

### Notable Event

**Event Title:** FML-21-0825 ASE Violation

**Date Submitted:**      **Response Owner:** Harry Fanning (fanning)

**Category:** Violation / Inadequate procedures

**Date of Occurrence:** 08/10/2021 01:39 pm      **Event Location:**

**Date Notable Event Report is Due:** 09/28/2021

#### Short Summary of Event and/or Injuries

On August 10, 2021, during a maintenance day of the Accelerator, the TUN7 key was used to access the fenced area connected to building 21 in order to change out one dosimeter within the fenced area. When the area was secured after dosimeter change out, the individual locking the gate missed looping the chain around a second pole before locking the chains together, making it possible for someone to gain access through the gate and into the credited controlled space.

#### Details of the Event and/or Injuries

On Aug. 25, 2021, a Radiation Control technician performed a routine inspection and found a gate around the E1 Area on the accelerator site was not secure (as required) during beam operation. The locked area is a credited control to maintain the integrity of the Accelerator Safety Envelope (ASE). The ASE is a set of verifiable physical and administrative credited controls that define the bounding conditions for safe operation and address the accelerator facility hazards and risks.

A review of records found that Accelerator Operations granted access to the area twice during the weeks leading up to the discovery on Aug. 25. On Aug. 9, Facilities, Management and Logistics (FM&L) staff entered the area to perform routine maintenance on an air-handling unit, and on Aug. 10 Environment, Safety & Health (ES&H) staff entered for a dosimeter exchange.

The chain/lock was not properly configured around both gateposts after the entry on Aug. 10. There is no record of any additional entry between Aug. 10 and 25.

There was intermittent low duty factor pulsed beam delivery on Aug. 9. The potential radiation exposure to those entering this area was low, and monitoring records indicate radiation levels during this period did not exceed background. There was no beam delivery on Aug. 10, which was a maintenance day.

During reconstruction of this event, we found that procedures for use of the key to the locked area were insufficient to ensure integrity of the credited control, and that requirements of the Radiation Work Permit (RWP) for this area were not followed.

#### Causal Analysis

#### Judgement of Needs

**Doe Cause Code:** A1: Design / Engineering Problem, B3: Design / Documentation LTA, C1: Design / documentation not complete LTA

**Risk Code:** 2

JON #1: Management needs to ensure all gates leading to areas of potential radiation exposure have adequate locking controls in place to ensure human error is minimized.

#### Corrective Action:

**Action Owner(s):** Paul Vasilauskis      **Due Date:** 09/02/2021

CA #1: Add TUN9 lock and a RCG-controlled padlock to E1 gate to bring the gate up to the locking protections of other areas.

Evidence of Completion: Work order showing proof of completion of TUN9 lock addition. Photo of TUN9 and RCG-controlled padlock on gate.

**Corrective Action:**

**Action Owner(s):** Paul Vasilauskis **Due Date:** 09/02/2021

CA #2: Update procedures to include RadCon peer checking on the process to ensure gate is secure and beam is off/authorization is removed before initial access.

Evidence of Completion: Copy of standing order for updated procedures.

**Root Cause**

Access gates leading to areas of potential radiation exposure are susceptible to human errors in their securement.

**Extent of Condition Check**

**Risk Code:** 2

Other accelerator gate areas - Building 91,95, and 200 - already have a two-lock system (TUN7 and RCG locks).

**Does this event involve failed equipment?** NO

**Is there similar equipment in other areas?** YES

**Records, Documents, Pictures, and Other References**

[No Data]

**Emergency Notifications Made (Subsequent to the Event)**

**Other (Supervisor):** 08/25/2021

**Documentation of Findings**

**Notable Event Number:** FML-21-0825 **CATS Number:** [No Data] **Lessons Learned Number:** [No Data]

**ORPS Number:** [No Data] **NTS Number:** [No Data] **CAIRS Entry:** [No Data]

**DOE Cause Code:** [No Data] **ISM Code:** [No Data]

**Signatures**

## ***Fact Finding Meeting***

### ***ASE Violation-Minutes***

***August 30<sup>th</sup> from 1:30-2:30 PM***

**Attendees:** Bob May, Steve Neilson, Becky Mosbrucker, Keith Welch, Dan Caldwell, Mike Aiken, Paul Vasilauskis, Mike Sperlazza, David Hamlette, Harry Fanning, Tina Johnson, Mike Leveille, Bob Sprouse and Brittany Kelly

The group discussed two separate events.

#### **Event 1**

On August 9, FML employees asked for permission from the Crew Chief to make an entry into the area near Bldg 21 that is considered an HRA. The FM&L person contacted the crew chief, retrieved the TUN 7 key, and they then made the entry into the HRA area near building 21 without being on the RWP and without having a SRPD. We were running low current beam that day. He secured the fence back to its original setting and returned the key to the crew chief.

FM&L said they contact a RadCon person, however, they were on vacation and they did not try anyone else in RadCon. Keith mentioned that a briefing, SRPD and RWP is normally required for entry to HRA. Mike L. said that he called Adam Hartberger but he off that day so they didn't speak with him like they usually would.

The key logs were reviewed and the key was lent out at 8:20 AM. Mike Aiken noted there is no written protocol on signing out the key. It's considered the Crew Chief's discretion to issue the key. It's not abnormal to sign it out to someone. The key will lock/unlock any door within beam enclosure but those area are also interlocked.

David Hamlette noted that while he was doing his rounds he noticed the E1 fence and sign was repositioned. Keith Welch asked questions regarding what areas are surveillance and when. HRA areas are covered and inspected daily. This area specifically may not be on HRA rounds.

#### **Event 2**

On August 10, RadCon personnel and the Ops manager acquired the key and made an entry into the HRA. There was no beam on at the time, however it was still posted and they did not wear their SRPD. One person is confirmed to be on the RWP. When they left this area after the work was done, they did not secure the gate properly and therefore the gate was no longer considered a credited control. The Ops manager admitted that they would not questions a RadCon person if they wanted to make entry into a HRA.

Paul and Becky began to tell the series of events they experienced. Becky called to see if SRPD's were needed for entry. She was told that none were needed. Paul checked out the key and he let Becky into the E1 gate. Once she came back out, Paul improperly locked the gate and left.

He said Becky was only in there for minutes. This was considered a maintenance day and no hazards were present.

Becky noted she tries to get the latest information regarding HRA's by calling to see what the status is before entering any areas. No access is granted when beam is on. She said he knew she couldn't go in without the key from the Crew Chief. She also said that she signed the service building RWP. When multiple groups are interacting, it can get confusing.

Keith asked a question regarding the SRPD: an SRPD wasn't used? Answer from Becky, 'yes'. It would not be required. Normally we go and post areas. Keith mentioned that anyone briefed can go in, that permission isn't technically needed.

Tina noted that Performance Assurance will take over from here and ES&H will do a safety flash and make determinations.

## Daniel Caldwell

---

**From:** JLab ES&H <JLab\_ES&H@jlab.org>  
**Sent:** Thursday, September 2, 2021 2:22 PM  
**To:** Daniel Caldwell  
**Subject:** Unsecured Gate Results is an Accelerator Safety Envelope Violation

[View this email in your browser](#)



# SAFETY FLASH

---

**EVENT: UNSECURED GATE RESULTS IS AN ACCELERATOR SAFETY ENVELOPE VIOLATION**

**DATE/TIME OF EVENT: AUGUST 9-10, 2021**



### **EVENT DESCRIPTION:**

On Aug. 25, 2021, a Radiation Control technician performed a routine inspection and found a gate around the E1 Area on the accelerator site was not secure (as required) during beam operation. The locked area is a credited

control to maintain the integrity of the Accelerator Safety Envelope (ASE). The ASE is a set of verifiable physical and administrative credited controls that define the bounding conditions for safe operation and address the accelerator facility hazards and risks.

A review of records found that Accelerator Operations granted access to the area twice during the weeks leading up to the discovery on Aug. 25. On Aug. 9, Facilities, Management and Logistics (FM&L) staff entered the area to perform routine maintenance on an air-handling unit, and on Aug. 10 Environment, Safety & Health (ES&H) staff entered for a dosimeter exchange.

The chain/lock was not properly configured around both gateposts after the entry on Aug. 10. There is no record of any additional entry between Aug. 10 and 25.

There was intermittent low duty factor pulsed beam delivery on Aug. 9. The potential radiation exposure to those entering this area was low, and monitoring records indicate radiation levels during this period did not exceed background. There was no beam delivery on Aug. 10, which was a maintenance day.

During reconstruction of this event, we found that procedures for use of the key to the locked area were insufficient to ensure integrity of the credited control, and that requirements of the Radiation Work Permit (RWP) for this area were not followed.

---

**EVENT IMPACT:**

The locked fenced area is a credited safety control. Accelerator Operations authorized access to the gated area while beam was in delivery, which violated the integrity of the safety envelope, as well as requirements of the RWP. Employees entered the area the next day with no Self Reporting Pocket Dosimeter (SRPD) although beam was not being delivered. The failure to properly secure the gate defeated ASE integrity for subsequent beam

operations. The safety envelope infractions are being handled through ASE violation procedures by the Safety Configuration Management Board (SCMB).

---

### LESSONS LEARNED:

- Follow all posted Radiation Control signs on gates and barriers, review the RWP before entry and wear supplemental dosimetry whenever required.
- Safety significant administrative controls require rigorous protocols and strict adherence to procedure.
- Engineered controls or fail-safe processes should be used whenever feasible for credited controls.

### WHAT WENT RIGHT?:

The Radiation Control employee noticed the unsecured gate and potential hazard and immediately notified management, which resulted in immediate action to secure the area and initiate investigation.

CONTACT

ES&H WEB

*Copyright © 2021 Jefferson Lab ESH&Q Division, All rights reserved.*

You are receiving this email because you are a member of an auto-generated email distribution list within JList . You can only unsubscribe from these emails by changing your information directly in JList. Contact the Jefferson Lab Computer Center Help Desk with questions regarding your subscription. Thank you.

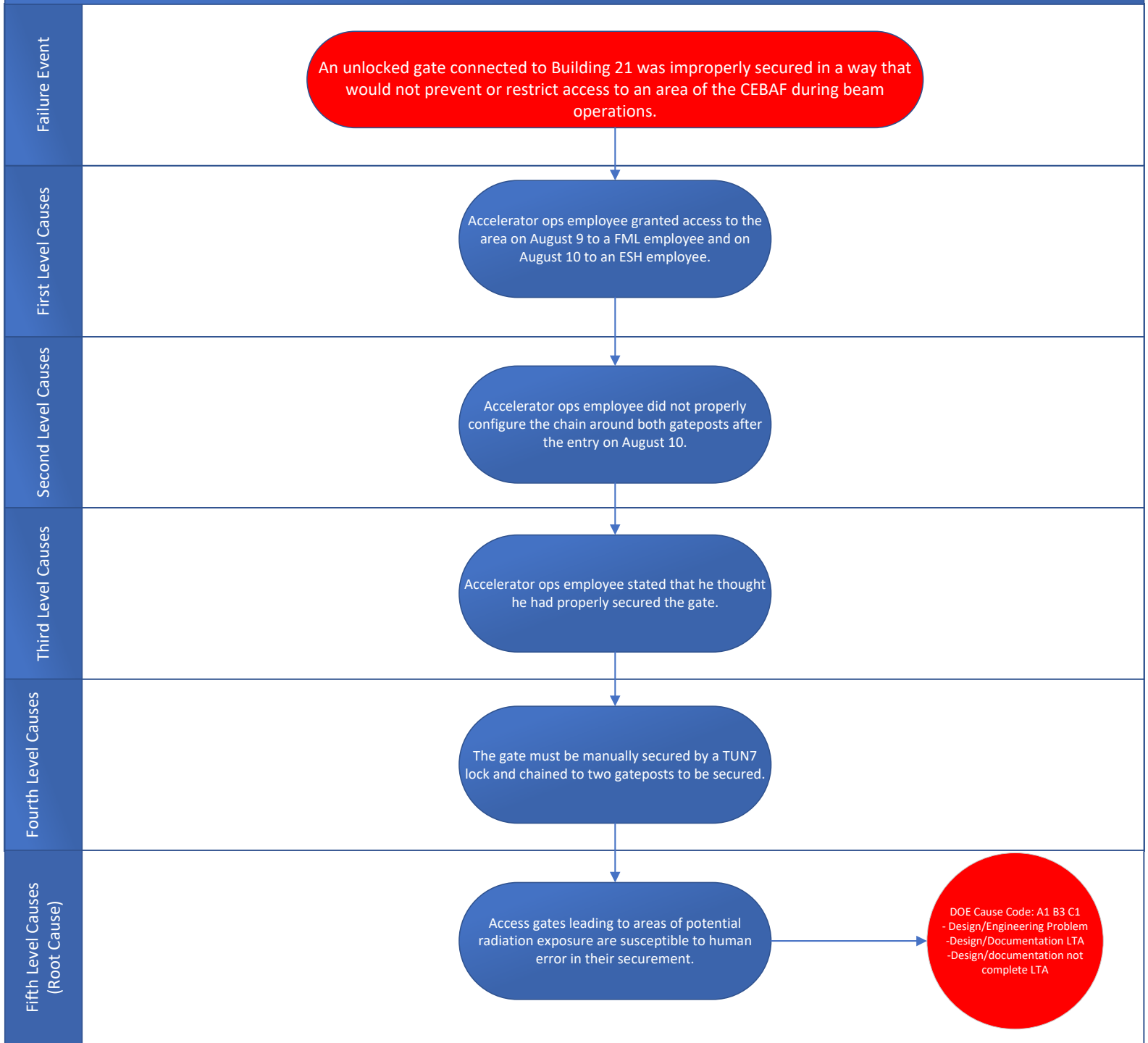
**Our mailing address is:**

Jefferson Lab ESH&Q Division  
111 Hadron Drive  
Newport News, VA 23606

[Add us to your address book](#)

Want to change how you receive these emails?  
You can [update your preferences](#) or [unsubscribe from this list](#).





[Privacy and Security Notice](#)

# Jefferson Lab Facilities Management

## Work Request System - Customer Connection

Welcome, danielc

[Home](#)

[Logout](#)

Service Request # 79518	Status	Comment/Question
Modification Date:	<input type="text" value="2021-09-02"/>	
Status:	<input type="text" value="CLOSED"/>	
Report Date:	<input type="text" value="2021-08-31"/>	Affected Date: <input type="text" value="2021-08-31"/>
Reported By:	<input type="text" value="Paul Vasilauskis"/>	Affected Person: <input type="text" value="Paul Vasilauskis"/>
Reported Email:	<input type="text" value="vasilaus@jlab.org"/>	Affected Email: <input type="text" value="vasilaus@jlab.org"/>
Reported Phone:	<input type="text" value="6059"/>	Affected Phone: <input type="text" value="6059"/>
Add any additional contacts to the "Long Description" field.		
Job Type:	<input type="text" value="Facilities Management : Facilities Services : Keys &amp; Locks : Locks Modify/New"/>	
Location:	<input type="text" value="Machine Control Center (MCC) - 104"/>	
Note:	<ul style="list-style-type: none"> <li>If the specific location does not exist in the popup, please select "Multiple Buildings/Trailers" and specify the specific location in the "Long Description" field.</li> </ul>	
Description:	<input type="text" value="Request TUN9 locks be made"/>	
Long Description:	<input type="text" value="Request 3 TUN9 locks be made to replace the 3 TUN7 cored locks at Bldgs 91, 95 and behind Bldg 21. Request 2 additional new TUN9 locks also be created for future needs."/>	
Project/Org to be used:	Project: <input type="text" value=""/>	Org: <input type="text" value=""/>
Reported Priority:	<input checked="" type="radio"/> Low <input type="radio"/> Medium <input type="radio"/> High	
Schedule:	<input type="radio"/> Treat this request as "Routine" and complete it within <input type="text" value="15"/> days (by <input type="text" value="2021-09-15"/> )	
	<input checked="" type="radio"/> This work must be completed by <input type="text" value="2021-09-28"/>	
	<input type="radio"/> This work must be performed between <input type="text" value=""/> and <input type="text" value=""/>	
	<input type="radio"/> Situation represents an emergency (threat to life, property or the environment) Action must be taken immediately - <b>CALL 7400</b> as soon as you click Save! <b>Risk Code</b> : <input type="text" value=""/>	
	Please explain <i>why</i> the requested (not "Routine") completion date must be met: <input type="text" value=""/>	
	<input type="checkbox"/> Work must be performed "After Hours"	
EH&S Considerations:	Minimum Access Training Requirements: (Check all that apply) <input type="checkbox"/> None <input checked="" type="checkbox"/> Gert <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> Rad Worker <input type="checkbox"/> Rad Worker <input type="checkbox"/> ODH <input type="checkbox"/> ODH <input type="checkbox"/> Confined Space Other:	

Other Requirements or Special Conditions: (Check all that apply)

- Work >6 Ft  Excavation  Crane  Hazardous    
None above ground (UG location (Material Hazardous Material Disposal TOSP RWP  
required) Lifts) Materials

Lock &

Tag  
System(s):

Other:

CATS Issue # (if applicable):

Any other EH&S requirements, concerns or factors that we should be aware of:

**Note:** This field is OPTIONAL

Attachments:

**Problems with this application?**

Please contact: [mis-webapps@jlab.org](mailto:mis-webapps@jlab.org)

## Daniel Caldwell

---

**From:** Harry Fanning <fanning@jlab.org>  
**Sent:** Friday, September 10, 2021 12:14 PM  
**To:** Paul Vasilauskis  
**Cc:** Daniel Caldwell; Steve Smith; Harry Fanning  
**Subject:** Re: TUN9 stuff as requested

Thanks Paul!

I'm forwarding to Daniel Caldwell and Steve Smith of Performance Assurance for their information on the corrective actions that have already taken place to eliminate or reduce the likely hood of recurrence.

The standing order you see below was included shortly after the event to add a second pair of eyes on the process to ensure it is secured as well as making sure beam is off and authorization is removed even before initial access. This standing order will soon be removed once the procedure (currently in the Ops Document Control officer's hands being polished for release) has been released.

The E1 gate also has the addition of an RCG controlled padlock, which matches the other areas (building 91, 95 and 200). The E1 gate previously only had the TUN7 keyed padlock, but now has the extra layer of defense that the other locations already had in place by having the RCG padlock as well.

The Gate will be reviewed by FML to see if a better access point can be deployed where human error is reduced or eliminated from the access process.

Additional measures for future deployment at this location include the addition of radiation shielding around the vent to reduce or eliminate the need for the fenced in area. This will be evaluated by RadCon and FML for cost and potential timeline.

### Harry Fanning

Accelerator Division Safety Officer  
Jefferson Lab - Accelerator Division  
Office: 757-269-7619  
Cell: 757-768-9019  
[fanning@jlab.org](mailto:fanning@jlab.org)

*Put Safety in the Planning Process - Not the Investigation Process*

On 9/10/2021 11:55 AM, Paul Vasilauskis wrote:

Facilities Service Request:

<https://misportal.jlab.org/work/viewServiceRequest.jsf?id=79518>

I did not know of the Bldg 200 manhole so it is not listed in the initial request. When Wayne came out, we talked. These are secured keys and he has to track where each is used so the request for ready spares was dropped and if I ever have another need, I'll just file another request. If you look in the Status you can see I filed a comment on all that.

Current Standing Order:

# Use of the TUN9 key for access to non-PSS interlocked controlled areas

---

Prior to using the TUN9 key to lock or unlock an area, contact the Ops Group Leader for guidance as he may want to be there.

The TUN9 key is used to access areas that do not have PSS interlocked credited controls in place (Bldg 21 - Fenced in area behind E1, Bldg 91 - Hall A Dump, Bldg 95 - Hall C Dump, Bldg 200 - Hall D Tagger Service Bldg)

Before removing a TUN9 keyed lock, the following must be carried out:

1. Secure beam operations to prevent delivery of beam into the affected area (area < Beam Permit or lock in ILD)
2. Remove Beam Authorization to the affected area(s) and reduce the affected credited controls status. RadCon and/or Operations Management may be needed to carry out this step.
3. If not already done, contact RadCon to obtain permission to use the RCG1 key or to have an RCT present to remove the RCG lock.
4. Remove the RCG and TUN9 locks to obtain access.

To apply a TUN9 lock:

1. The affected area(s) has been verified cleared of personnel and secured to prevent access.
2. Either an RCT and an Ops staff attaches their respective locks or with RCD concurrence a single Ops staff may attach both locks.
3. A separate Ops staff who had not performed step #2 above then checks and verifies both locks are sufficiently attached
4. Credited controls status can be upgraded and Beam Authorization may be authorized. RadCon and/or Operations Management maybe needed to carry out this step.
5. Beam operations may be restored to the affected area.