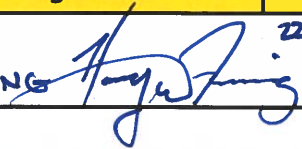


Updated 20200122

APPROVALS			
	Print	Signature	Date:
Accelerator Division Safety Officer	HARRY W FANNING		22 JAN 2020

Isotope Production Project Emergency Response Guidelines (ERG)

All experiments taking place under the guidance of the Small Experiment Readiness Review process (see ES&H chapter [3130 – Accelerator Experiment Safety Review Process](#)) are required to submit, in addition to the Conduct-of-Operations (COO), Experiment Safety Assessment Document (ESAD) and, Radiation Safety Assessment Document (RSAD), a document that summarizes the location of major hazards in the area(s) where the experiment is taking place, the location of the various emergency systems as well as emergency procedures and egress routes to be used during that experiment: the Emergency Response Guidelines (ERG) – this document. Shift personnel and anyone else wishing access during the duration of the experiment, must read and sign to indicate they have understood the COO, ESAD, RSAD and ERG of the experiment. Isotope production takes place in the Low Energy Recirculator Facility (LERF). Anyone feeling in doubt with the information contained in the ERG should contact the person responsible for the LERF Safety Awareness training and schedule guided refresher training.

The LERF building

The LERF building has three levels. A ground level entrance, the Accelerator enclosure or **Vault** located below ground (shown as First Floor on the attached drawings) and a second floor with a Control Room, various laser labs and support services (e.g. power supplies).

Purpose

Familiarize users with safety hazards and protection systems in the LERF.

Prerequisites to access the Vault without escort

ES&H Orientation (SAF100)

Rad Worker I Training or equivalent (must have been issued a dosimeter by JLab) ODH training (SAF103)

General Access Radiological Work Permit [RWP] (SAF801kd)

FEL Safety Awareness (SAF143kd)

Reminder

- **Access to the Vault and some locations of the 2nd-floor require wearing a Radiation Dosimeter**
- **No one under 18 years may enter the Vault**
- **No food or drinking inside the Vault**
- **Check postings at the entrance to the various enclosures** (e.g. long pants may be required, special training). ***If in doubt, please contact the LERF Geographic Coordinator or his/her designee,***

James Coleman [x-7312, pager: (757) 5847312, email: colemanj@jlab.org]

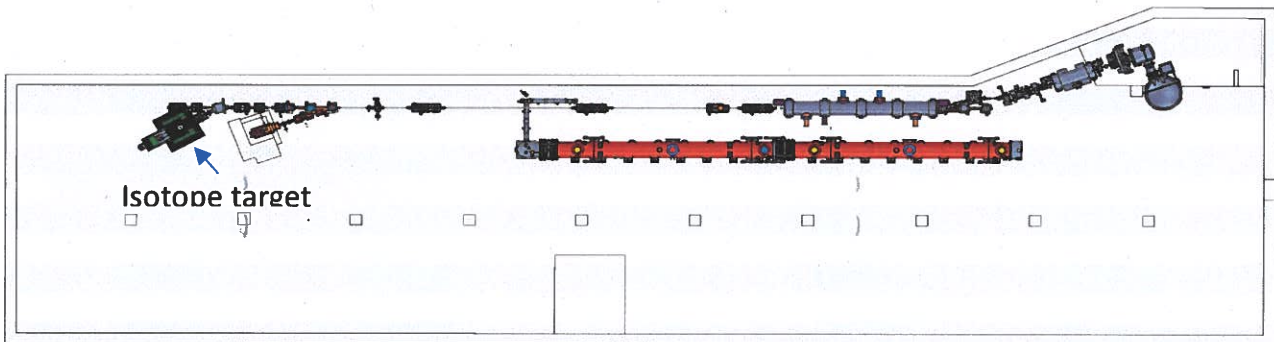
Check that all work or test set ups follow the work controls indicated in the ESH&Q manual (<http://www.jlab.org/ehs/ehsmanual/index.html>). **If in doubt, consult the Accelerator Safety Officer (Harry Fanning).**

Undergraduate Students in the Vault

Regardless of task, undergraduate students doing work in the Vault must follow the two-person rule during their first three-months at JLab. During that period, undergraduate students are allowed to work in the Vault if (a) their work in the Vault is always under the supervision of an authorized "buddy" (the "buddy" cannot be another undergraduate) and, (b) a permanent JLab staff member is cognizant of the work to be done, has supervisory responsibility for their work and approves the "buddy".

Hazards specific to Isotope Production

Isotope production may involve the use of hazardous substances that can be spilled before or during the exposure. After an exposure, high radiation levels may be present in the vicinity of the target, with the added hazard of possible contamination by the radioisotopes. Care must be taken to carefully follow all RadCon instructions and procedures. Potential equipment specific hazards will predominantly be in the isotope target region near the downstream arc in the LERF vault (see figure below). Note that during isotope runs the Rapid Access System will be disabled.



Isotope target assembly location in the LERF vault.

Appendix A

This appendix lists likely hazards, protection & emergency systems used and emergency procedures to be reviewed during the LERF Safety Awareness walkthrough.

Hazards:

- Fire (electrical equipment, breaker panels, paper, trash, cables)
- Tripping and overhead hazards
- Falling hazards
- Elevated work
- High-pressure systems including low-conductivity water distribution
- Radiation hazards (beam-on, contaminated and activated areas)
- Loud noise hazards (beryllium vacuum target window)
- Cryogenic (ODH and “cold-bite”)
- Magnets and magnetic fields
- Electrical
 - AC & DC (various voltages)
 - Magnet power supplies and their current distribution systems
 - High-Voltage supplies

Protection & Emergency systems and procedures:

Signs and postings,

- Radiation areas
- Exit signs
- Exit routes (evacuation plans)
- Oxygen Deficiency Hazards

- Personnel Protection Requirements (e.g. hardhat, safety glasses, ...)
- First Aid kit and Emergency Defibrillator
- Telephone locations with emergency numbers
- Fire
 - Detection systems
 - Alarm pull boxes
 - Fire alarm bells
 - Extinguishers
 - Evacuation routes and muster points
- Electrical
 - Power shutoff switches
 - Circuit breaker panels

- Weather related hazards
 - Tornado emergency response
- Emergency lights

- Beam status, interlock and abort
 - Machine State Status Indicators,
 - Magenta/purple beacons,
 - Key interlocks
 - Run/Safe boxes

- Oxygen Deficiency Hazard condition detection
 - Sensors locations
 - Blue beacons & alarms locations

- Radiation Monitors (Controlled Area Radiation Monitors – CARMs)
- Radiation Control Group staging areas for equipment to be removed from hall
- Red beacons for hazards (e.g. energized magnets)
- Yellow beacons for warning or caution (e.g. energized lasers, forklifts)
- Cabinets for storing flammable materials
- Lockout/Tagout Stations
- Eye wash stations

**LERF
BUILDING 18, FLOOR 1
EMERGENCY PLAN**

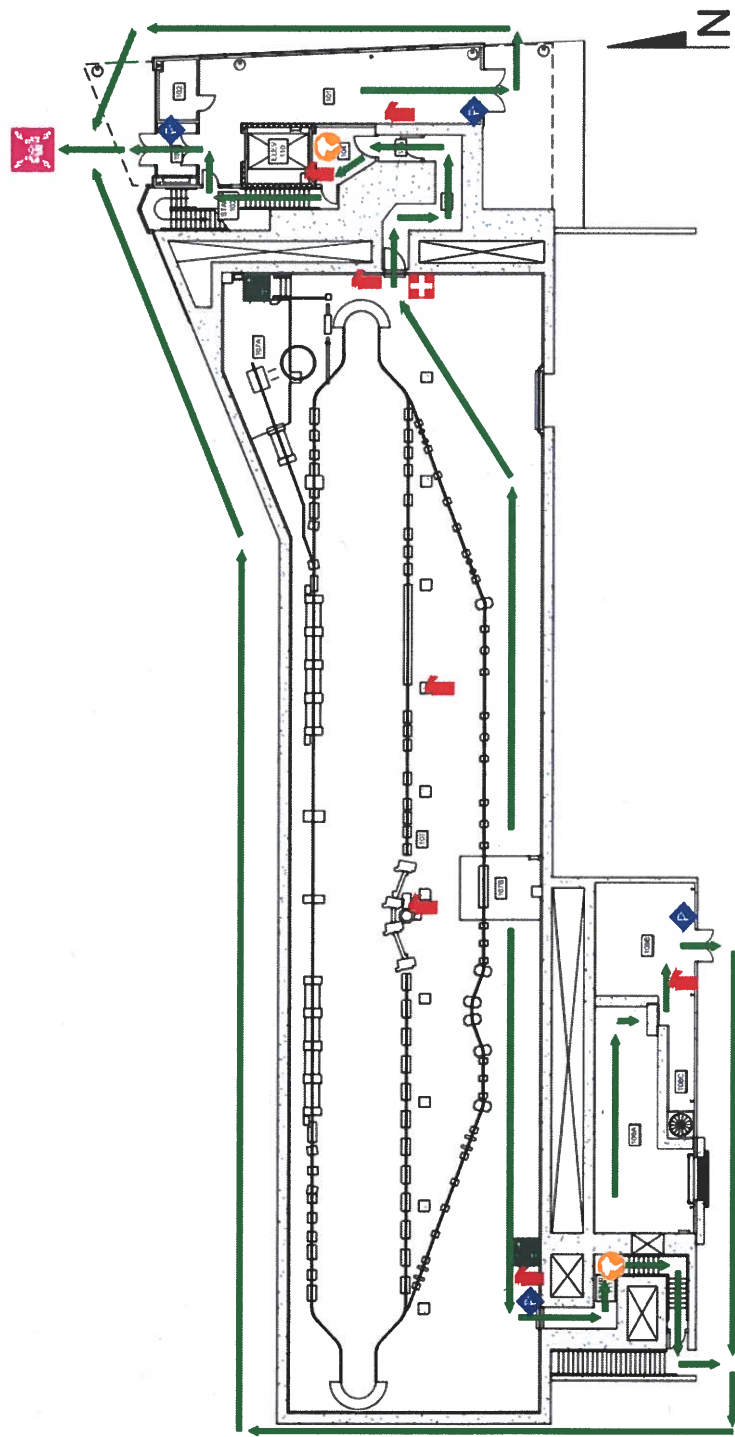
- IN CASE OF FIRE:**
- STAY CALM
 - WALK, DO NOT RUN
 - CLOSE YOUR DOOR
 - ACTIVATE NEAREST PULL BOX
 - FOLLOW ARROWS IN DIAGRAM & MEET AT MUSTER POINT

- IN CASE OF SEVERE WIND:**
- IF A TORNADO WARNING IS ISSUED BY THE NATIONAL WEATHER SERVICE & JLAB IS WITHIN THE WARNING AREA, MOVE QUICKLY TO ONE OF THE DESIGNATED SEVERE WIND "TAKE COVER" AREAS.

LEGEND

- EGRESS PATH
- FIRE EXTINGUISHER
- FIRE ALARM PULL STATION
- FIRST AID STATION
- SEVERE WIND "TAKE COVER" AREA
- MUSTER POINT
- EYE WASH STATION
- AED

REVISED: NOVEMBER 2019



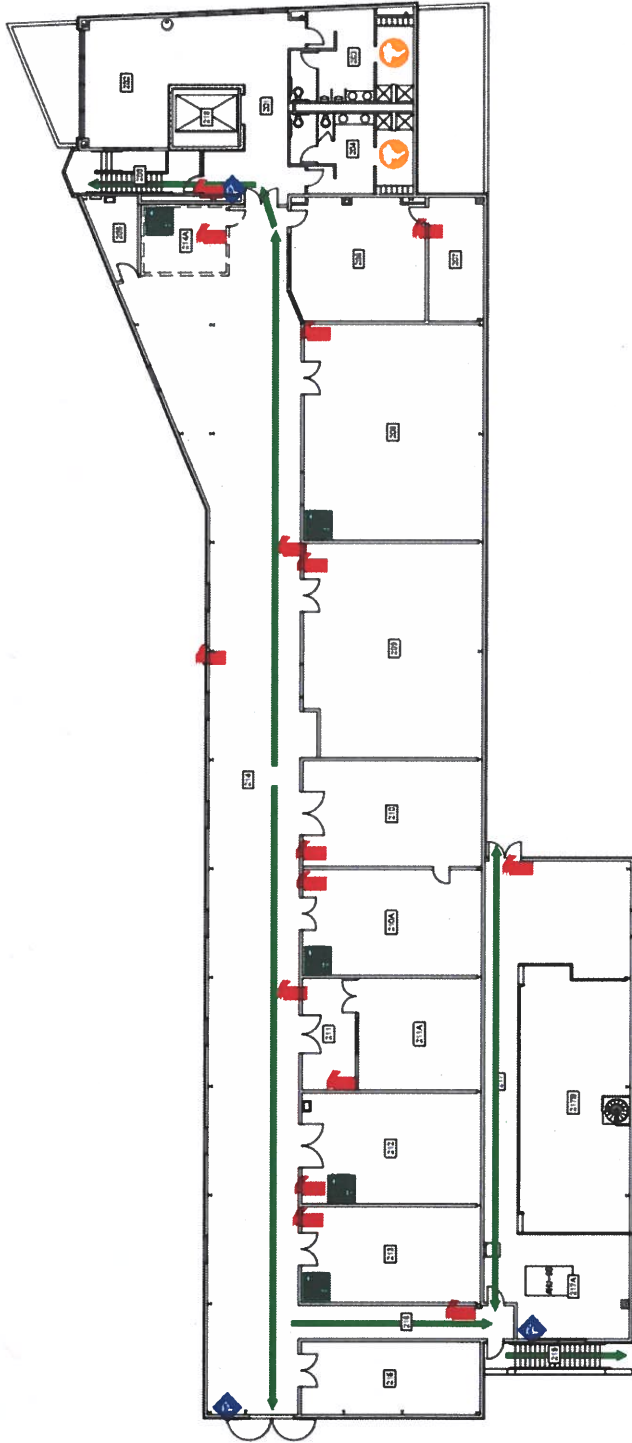
**LERF
BUILDING 18, FLOOR 2
EMERGENCY PLAN**

- IN CASE OF FIRE:**
- STAY CALM
 - WALK, DO NOT RUN
 - CLOSE YOUR DOOR
 - ACTIVATE NEAREST PULL BOX, FOLLOW ARROWS IN DIAGRAM & MEET AT MUSTER POINT

IN CASE OF SEVERE WIND:
IF A TORNADO WARNING IS ISSUED BY THE NATIONAL WEATHER SERVICE & JLAB IS WITHIN THE WARNING AREA, MOVE QUICKLY TO ONE OF THE DESIGNATED SEVERE WIND 'TAKE COVER' AREAS, PREFERABLY ON THE FIRST FLOOR.

- LEGEND**
- EGRESS PATH
 - FIRE EXTINGUISHER
 - FIRE ALARM PULL STATION
 - FIRST AID STATION
 - SEVERE WIND 'TAKE COVER' AREA
 - MUSTER POINT
 - EYE WASH STATION
 - AED

REVISED: AUGUST 2017



Important information DIAL 9-911 or 911	Both numbers will connect you to: City of Newport News' Emergency Dispatch Center	If dialed from a land-line phone the following are automatically alerted: • Jefferson Lab Security • Occupational Medicine • Other key Jefferson Lab Responders.	If dialed from a cell phone you will also need to call: Jefferson Lab Security 269-5822 Cell 342-9868
EVENT →	ACTION 1 →	ACTION 2 →	ACTION 3
Injury or acute illness 	Call 9-911 or 911	<ul style="list-style-type: none"> • Do not move the victim (unless they are in danger) • Administer first aid/CPR if willing and trained • Avoid contact with blood 	<ul style="list-style-type: none"> • Stay with the victim while awaiting emergency responders
Direct minor injuries to Occupational Medicine (Support Service Center, Bldg 28, Room 22) during regular business hours. Most buildings have one or more first-aid cabinets and AEDs for your convenience. There are pamphlets at these locations to assist you.			
 Fire Alarm	Evacuate to Muster Point (refer to the evacuation map for the location)	Await "All-Clear Notification" From Fire Protection Engineer or Building Drill Coordinator before re-entry.	
 SMOKE Unexplained Odor or Natural Gas See or Smell	Sound Alarm (use the nearest pull box) 	Evacuate to Muster Point (refer to the evacuation map for the location) 	Await "All-Clear" Notification From Fire Protection Engineer or Building Drill Coordinator before re-entry.
 CHEMICAL SPILL OIL SPILL	Evacuate Upwind (keep others away)	Call Jefferson Lab Security 269-5822	Only personnel trained and equipped are permitted to contain and control a spill.
 Suspect Item	<ul style="list-style-type: none"> • DO NOT touch the item • DO NOT change the environment (e.g. turn off lights or open window) 	Back Away (keep others away)	Call Jefferson Lab Security 269-5822
 Bomb Threat	Write Down: <ul style="list-style-type: none"> • Any demands/ instructions • Caller's number if available • Vocal characteristics • Any other relevant details to identify the caller 	Call Jefferson Lab Security 269-5822	Stand by for further instructions from Security or JLab Management
Other Emergency Notifications (via cisco phone system, notification e-mail, outdoor siren, weather alert radio)		(e.g. Off-Site Emergency, Severe Weather Warning, Earthquake) Stay in Building (unless told to evacuate) Abide by Instructions Refer to the evacuation map for appropriate locations	
ODH Alarm or visible plume 	Evacuate to Muster Point	Call Jefferson Lab Security 269-5822	If on the Accelerator Site Call the Crew Chief 269-7045
Radiation Alarm 	If you see a Flashing RED Light and Hear an Audible Alarm	Evacuate to Muster Point (refer to the evacuation map for the location)	If on Accelerator Site Call the Crew Chief 269-7045
Hazardous Machine Operations 	Hit "Push to Safe" RED Button	Evacuate to Muster Point (refer to the evacuation map for the location)	Call the Crew Chief 269-7045
Automobile Accident	If anyone is injured Call 9-911 or 911	Call Jefferson Lab Security 269-5822	Call Facilities Management 269-7400
Intruders, Threatening or Abusive Behavior other unauthorized conduct	Call Jefferson Lab Security 269-5822	Protect Yourself to Ensure Your Personal Safety If not imminent danger, report the incident to your lab management ASAP!	
Requests for Jefferson Lab Status, or other information	You are not authorized to provide any information regarding Jefferson Lab status or conditions. Refer Requestor to Jefferson Communications Office 269-7689		