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April 5, 2023

TO: FIREScope Board of Directors
23300 Castle Street
Riverside, CA 92518-2200

FROM: FIREScope Operations Team, Task Force, Haz Mat Subcommittee

SUBJECT: Typed Hazmat Team Staffing for Mutual Aid Deployments

REQUESTED ACTION: The FIREScope Hazardous Materials Subcommittee requests Board approval of the recommended Haz Mat Team Staffing standard as outlined below.

APPROVAL: The FIREScope Board of Directors approved the requested action on April 5th, 2023.

SUMMARY

As part of the Hazmat SEL (MEL) update process, the Subcommittee recommends a change to the number of specialized trained personnel for mutual aid responses to more accurately represent the required staffing for hazmat incident entries. Standards and regulations dictate that certain positions be filled by minimally Technician level trained personnel. Practical experience and implied expectations have shown that some shall be filled by Specialists due to the responsibilities and complexities of the positions. The committee sees the opportunity as now, to reconcile the short falls of the previous specified models and change them to accurately represent the true functional needs of mutual aid deployable hazmat teams.

RECOMMENDATIONS

It is the committee's recommendation to change the following:

- Change the minimum staffing for Type 1 teams to 8 WMD trained Specialists.
This represents the true minimum staffing to cover the minimum required positions to perform a standard, 2 in/ 2 out entry.

IMPLEMENTATION PLAN

The committee recommends the change for Type 1 teams to be concurrent with the pending SEL (MEL) update.

We additionally recommend the committee's intent to change the staffing levels for Type 2 teams to 8 after 5 years to allow for additional planning and training of personnel. In the meantime, it is our recommendation that Type 2 teams be deployed in pairs, when appropriate, to provide the minimum staffing expectations. We recognize that not all incidents at the Type 2 level will require full deployment, however we want the expectations to be clear in order to support the standards and requirements for safe entries.



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FINDINGS

- Positions required by regulation or implied responsibilities are:
 - Hazmat Group Supervisor/ Team Leader/ Hazmat Officer
 - Assistant Safety Officer Hazmat
 - Technical Reference/ Science Officer
 - Entry Team Leader
 - 2- Entry personnel
 - 2- Back up personnel
- Due to the complexities of a WMD incident which include extensive and complex technical reference duties, larger entry teams that include specialists are likely to be required in order to process evidence.
- These are the minimum positions to provide a basic stand-alone entry into a chemical, biological IDLH environment regardless of cause or intent.
- FRO trained personnel can be used at their training level to provide decon, site access control and additional support personnel.
- These changes will bring a more balanced and effective deployment model. This improved standard will provide the appropriate number of personnel to perform the minimum tasks for an entry into IDLH environments while using chemical protective ensembles.
- It is generally expected and understood that a mutual aid resource arrives with the ability to perform the services it was requested for. Our current system does not adequately provide the number of appropriately trained staff per unit to match the typical tasks expected. For example, a Type 1 fire engine is staffed with 3 or 4 personnel. It would be problematic if it arrived with only 2 members and yet expected to perform all of the tasks and at the same level as the standard. Our present typed hazmat teams are minimally specified to arrive with between 1 and 3 members short to be able to perform safely and in accordance with regulations and standards. The recommendations from this paper amend this shortfall.
- Type 2 teams operate under the same operational procedures as Type 1s. The minimum tasks and staffing are the same at the functional level.
- Type 2 teams are more prevalent across the state and the intent is to raise their functional capability as individual units.
- These adjustments will only be required for mutual aid deployments. Normal daily staffing and operations still remain at the AHJ's determination based on an agency's policies and procedures.

PROs

- This allows for a Type 1 mutual aid deployed team to provide a basic entry upon arrival as a stand-alone resource by adding one additional person.
- The members of the Type 1 team train together on their specific equipment and can be interchangeable across the positions if multiple entries are required within a short term.
- This creates a truly mission ready package that can be deployed with reasonable expectations for success.
- Most if not all the Type 1 teams are able to add the additional member at minimal cost. Most of the Type 1 teams have rosters deep enough to absorb the adjustment with minimal impact.



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- On a large scale WMD incident where multiple teams may be used, this creates packages that can operate independently or in an interoperable manner.
- These Type 1 teams could be used to fill requests for any type of incident as a single complete and functional package.
- This matches the NIMS specifications for intra-state mutual aid.

Type 2 PROs

- The intent is to make both types match from a staffing number perspective. The staffing needs are the same however the training levels and equipment are different between the types.
- This matches the NIMS specifications for intra-state mutual aid.

CONs

- Potential additional cost to host agency to maintain a larger pool (3 additional for Type 1, 1 per shift) {based on a general 3 shift system}
- Additional costs could include training, initial and annual medical screening, additional PPE and communications equipment, additional transport vehicle, etc.
- Potential for some smaller agencies to no longer be able to participate at the Type 1 level.

CONCLUSION

The most important concept to remember with these recommendations is that this affects only mutual aid deployed teams. Daily operations and staffing are still at the discretion of the AHJ. It is also understood that participation is optional and there is no penalty for not participating.

These recommendations are being made after extensive debate and practical experience over many years. The working group is empathetic of the potential challenges that some agencies may be faced with when addressing the increased staffing to maintain their current level of typing. However, we feel strongly that these changes be implemented to strengthen the capabilities of the teams, increase safety, and truly provide a resource that is as “turn-key” and self-sufficient as possible.

The Hazmat Subcommittee recognizes that FIRESCOPE and the mutual aid program of California is recognized across the country and internationally as the gold standard. The documents and standards that we establish can and are being used to justify improvements and standards within agencies. We take great pride and responsibility in making these recommendations and thank the FIRESCOPE and CalOES Leadership for considering our request.

REFERENCES

29 CFR 1910.120 (q)

CCR Title 8, 5192

NFPA 470 Ch. 16

CSTI Hazmat IC and Technician training curriculum

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FIRESCOPE HAZMAT MEL COST Eighth Member Type 1 Team Upgrade Cost Estimate

OBJECTIVE

Provide a cost estimate for the additional equipment related to the eighth member that has been proposed for Type 1 teams. These costs are an estimate only, and add up to a total of **\$35,044.53** for Equipment and Training.

EQUIPMENT AND ITEMS ASSOCIATED TO AN EIGHTH MEMBER

All items are to be provided as a single item except where noted.

Item and location in the MEL	Cost Estimate
4.3.1 DOSIMETER, ELECTRONIC, ALARM: Direct reading dosimeter with programmable limits and alarms; Functions like a pager and is worn in pocket or on belt; Battery operated, alarms when programmed accumulated dose has been recorded. Will satisfy the requirement for 4.3.1.	\$1610.00
5.1.1 VAPOR PROTECTIVE ENSEMBLE,	\$2576.93
5.1.3 VAPOR PROTECTIVE, WITH WMD CHEMICAL / BIOLOGICAL PROTECTION: For high vapor threat protective ensemble.	\$1311.24
5.2.1 LIQUID SPLASH PROTECTIVE: Industrial Chemicals for liquid contact and splash protection (no vapor protection).	\$211.02
5.2.2 LIQUID SPLASH PROTECTIVE, WMD CHEMICAL / BIOLOGICAL PROTECTION: A separate WMD Chemical / Biological protective tactical ensemble which provides for liquid splash protection.	\$400.00
5.3.1 LIMITED USE, SPLASH PROTECTION: Can be a coverall type splash protective garment. *Note that two (2) are required per person	\$215.94



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Item and location in the MEL	Cost Estimate
6.1.1 REPLACEMENT GLOVES, VAPOR PROTECTIVE: Replacement glove inventory shall be ordered from and include ample supply of the manufacturer's recommended "outer" glove. Readily available generic type replacement gloves not acceptable.	\$56.85
6.1.2 REPLACEMENT GLOVES, LIQUID SPLASH PROTECTIVE: Replacement glove inventory must include ample supply of the "outer" generic replacement gloves (Some suit ensembles are not supplied with gloves from the manufacturer).	\$28.31
BOOTS, CHEMICAL RESISTANT: For use with Vapor Protective or Liquid Protective garments, and originals may be supplied by garment manufacturers.	\$128.67
6.2.2 BOOTIE, OUTER PROTECTIVE: Disposable chemical protective bootie slip-over that covers entirely a General Work Safety Boot for use in low threat level contamination Environments. *Note that two (2) are required per person.	\$5.60
6.3.1 HELMET: Light weight construction style helmet to provide head protection when wearing any CPC ensemble. Should include suspension system, and adjustable sizing.	\$8.33
6.3.2 GOGGLES: Wide angle wraparound to prevent frontal and side splash to eyes Some available to fit over prescription glasses.	\$10.52
6.4.1 UNDERGARMENT, FIRE RESISTANT: Long sleeve jumpsuit style garment, one or two-piece, with or without pockets, of fire-resistant material; Compliant to one of the following NFPA Standards: 2112, 1975, 1977	\$252.15
11.1.1 RADIO, PORTABLE, INTRINSICALLY SAFE (I.S.): Walkie Talkie style, with carrying case, and appropriate support hardware to be worn on person; Those assigned for use in-suit to be equipped with separate private tactical channels. UL or FM "I.S." label must be on unit, and "I.S." battery must be of correct model compatible with unit, and neither can be interchanged with non-I.S. components.	\$8000.00



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Item and location in the MEL	Cost Estimate
11.1.4 RADIO, PORTABLE, IN-SUIT COMMUNICATIONS: Complete with earphone system, microphone system (i.e., built into SCBA facepiece, or throat mic, or bone mic, or ear mic, etc.), remote "Push-To-Talk" switch, and necessary attachable hardware and support connector system. Designs and configurations will vary and are influenced by support systems provided by portable radio manufacturer, and manufacturer of SCBA. See also 12.1.6.	\$500.00
11.1.6 RADIO, PORTABLE, INTERCHANGEABLE BATTERY, INTRINSICALLY SAFE (I.S.): Two batteries assigned per unit, the second set for back-up; Certified intrinsically safe. *Note that two (2) are required per person.	\$600.00
12.1.2 SCBA, COMPLETE, WMD CBRN, ONE HOUR RATING: With bottle; unit must be NFPA structural firefighting compliant and NIOSH certified for WMD CBRN threat atmospheres	\$7000.00
12.1.4 MASK, FULL-FACE, WMD CBRN: Facepiece must be NFPA structural firefighting compliant and NIOSH certified for WMD CBRN threat atmospheres.	\$754.61
12.1.7 BOTTLE, SPARE: Extra replacement air bottle of same type, and size.	\$700.00
12.2.1 MASK AND UNIT, APR, INDUSTRIAL: Full facepiece, single or dual cartridge style, speaking diaphragm, certified for use in industrial chemical threat atmospheres only.	\$625.00
12.2.2 MASK AND UNIT, APR, CBRN: Full facepiece, single or dual cartridge style, speaking diaphragm, for use in industrial chemical threat atmospheres AND CBRN atmospheres.	\$2200.00
12.2.5 CARTRIDGES, APR OR PAPR, INDUSTRIAL: Cartridges certified only for industrial chemical threat atmospheres; Cartridges to be multi-gas and organic vapor protective, with solid particulate and liquid aerosol protection.	\$30.00
12.2.6 CARTRIDGES, APR OR PAPR, CBRN: Cartridges are certified for WMD CBRN threat atmospheres.	\$69.36
TOTAL	\$27,294.53



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The following training estimate is provided as a frame of reference only. The actual cost of training could vary considerably. For example, additional members could be included in training that was already planned, grant funded, or regionally supported.

Training Estimate for one (1) student	Cost Estimate
Technician Module A	\$750
Technician Module B	\$1,200
Technician Module C	\$1,100
Technician Module D	\$1,100
Specialist Module F	\$1,500
Specialist Module G	\$1,500
Weapons of Mass Destruction (WMD)	\$600
TOTAL	\$7,750

Board of Directors Approved: April 5, 2023