of an airport impact incident and do not provide protection from failure due to heat exposure from a forest fire.
- Lack of defensible space built in to eastern border of project leaves five delivery trucks parked next to heavily forested lot with no fire suppression capability and no access for emergency responders.

In light of these concerns, we ask that you REJECT the airport land use commission's recommendation or at least request a reevaluation based on the presentation of new information.



Propane Emergencies: Plan for Worst-Case Scenario

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BY JOHN SPAULDING

On September 1, 2011, at 1503 hours, the most devastating call the Mumford (NY) Fire Department (MFD) could ever respond to erupted with an explosion at the local propane distribution plant. The department had planned for such a call for years, right down to the worst time of day and day of week it could happen. The firefighters knew the possible outcome if they didn't do everything correctly. The courage they showed was typical of that of firefighters; they knowingly put themselves in harm's way knowing that their village of 600 residents would be wiped from existence if they didn't act correctly and expeditiously.



(1) The fire had fully engulfed the building originally built as a cabbage storage warehouse as firefighters arrived. (Photos by author.)

The call for a man burned after an explosion at the Burnwell Gas Company, at 1104 Main Street, Wheatland, New York, was quickly upgraded to a structure assignment after dispatch received additional calls for a large fire.

ON SCENE

The first-arriving lieutenant confirmed a working fire and immediately asked for a second alarm. It was a sunny Tuesday afternoon with temperatures in the low 80s with a light westerly wind and 65 percent humidity. The high school, about one-half mile away, had just dismissed for the day. A third alarm was struck just eight minutes into the fire. The only employee at the site was blown from the inside of the building after he noticed a spark. He was found walking down the sidewalk by emergency medical services (EMS) personnel and was transported to Strong Memorial Hospital in Rochester, New York, with second-degree burns over 20 percent of his body.



(2) The heavy fire load from hundreds of tanks quickly engulfed the building and this service van.

Multiple 100-pound and 250-pound cylinders were on fire and venting on arrival. Initial efforts to cool these tanks were quickly abandoned, and efforts were orchestrated to cool the large tanks. The building was quickly determined to be a total loss. It was estimated that most of the hamlet of Mumford would be completely destroyed if a boiling-liquid, expanding-vapor explosion (BLEVE) of the 30,000-gallon tank were to occur. Many of the smaller cylinders fell over, which caused more cylinders' safety valves to fail, creating several smaller BLEVEs. One of the 100-pound tanks launched from the dock after the valve failed. It narrowly missed an engine, skidded across the street between two groups of firefighters, and came to rest on a neighbor's front lawn.



(3) The fire reached heights of 100 feet or more during the incident.

Three utility vehicles were special called to the scene; they provided much-needed support within the scene, delivering bottled water and supplies. Fuel trucks were brought to the scene to resupply apparatus. During the incident, a crash truck was brought in from the Greater Rochester International Airport. This apparatus was equipped with a thermal imaging camera at the end of the articulated boom that was used for reconnaissance and identified several hot cylinders in the basement, which prompted filling the basement with foam. The local Department of Public Works provided street barricades and construction lighting for overnight operations. Ladies' auxiliary members from several departments provided food and water.

The Monroe County Office of Emergency Management was partially activated, and workers began preparing for a worst-case scenario should cooling efforts fail. A secondary staging area was established some 15 miles away with seven pieces of apparatus and two chiefs. Personnel and apparatus were queried for fill-ins and relief for the overnight. Updates were provided to noninvolved companies to prepare if needed.



(4) These 250-pound cylinders vented to the atmosphere as efforts were diverted to save the town by cooling the fixed tanks.

The facility was in steady decline of use over the past few years; in fact, the property was for sale. The community expressed concern that such a dangerous business would be allowed to operate in a populated area. The fire department reported very few incidents over the years; there was only one minor fire back in the early 1980s. The fire department recently stored its apparatus in the gated area a few years ago while it rebuilt the station.



(5) A 100-pound cylinder landed in a front yard of a firefighter's residence after narrowly missing the Avon (NY) Fire Department's quint.

Burnwell Gas's parent company is investigating the cause of the fire, as is the Monroe County Fire Bureau. The owners conducted a transfer to tractor trailers followed by a flaring operation to recover about 8,000 gallons of product. Injection of nitrogen stabilized the tanks in the following days.

THE STRUCTURE

The Burnwell Gas Company has existed since the 1950s on Main Street. The building that housed Burnwell Gas was once a cold storage facility for this agricultural community. It was constructed of heavy timber and concrete block; it is a single-story building with a full basement and metal siding. This facility was a distribution site for propane that housed mostly 100- and 250-pound tanks that were fed by 12,000-, 18,000-, and 30,000-gallon stationary tanks on a rail line. The rail line currently runs four trains on that track daily, and its operations were also stopped.



(6) These utility vehicles were highly successful in moving personnel and supplies such as drinking water and hose.

COMMUNICATIONS

The largest issue was operating agencies from three counties on three different radio bands (low band, UHF, and VHF). MFD's rescue has patch capability; after several attempts to initiate this feature, the equipment failed. This prompted the response of Monroe County's Mobile Communications Unit-1 Mobile (MCU). It was later realized that because of the geographical location, no cellular data signal was available, and a satellite connection was attempted; however, no patch was completed. There were not enough portable radios available, and poor reception from portables caused more delays.



(7) Scene control was an issue discussed at length in the postincident critique. Freelancing, lack of law enforcement or fire police, numerous roads, and school dismissal were contributing factors.

Early in the incident, the command post was established with a chief officer from all three counties, which facilitated face-to-face orders. This was a key component in effective communication throughout the incident. The Monroe County Sheriff's Office enacted "Hyper-reach" (allows the 911 center to quickly send a recorded message to telephones in specific areas) shortly into the incident to aid in notifying the neighbors of the danger. The local school was occupied only by athletes and minimal staff, who were sheltered in place. Text messaging was also used to send a message without a

complete interruption. The noted drawback in texting is the loss of urgency of a message; however, it did help firefighters reach out to loved ones to let them know they were okay. Other social media were not used officially. It is still believed that there needs to be a separation between professional and social use.

WATER SUPPLY SECTOR

The eight-inch water main running under Main Street was at capacity after the first two engines began flowing water. According to the Monroe County Water Authority, this was the worst time of day for water supply because of demand and level in supply towers. The incident included four aerial devices and three master streams in addition to several handlines. Seven water supply sites had been established, using two frequencies and two chiefs using two different county water systems and a multitude of tankers and pumpers. One creek used was very shallow, causing strainers to become occluded with silt and organic material. To compensate, a small damn was constructed to create a pool. Backup engines were prepared to replace others in the event of a failure. Both municipal water supply authorities were notified of high use and increased supply to its capacity. Two mechanics from the nearby fire equipment dealer were also at the scene.



(8) A tertiary drafting site was established in nearby Spring Creek.

HAZARDOUS MATERIALS SECTOR

At 1537 hours, command requested a Level One response from the Monroe County Fire Bureau. The volunteer team responded, and recon work was initiated. Later in the incident, a Level Two was declared, which increased notifications and resources. The Wheatland Fire Marshal's Office provided

plans and diagrams that enabled the team to enter and close liquid and gas valves, marking the turning point in the incident. A cold weather front was approaching, and it rained in the evening. The team provided perimeter air monitoring for the duration of the incident.



(9) Access to the stationary tanks proved difficult for master streams.

In all, 76 fire and EMS apparatus from 29 fire departments responded, excluding chiefs, fire police, and law enforcement. Three hundred responders used 5,600 feet of supply line, and 25,000 gallons of water were being transported at any given time. We used one million gallons of municipal water and one million gallons of water by tanker/drafting.

The 25-hour operation, which necessitated that the state road be closed, involved evacuating approximately 1,000 persons and managing 19,000 gallons of product in tanks cumulatively.

LESSONS LEARNED AND REINFORCED

Unified command. Unified command was partly established but did not include law enforcement and EMS. Fire police units responsible for road closures were overwhelmed by and understaffed for the traffic at rush hour, as students' parents were attempting to get to the school. The tasks of evacuating and denying access were more involved than anticipated.

Freelancing. Ignoring of orders from juniors officers resulted in freelancing of firefighters. This also interfered with the completing of an accurate personnel accountability report. By nature, firefighters want to be a part of the action, and firefighters wanted to partake in suppression activities and not "stand around" in a staging area.

Self-dispatching. Fire units self-dispatched to the scene. Agencies assumed they were dispatched or were needed because of the large scope of the incident and the unique nature of the call. Command was unsure of which of the needed resources had arrived and which were still needed.

Volunteers' cars lined the roads, narrowing roadways and limiting apparatus movement. Many firefighters were on their way home from work or left work. The supply line was initially laid down the

centerline of streets, necessitating personnel to later move hose to one side for additional apparatus placement.

Communications. Communicating among counties and geographical regions was difficult. More infrastructure and portable radios are required. This battalion in Monroe County is scheduled to be part of a test trial for a new 700 MHz radio system created by Harris Communication that will mirror military communications and have the ability to bridge frequencies and bands.

Water supply. In a district with partial hydrants and frequent use of drafting, relays, and tanker operations, obtaining a water supply went particularly well. Multiple supply sites and a redundant apparatus system were established. The limitations of the municipal water supply were not totally realized in the beginning of the incident, but they were eventually overcome.

During preplanning and drills, the MFD knew it would need water—and lots of it—to cool these tanks. Identifying this need before the incident greatly contributed to preventing a catastrophic BLEVE of the large tanks.

Mutual aid. Monroe County is considered the birthplace of the automatic mutual-aid plan and, as shown throughout time, this incident would not have been controlled without it.

Planning for the worst-case scenario. Units from a wide geographical area were staged a significant distance from the scene. Personnel and supplies were relocated to cover normal call volume from agencies already involved in the incident and to relieve responders working at the scene.

EMS sector. After the initial patient was transported, EMS assisted with accountability. Efforts to provide rehab then became the major focus, as did preparing for the worst-case scenario. Seven advanced life support ambulances were brought to staging. It was not excessively hot and firefighters did not endure extraordinary heat conditions; rehab was virtually nonexistent, except for the distribution of copious amounts of water. The regional medical director was called to the scene, as was the county EMS coordinator.

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One week after the fire, the MFD conducted a debriefing and critique in which 50 emergency service personnel and government officials participated. The goal was to present the entire incident from all aspects and views of those involved and identify problems and solutions, not "to pat each other on the back," as one chief officer said. One firefighter sustained a minor hand injury. The only exposure was melted siding on a nearby home owned by the parent corporation of the gas company. Preincident planning clearly identified the need for water supply and additional apparatus. Officials had a tremendous grasp on the resources needed and forethought to begin planning for an extended operation and possible catastrophic events. In the shadow of 9/11, communications have been in the

sights of virtually all aspects of public safety. Steps toward achieving interoperability have been initiated, but small communities and agencies with small budgets will continue to operate inadequately.

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Propane Emergencies: Making a Difference

BY GREGORY G. NOLL

In 1998, the National Propane Gas Association (NPGA), in cooperation with the Propane Education and Research Council (PERC), developed a comprehensive training program on propane emergencies for the fire service. Entitled *Propane Emergencies*, its primary goal is to improve firefighter safety in responding to propane emergencies. The propane emergencies (PE) program was developed through a partnership of fire service/hazardous materials responders and a team of product and container specialists from the propane industry. Additional technical support and final review were subsequently provided by a team of fire service instructors and responders.

Now in its third edition, the PE curriculum has grown from a single textbook to a comprehensive training program adopted by 27 state fire training agencies and propane marketers.

Textbook

The PE textbook, written by Mike Hildebrand and Greg Noll, is funded by propane industry assessments paid to the PERC. The propane industry's financial commitment has permitted the creation of a 300-page textbook covering the following topics:

- Propane Standards, Codes and Regulations
- Physical Properties and Characteristics of Propane
- Design and Construction Features of Bulk and Non-Bulk Propane Containers
- Design and Construction Features of Bulk Transportation Containers
- Bulk Plants and Bulk Storage Tanks
- General Emergency Response Procedures
- Tactical Response Guidelines for Propane Emergencies, including 20 typical emergency scenarios involving propane.

The third-edition PE textbook can be ordered by calling (866) 905-1075. It can also be downloaded as a pdf at www.propanesafety.com and clicking on the Propane Emergencies link.

Facilitator's Guide

A comprehensive Facilitator's Guide for trainers and instructors supports the PE program curriculum. Developed by Michael Callan, the package includes comprehensive lesson plans for course deliveries in either an 8-, a 16-, or a 24-hour format. The curriculum includes a CD-ROM with lesson plans, interactive training scenarios and overheads, titles slides, and a full-scale animated PowerPoint® presentation. In addition, the training package is supported by a 50-minute video produced by the Emergency Film Group of Plymouth, Massachusetts. The videotape is divided into two major segments: Segment 1 focuses on the properties and characteristics of propane; the second segment focuses on tactical considerations using the Eight Step Process® as the framework. Future plans are to make the videotape available in a DVD format.

Web Site

The PE program also has a dedicated and comprehensive Web site, www.propanesafety.com. The site provides an overview of the program, instructional tips, background information on how to make training props, up-to-date changes to lesson plans, and downloadable graphics support for the instructor. It also provides a PE Marketer Outreach Kit that can be used by propane marketers and industry personnel to deliver emergency responder training and walk-throughs at their marketing and distribution facilities.

For more information on the PE program, including procedures for ordering the textbook and curriculum, consult the Propane Emergencies Web site at www.propanesafety.com.

GREGORY G. NOLL, C.S.P., is a senior partner with Hildebrand and Noll Associates, Inc., an emergency planning and response consulting business. He is a certified safety professional (CSP) and coauthor of the *Propane Emergencies* textbook and six other hazardous materials textbooks, including *Hazardous Materials: Managing the Incident*. Noll is the assistant chief of the Lancaster County Hazmat Response Team and a member of the *Fire Engineering* editorial advisory board and the FDIC advisory board.

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