Category *5H Hazardous Materials*
2020 Program Evaluation

Summary

In 2020, the Elk Grove Village Fire Department responded to a total 84 hazardous materials calls. HazMat calls rang from low- to moderate-risk such as carbon monoxide incidents and natural gas leaks, to high- and maximum-risk incidents such as flammable liquid spills, chemical spills or leaks, refrigeration leaks, etc. These calls accounted for approximately 1.6% of the total EGVFD incidents during this timeframe. The following is breakdown by incident type:

Haz Mat Incident Type	FY20
Low Risk Haz Mat	
424 Carbon monoxide incidents	27
Moderate Risk Haz Mat	
412 Gas leak (natural gas or LPG)	39
High and Maximum Risk Haz Mats	
220 Overpressure rupture from air or gas, Other	0
221 Overpressure rupture-air/gas pipe/pipeline	0
231 Chemical reaction-rupture of process vehicle	0
410 Combustible/flammable gas/liquid, other	1
411 Gasoline or other flammable liquid spill	8
413 Oil or other combustible liquid spill	3
420 Toxic condition, Other	2
421 Chemical hazard (no spill or leak)	2
422 Chemical spill or leak	1
423 Refrigeration leaks	0
451 Biological hazards, confirmed or suspected	0
671 HazMat release investigation w/no HazMat	0
High and Maximum Risk Haz Mats Total	**16**
All Haz Mats Total	**84**

2020 was a difficult year for training due to COVID because of numerous training cancelations. Howeveer, twelve of the fourteen members of the Hazmat Team were still able to complete their annual training requirement of at least 24 hours per calendar year of hands-on evolutions and didactic training. Due to the varying nature of incidents required of our members to

respond to that include chemical, biological, radiological and terrorism incidents, the goal of training is to provide a wide range of opportunities and experience to enhance team performance and capabilities.

Sample of incidents for calendar year 2020:

- January 16, 2020 - Level 2 Hazmat in Arlington Heights for a white powder incident. Members of the Elk Grove Hazmat Team filled roles of Hazmat Branch Leader, Hazmat Safety and entry team member.
- April 23, 2020 - Code 2 to Landmeier Road for an accident with no injuries. Crews found a torn saddle tank on a semi-tractor and mitigated the leak with a containment pool and sphagsorb.
- May 15, 2020 - Level 1 Hazmat to 2519 Pan Am Blvd, Elk Grove Village. Incident was upgraded to Level 2 Hazmat with a special request for technicians from Arlington Heights, Mount Prospect and Des Plaines only. Members of the Elk Grove Village Hazmat Team filled ICS roles of hazmat branch leader, hazmat safety/entry team leader and decon group leader. Crews mitigated acid leak caused by storm surge into Brom Organics.
- May 17, 2020 - Code 3 to 248 Holly Lane for inside odor investigation. Crews found an outside odor from an old underground storage fuel oil tank buried in the backyard. Storm surge had caused water to fill the tank through an open pipe. Water had receded and putty was used to plug pipe.
- June 5, 2020 - Code 2 to 1160 Westminster Lane for an activated CO detector with no illness. Upon entry in the house, E10 immediately began getting readings upwards of 250ppm of CO. Upon inspection of a utility closet that contained a gas hot water heater, high readings of 595ppm of CO were found. The hot water heater was turned off and the house was ventilated.
- July 12, 2020 - Inside odor investigation to 1560 Columbia Court. Crews responded to a natural gas leak inside a home. Homeowner was changing-out a dryer when the ball valve broke, allowing natural gas to free flow into the home. Crews turned off the gas at the meter and ventilated the house.
- July 3, 2020 - Code 2 to 296 E Devon. S7 dispatched on the Code 2 to Penny's place and upon arrival, found a CO_2 alarm activated from $C0_2$ system. System was isolated and shut down.
- July 31, 2020 - Code 2 Urgent to Arthur Ave for the diesel fuel spill. E8 found a semi-tractor trailer had struck a large rock and dragged the rock approximately ⅓ mile. Bat 2, Hazmat 8 and Q8 added to the incident. Approximately >40 gallons were spilled on the roadway. Sphagsorb was used to contain some of the product. Trucking company contracted a clean up company to clean the spill.
- October 11th, 2020 - Code 2 to 871 Wellington Avenue for an activated CO detector with no illness. Upon entry in multiunit building, S7 immediately began getting readings

upwards of 215ppm of CO in residence. CO levels were also found in adjacent unit. Upon inspection, oven was found to be the source of CO. Units were ventilated and homeowner informed to service appliance.

- November 11, 2020 - Box Alarm to 1241 N Ellis Street in Bensenville. Elk Grove responded with an engine, a quint, an ambulance, one chief and the MVU on the combination FIRE/AMBULANCE/HAZMAT Box Alarm for a chemical explosion at Pureline Industries. Initial reports indicated an explosion with one fatality in a chemistry lab due to violent chemical reaction.

Operational Performance

The Department's baseline statements reflect actual performance during 2016 - 2020. The Department relies on the use of automatic aid from neighboring fire departments to provide its effective response force complement of personnel. These resources are immediately available as part of a seamless response system. The department's actual baseline service level performance is as follows:

The Department had no maximum risk hazardous materials responses during the time frame.

For 90 percent of ***all high risk hazardous materials response*** incidents, the total baseline response time for the arrival of the first-due unit, staffed with 2 firefighters and 1 officer is: ten minutes and eighteen seconds (10:18) exceeding the benchmark by two minutes and thirty-three seconds (2:33). Currently the Department missed the benchmark by four minutes and nine seconds (4:09) for the 2020 year with a time of eleven minutes and fifty-six seconds. The first-due unit shall be capable of: establishing command; evaluating the need for additional resources; establishing the initial isolation distance; and assessing the situation to determine the presence of a potential hazardous material or explosive device.

For 90 percent of ***all high/maximum risk hazardous materials response*** incidents, the total response baseline time for 2016-2020 the arrival of the effective response force (ERF) including the Department hazardous materials response team, staffed with 13 to 28 firefighters and officers, is: nineteen minutes and sixteen seconds (19:16) bettering the benchmark by nine minutes and fourteen seconds (9:14). The Department missed the benchmark in 2020 by twenty-seven minutes and forty-four seconds (27:44). This response time includes out of town apparatus and personnel. The ERF is capable of: providing a dedicated incident safety officer; emergency or mass decontamination; defensive containment measures; and providing the knowledge, skills, and abilities to mitigate a hazardous materials incident.

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Moderate Risk Haz Mat All Area 90th Percentile Times Baseline Performance			Bench-mark	2016-2020	2016	2017	2018	2019	2020
Alarm Handling	Pick-up to Dispatch	Urban	1:30	2:26	1:20	1:31	2:30	2:10	3:23
Turnout Time	Turnout Time 1st Unit	Urban	2:20	2:24	2:24	2:41	2:17	2:17	2:20
Travel Time	Travel Time 1st Unit **Distribution**	Urban	4:15	5:04	5:14	4:52	5:54	4:20	4:28
	Travel Time ERF **Concentration**	Urban	7:45	7:31	7:07	7:36	6:59	7:12	9:03
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	7:45	8:39	8:41	7:25	10:05	8:44	8:52
				n=209	n=39	n=40	n=48	n=45	n=37
	Total Response Time ERF **Concentration**	Urban	10:45	12:05	10:34	18:18	11:51	10:43	13:16

For 90 percent of ***all moderate hazardous materials response*** incidents, the total baseline response time for 2016-2020 the arrival of the first-due unit, staffed with 2 firefighters and 1 officer, is: eight minutes and thirty-nine seconds (8:39) exceeding the benchmark by fifty-four seconds (0:54). In 2020 the Department missed the benchmark by one minute and eighteen seconds (1:18) at a time of eight minutes and fifty-two seconds (8:52). The first-due unit shall be capable of: establishing command; evaluating the need for additional resources; establishing the initial isolation distance; and assessing the situation to determine the presence of a potential hazardous material or explosive device.

For 90 percent of ***all moderate risk hazardous materials response*** incidents, the total baseline response time for 2016-2020 the arrival of the effective response force (ERF) including the hazardous materials response team, staffed with 11 firefighters and officers, is: twelve minutes and five seconds (12:05) missing the benchmark by one minute and twenty seconds (1:20). The Hazmat response benchmark was missed by two minutes and thirty-one seconds (2:31) during the 2020 calendar year with a total response time of thirty minutes and sixteen seconds (13:16). The ERF is capable of: providing a dedicated incident safety officer; emergency or mass decontamination; defensive containment measures; and providing the knowledge, skills, and abilities to mitigate a hazardous materials incident.

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High Risk Haz Mat All Area 90th Percentile Times Baseline Performance			Bench-mark	2016-2020	2016	2017	2018	2019	2020
Alarm Handling	Pick-up to Dispatch	Urban	1:30	3:34	1:52	2:27	3:14	3:36	4:21
Turnout Time	Turnout Time 1st Unit	Urban	2:00	2:38	2:38	2:19	2:43	2:18	3:49
Travel Time	Travel Time 1st Unit **Distribution**	Urban	4:15	6:09	6:12	4:51	5:54	8:39	5:51
	Travel Time ERF **Concentration**	Urban	25:00	11:42	9:57	8:04	8:26	9:31	31:22
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	7:45	10:18	10:54	8:56	10:47	12:41	11:56
				n=93	n=22	n=18	n=17	n=20	N=16
	Total Response Time ERF **Concentration**	Urban	28:30	19:16	15:50	17:57	21:25	15:39	56:14

For 90 percent of ***all low hazardous materials response*** incidents, the total baseline response time for 2016-2020 the arrival of the first-due unit, staffed with 2 firefighters and 1 officer, is: ten minutes (10:00) missing the benchmark by thirty seconds (0:30). The benchmark further exceeded in 2020 by two minutes and thirty-six seconds (2:36) with a response time of twelve minutes and six seconds (12:06). The first-due unit shall be capable of: establishing command; evaluating the need for additional resources; establishing the initial isolation distance; and assessing the situation to determine the presence of a potential hazardous material.

For 90 percent of ***all low risk hazardous materials response*** incidents, the total baseline response time for the arrival of the effective response force (also the first on- scene unit) staffed with 2 firefighters and 1 officer, is: ten minutes (10:00) missing the benchmark by thirty seconds (0:30). In 2020 the ERF was obtained with a response time of twelve minutes and six seconds (12:06). This missed the benchmark by two minutes and thirty-six seconds (2:36) The ERF is capable of: monitoring for hazardous materials, ventilation, defensive containment measures; and providing the knowledge, skills, and abilities to mitigate a hazardous materials incident.

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Low Risk Haz Mat All Area 90th Percentile Times Baseline Performance			Bench-mark	2016-2020	2016	2017	2018	2019	2020
Alarm Handling	Pick-up to Dispatch	Urban	1:30	2:54	1:54	1:11	2:47	3:16	3:21
Turnout Time	Turnout Time 1st Unit	Urban	2:00	2:21	2:34	2:06	2:34	2:12	2:10
Travel Time	Travel Time 1st Unit/ERF **Distribution & Concentration**	Urban	6:00	6:45	7:01	5:37	7:03	5:18	6:00
Total Response Time	Total Response Time 1st Unit/ERF **Distribution & Concentration**	Urban	9:30	10:00	10:08	8:03	10:49	11:20	12:06
				n=113	n=25	n=19	n=17	n=28	n=24

Outcome Metrics

Beginning in January 13, 2020, two additional questions were added to the ImageTrend incident report module: “Was a 4-gas meter used on the incident?” and “Did the CO meter on the red bag alarm during the incident?” The purpose of these questions was to identify how often and what type of incidents operationally trained responders are utilizing 4-gas and GasTracs, as well as how often our single gas CO meters are protecting our crews from a potentially dangerous CO incidents. These questions are required in order to fully validate the report. Prior to the addition of these questions, the Department had no efficient or effective way to monitor and track 4-gas meter usage and close calls from CO while responding to EMS calls. More time is required to better under our true usage, but between January 13, 2020 and December 31, 2020, crews utilized the 4-gas meters on 147 incidents.

Strategic Plan Goals and Objectives

Goals and objectives for 2021:

- Review and modify SOG 501: Basic Hazardous Materials Response by the end of FY22. Submit to Policy/SOG committee.
- Increase HMT operational capability to classify unknown gases. Finalize purchase of Chempro X and take receipt of new meter by April 2021. Train all members of HMT in use of Chempro X.
- Develop Hazmat Medical Evaluation SOG for 2022 physicals.
- Begin discussions for eventual Hazmat trailer replacement in the next 3-5 years.
- Work with training division to provide regular ops level training in 2021 beyond regular

decon training.

- Continue to seek and provide quality, engaging and varied training.
- Strive to be the best team in the region. Timeline: always.
- Seek further outside agency training and explore all funding avenues including Department, MABAS and FFIB.
- Continue to work with MABAS Division 1 for further policy and guideline development. This is an on-going project.
- Explore asset management programs for tracking equipment and inventory.
- Incorporate ChemPro X chemical classifier to Code 3 and higher for air monitoring and overhaul work.
- Determine dual-usage and capabilities of Hazmat 8 for both hazmat and investigation response.
- Create a new decontamination policy to include advance technologies and techniques. Complete by end of 2021.

Training

During the course of 2020, EGVHMT members had numerous opportunities to attend in-house drills, MABAS Division 1 drills and outside agency provided training. However, 2020 had its challengages due to COVID restrictrions set by the state and varying training policies across Division 1 department. While team training requirements are based on annual contact hours, the skillset require of hazmat technicians is reflective in the wide array of topics offered throughout the year. Continued goals for future training should focus on consistency across all team members, making available several offerings of the same training opportunities on- and off-shift to promote consistency, recruiting outside agencies for high-quality course offerings, exploring funding options for these outside agency training such a Department, MABAS and FFIB funding.

Available training for 2020 included the following:

- January 2020 - MABAS Div 1 Drill: Division 1 Hazmat hosted three days of AWR-140 Introduction to Radiological/Nuclear WMD Operations. This 4-hour course is direct delivery course provided by the Center for Radiological Nuclear Training.
- February 2020 – Elk Grove Village Hazmat Team Drill: All team members unable to attend MABAS drills in January were assigned the online version of AWR-140 Introduction to Radiological/Nuclear WMD Operations
- February 24 -28, 2020 – Center for Domestic Preparedness: FF/PM Joe Thompson, FF/PM Mike Beyer and FF/PM Joe Hamilton attended the Hazardous Materials Technologies: Sampling, Monitoring, and Detection. This course provided extension hands-on training with some of most advanced and up-to-date technologies available to hazmat technicians for response to chemical, biological, radiological and etiological events.

- March 2020 – Elk Grove Village Hazmat Team drill – CANCELED
- April 2020 – MABAS Division 1 Drills – CANCELED
- May 1-2, 2020: Midwest Hazardous Materials Conference – CANCELED
- May 20-21, 2020: MABAS Division 1 Drill – Hazmat RIT Train-the-trainer - CANCELED
- June 15, 2020: EGVFD Hazmat Team Drill - New member orientation 6 hours
- June 22 & 23, 2020: EGVFD Hazmat Team Drill - Incident review, equipment review 4 hours
- June 2020: EGVFD Hazmat Team Drill - independent study. Hazmat Team members were provided with six different webinars (1 hr. each) from Emery & Associates, Inc., provider of Midwest Hazmat Conference July 15, 2020: MABAS Division 1 Drill - Annual Logistics drill for deployable members 5 hours. Members simulated a Triple R response, rendezvoused at POD, convoyed to Busse Woods, and set-up and inventoried equipment in Division 1 Logistics trailer.
- July 15, 2020: MABAS Division 1 Drill - Annual Logistics drill for deployable members 5 hours. Members simulated a Triple R response, rendezvoused at POD, convoyed to Busse Woods, and set-up and inventoried equipment in Division 1 Logistics trailer.
- August 12th, 2020: MABAS Division 1 Drill: First offering of third quarter drill. Held in Mount Prospect, members received hands-on training and review of chemical storage containers and leak mitigation. Propane emergencies were reviewed.
- September 18th, 2020: MABAS Division 1 Drill: Second offering of the third quarter drill.
- October 6th and 7th: MABAS Division 1 Drill - Physical and Chemical Properties / Risk Based Response; one offering each day of an 8-hour class by Emergency Response Training Group LLC. Classes were held at NOW Arena in Hoffman Estates.
- November 18th: MABAS Division 1 Hazmat Drill 4th Quarter drill, 4-hour drill Canceled due to COVID.
- December 10th: Elk Grove Hazmat Team Drill, 4-hour drill cancelled due to COVID.

Equipment

Over the last four years, a lot of effort has gone into upgrading existing PPE and monitoring/detectors to replace out-of-date equipment, and to incorporate new technologies to put the Elk Grove Village HMT in unique position among area and regional agencies with regards to outfitting and capabilities for the next decade to come. Further equipment acquisitions in the medium term should focus on replacement of end-of-life technologies and replacement of the Hazmat 8 trailer.

Equipment that may age-out (become no longer supported by the manufacturer) in the next 5 years may include VHF portable radios, MSA 4-gas meters and the research laptop. While the trailer on Hazmat 8 is still in good working order, discussions should begin for the eventual replacement with a similar arrangement and setup.

Major purchases/progress for 2020 included:

- Eight 25-gallon and one 100-gallon disposable catch basins purchased. 200 pounds of bulk chemical neutralizer purchased. This chemical neutralizer works for both acids and bases and is unique that it has color pH indicator that changes colors as mixture neutralizes.
- Three Hurricane II Foggers were purchased along with fogging disinfectant to disinfect interior of ambulances in response to COVID-19 outbreak
- Twelve single gas CO meters purchased and placed into service. These meters replaced all current single gas meters on EMS red bags.
- Requests for quotes went out to suppliers for the purchase of Chempro 100i IMS Detector. Process slowed due to COVID. This is a FFIB purchase.
- New bump gas cylinders placed on front line apparatus in June. These cylinders have a six month life-span and are used to challenge 4-gas meters before atmospheric monitoring.
- Bids for Chempro 100i IMS Detector were submitted to the FFIB. A purchase order was submitted to AllSafe Industries. Meter will arrive in Q1 of 2021 with training to follow.

Staffing

The Department currently maintains a roster of 14-16 members trained to the Office of State Fire Marshal Technician level. In 2020, two new members attended local academies for Technician certification and to facilitate the decertification of two members. We will need to anticipate further decertification due to retirements and promotions in 2021.

The Department has traditionally kept with this roster level in order to spread the technicians throughout the three shifts, at 5-6 technicians per shift. Over the last couple of years, shift changes have disrupted this distribution has left second shift “heavy” and third shift “light”. Further team staffing levels and shift distribution should be discussed going forward.

Over the years, numerous Department members have gone through OSFM Technician training and decertified after spending many years on the team. Since the OFSM does not recognize a means of decertification due to inactivity, and because there is a recognized need to fill ancillary roles during larger hazmat incident within Elk Grove Village proper when daily technician levels are short, we may want to consider the creation of a second tier membership on the hazmat roster. Former members who spent years on the team, can assist and fill some of the basic, non-entry roles during a hazmat incident within Elk Grove Village such as Decon Group Leader, Medical Group Leader, Asset/equipment management Group Leader. This secondary ancillary tier would include former members of the hazmat team, require the member to have attended Hazmat ICS, only function within Elk Grove in non-entry, non-Hazmat Branch roles.