Vaccine Distribution Supply Chain

At FM Global we remain committed to providing our clients with the best property loss prevention advice to keep your facilities and operations resilient and safe, particularly during these challenging times. Industry is adapting rapidly to the new demands caused by these challenges. These can have an impact on property risks and resulting business interruption for organizations whose products and services support the pandemic vaccine distribution supply chain.

During the early phases of the COVID-19 pandemic, FM Global provided for sectors dealing with changes caused by the pandemic response needs, including healthcare, logistics and pharmaceutical. Building on that advice, during this next key phase of the pandemic response and recovery efforts, the additional risks and exposures posed by the activities needed to support this critical supply chain may be:

- ☐ Greater demands on healthcare cold storage facilities that exceed resources and capacities
- ☐ Construction of tents, trailers, or other temporary structures in which vaccines may be administered
- ☐ The construction of large ultra-cold refrigeration facilities, known as “freezer farms”
- ☐ Heightened cyber threat
- ☐ A supply chain exposure from companies whose products and services such as manufacturers of vials and dry ice will form essential links in the chain

PROPERTY LOSS PREVENTION ADVICE

To assist you in your efforts to mitigate the potential impact of these risks in this sector, the following loss prevention advice will help keep your properties resilient and safe.

☐ **Vaccine Cold Storage in Healthcare Facilities**

Healthcare facilities are typically equipped with some ultra-cold and standard freezer capacities. These assets together with their experience and knowledge will likely become key components in the vaccine delivery supply chain. To ensure their reliability and resilience matches the increased strategic importance, careful consideration should be given to:

- For existing and planned new freezer equipment, avoid below-grade locations as these are more susceptible to flooding
- Using a systems approach, assess and improve where necessary the reliability of the freezer storage support systems such as power, backup power, backup cooling
- Provide high temperature and loss of power alarms to a constantly attended location
- Develop and test an updated emergency response plan for a loss of power/cooling to the units
- If materials such as carbon dioxide or nitrogen supplied from bottled gas stocks are used as an emergency backup source of cooling, their arrangement and any associated ventilation or monitoring systems should allow safe and reliable access to the area housing the equipment
- Develop a contingency plan for a prolonged power interruption including those caused by a major natural hazard event

☐ **New Structures in Healthcare Facilities**
Healthcare facilities may construct detached semi-permanent structures, for example, using modular construction, in which vaccines may be administered. Despite their planned short-to-medium term use, the following should be considered:

- Location should be free from flood exposures and should not pose a significant fire exposure to adjacent buildings
- Roof and wall designs are suited to the location's natural hazards
- Noncombustible construction and sprinklers provided
- Heating, particularly gas-fired systems, should be properly installed and regularly tested

☐ **"Freezer Farms"**
Freezer farms, clusters of hundreds of freezers storing millions of vaccine vials are being constructed by worldwide logistics companies. To help ensure these are built and designed with the level of resiliency needed to support this critical multiyear effort, these factors and features should be considered:

- Avoid below-grade locations
- Use of materials of construction and fire protection that meet local code requirements
- Location's exposure to natural hazards such as windstorm, flood, or wildland fire
- The FM Global Boiler and Machinery systems approach – with a strong emphasis on identifying single point of failure scenarios – should be applied to the utility and support systems in order to design for reliable and resilient operation:
  - » Main and backup electrical systems
  - » Backup emergency cooling systems
  - » Freezer temperature monitoring, recording equipment and backups
  - » High temperature alarms to a constantly attended location
  - » Room climate control systems
  - » Emergency response procedures should be developed with training and tests carried out
- Contingency planning for temporary cooling and storage

☐ **Cyber Threats to Vaccine Distribution Supply Chain**
Media reports have highlighted the threat to the vaccine distribution supply chain posed by cyber attacks (irrespective of the motive). FM Global has extensive Cyber Loss Prevention resources that can be made available to our clients who wish to assess their preparedness for this threat.

USEFUL RESOURCES

These FM Global resources can provide you with additional information:

☐ FM Global Data Sheet 7-36, *Pharmaceutical Operations* – section 2.5.7, Cooler and Freezer Storage Units
☐ FM Global Data Sheet 5-23, *Emergency and Standby Power Systems*

For more information and methods for addressing loss prevention concerns at your facility, refer to the free resources on FM Global's website at fmglobal.com. FM Global and AFM clients can contact their account engineer.