U. S. Chemical Safety and Hazard Investigation Board
RECOMMENDATION STATUS CHANGE SUMMARY

Report:	Fatal Liquid Nitrogen Release at Foundation Food Group
Recommendation Number:	2021-03-I-GA-R12
Date Issued:	December 11, 2023
Recipient:	International Code Council (ICC)
New Status:	Open – Awaiting Response or Evaluation/Approval of Response
Date of Status Change:	Not Applicable – Initial Status

Recommendation Text:

Update the International Fire Code to:

a) require the use of atmospheric monitoring with cryogenic asphyxiants in accordance with industry guidance such as is contained in CGA P-76 Hazards of Oxygen-Deficient Atmospheres and CGA P-12 Safe Handling of Cryogenic Liquids in addition to CGA P-18 Standard for Bulk Inert Gas Systems; and,

b) include guidance on the adequate safe location of manual shutoff valves and devices such as emergency push buttons used to activate remotely operated emergency isolation valves (ROEIVs) in cryogenic fluid service. At a minimum this guidance should be harmonized with the requirements of ISO 13850 Safety of machinery – Emergency stop function – Principles for design.

Board Status Change Decision:

A. Rationale for Recommendation

On January 28, 2021, liquid nitrogen overflowed from an immersion freezer located inside Plant 4 at the Foundation Food Group (FFG) facility in Gainesville, GA. The release occurred while two maintenance employees were troubleshooting the equipment. Once the liquid nitrogen was released, it quickly vaporized and accumulated inside the room in which the equipment was located, creating an oxygen deficient atmosphere.

The two maintenance employees were fatally injured. Upon discovering the two fatally injured employees, an emergency response was initiated which included attempts by other employees to rescue them and isolate the freezer from its liquid nitrogen source. During these activities, four additional employees of FFG were fatally injured. Additionally, three more FFG employees and one firefighter were seriously injured, presenting symptoms of oxygen deprivation. The incident resulted in an estimated $1.95 million in damage.

The U.S. Chemical Safety and Hazard Investigation Board (CSB) investigated the incident and found several safety issues including faulty equipment design, inadequate precautions for using liquid nitrogen, the lack of atmospheric monitoring and alarms, inadequate emergency

preparedness, a lack of a safety management system, and a lack of regulatory coverage for cryogenic asphyxiants. As a result of these findings, the CSB issued one recommendation to the International Code Council (ICC). This status change summary addresses **CSB Recommendation No. 2021-03-I-GA-R12**.