

Human Performance Improvement #261**Title** MI40 Sump Replacement Event**Event Date** 10/31/2019**Close Out Date** 01/09/2020**Performed On** Environment, Safety and Health Section**Led By** Accelerator Division**Department Manager** Matthew Quinn**Location** MI40**ORPS No****Incident Category** Near Miss**Entered By** Eric McHugh 10/31/2019 00:00**Updated By** Eric McHugh 08/31/2020 12:25

Incident Description The sump pump just outside of the MI-40 abort absorber room failed late on the evening shift on October 29. The absorber room is posted as a contamination area and has a gate locked with an RCT core, however the pump is not within the posted contamination area. FESS personnel started repairs on the pump the following day (October 30). While conducting repairs, the FESS personnel were exposed to water that was potentially contaminated with Beryllium-7 (7Be). Since the FESS personnel were not informed of the proper PPE to wear prior to starting the repairs, Radiation technicians had one tech remove his pants, socks, and boots and another tech to remove his boots. All were items which were soaked with water. FESS technicians then decided to stop the job and leave the tunnel. They were frisked by Radiation Technicians and nothing was found on the frisker. FESS personnel were allowed to leave in their own vehicles and returned to the MCR to return keys. After leaving the MCR, possible Beryllium 7 skin contamination was brought up in a meeting to discuss the issue. Thus, FESS personnel were called back. Two of the three FESS personnel returned. The other technician had went back to FESS then left for home. During the meeting, ES&H personnel discussed what should be done for decontamination of the FESS personnel. Meanwhile, FESS personnel stood in the hallway for 30-45 minutes during the discussion. During this time, one techs boots were removed and gloves were placed on their hands. The decision was made to take the FESS personnel to RAF to be washed and surveyed.

What Happened? 10/29: High water alarm for the MI-40 sump was received late on the evening shift. FESS duty personnel checked and found the pump had failed and reported it would be looked at in the morning. 10/30: ζ ES&H Radiation Technician read the note in the MCR log book about the failed sump. He reports at the AD Division 9am meeting that if the water would overflow the sump pit, then it would become a radiological issue. ζ MI personnel went on a tour at approximately 1030. Found water on the floor by the sump pit. Reported to MCR. ζ Soon after, FESS notified that the sump needed repair ASAP. They were informed that there was water on the floor. ζ At approximately 1300, FESS technicians entered the MI-20 - MI-62 enclosure to effect sump repairs. o They removed the old pump and had brought it to the top of the stairs. o Radiation Technicians ran into FESS personnel while in the enclosure for other duties. o They noticed that FESS technicians' pants and boots were wet. o FESS personnel left to get another pump. o Radiation Technicians went to take a look at the MI-40 abort area to see if there was water on the floor. They contacted the RSO and told them about the water o At approximately 1400, the RSO wrote up a job specific RWP for the pump repair to require PPE and Radiation Technician coverage. o RSO believed at this time that all FESS personnel were wearing rubber boots. ζ The Radiation Technicians arrived back at MI-40 to find that the FESS technicians were already there and had replaced the pump and were getting ready to test it. o Radiation Technician held them up informing them of the new RWP requirements and that they would need to take off wet clothing and boots. o FESS Technicians then decided to stop the job. o Radiation Technicians frisked the FESS personnel using an E140N portable frisker and did not see anything. o FESS personnel were required to remove wet clothing such as pants, non-rubber boots, and socks. o Due to no further information, Radiation technicians let the FESS technicians leave in their own vehicles. ζ At this time the Radiation technicians believed the issue was with tritium. ζ At approximately 1530, the FESS technicians drove to the MCR to return their keys. ζ At approximately 1530, a meeting was started in the Dungeon to discuss pump repairs. o AD Division management, AD Operations, AD Run Coordinators, MI personnel, RSO's, SRSO, and ES&H AD DSO were present. o During the meeting, the issue of possible 7Be skin contamination was brought up. o RSO asked for the FESS personnel to return to the Dungeon. o During this time, RSO's began calculations and discussing how to decontaminate FESS personnel. o Other agendas occurring at the meeting causing confusion ζ Sump repairs. ζ Search and securing the ring. o RSO had one FESS technician remove his rubber boots and the two FESS technicians present were given gloves to wear. o After 30-45 minutes, the decision was made to transport the FESS technicians to RAF to be washed and surveyed. o Wipes were taken of various points on the FESS technicians bodies. o The keys for FESS vehicle E30423 were decontaminated. o Wipes were taken of FESS vehicle E30423 keys, steering wheel, and the passenger side floor. o All wipes were submitted for analysis as well as a water sample taken in the MI-40 abort sump area. o Wipes analysis confirmed that there was no 7Be contamination. ζ The Fermilab Chief Safety Officer was informed. o The Fermilab Chief Safety Officer informed senior management and FSO.

Immediate Actions Taken Job was stopped, immediate collection of AD, FESS, ESH personnel. FESS personnel transported to RAF to be washed and surveyed. Water samples taken as well.

Why Did It Make Sense At The Time The MI-40 sump needed to be repaired ASAP. FESS personnel routinely work on failed sump pumps and getting wet is part of the job. Where the MI-40 abort sump is located is not posted as a contamination area. Therefore, the FESS technicians saw no problem in getting wet while effecting repairs on the pump. After the job was stopped, the Radiation Technicians frisked the FESS technicians and nothing was indicated on the frisker. They were told to take wet clothing which they did. However, they did not know the issue was 7Be. They thought tritium was the issue. There is no procedure for dealing with 7Be contamination and they were following the general personnel contamination plan. Since they saw nothing on the frisker and took the wet clothing, they released the FESS technicians. RSO wrote a new job specific RWP for the sump repair. However, the RSO was unaware that the Radiation Technicians did not know about the potential 7Be contamination. During the meeting, there were multiple agendas causing confusion. At this meeting, Division management asked about possible skin contamination. At that point, RSO and SRSO performed calculations and asked for the FESS technicians to return. Although they did not believe that there was any potential for 7Be contamination, they were concerned that management levels above them would be concerned about this incident and the steps they took. Therefore, they took the "conservative" step to go ahead and take them to be decontaminated. During the meeting, RSO never took charge when the issue of personnel contamination was raised.

Topic(s) Communication | Construction Safety | Radiological Protection**Lead Reviewer** Compton, Joe 13467N (AD)**Review Team** Gattuso, Consolato 08022N (AD)**Review Team** Kelly, Frankie 04201N (AD)**Review Team** Lewis, Raymond 07927N (ES)**Involved Person** Bonkalski, Mike 12316N ()**Involved Person** Capista, David 06527N (AD)**Involved Person** Chelidze, Nino 34887N (AD)

Involved Convery, Mary 14804N (LBNFDUNE)
Person
Involved Delao, Jose 04175N (ES)
Person
Involved Fulgham, Joel 09634N (ES)
Person
Involved Kenney, Amber 13477N (ES)
Person
Involved Lindgren, Michael 13974N (AD)
Person
Involved McHugh, Eric 13747N (ES)
Person
Involved Pollock, John 15634N (FE)
Person
Involved Quinn, Matthew 15614N (ES)
Person
Involved Schoell, Maddie 16344N (ES)
Person
Involved White, Dale 10017N (ES)
Person

Organizational Weakness Communication: Communication between RSO's and RCT's less than adequate.

Organizational Interfaces: Comments at the AD 0900 meeting from ES&H to AD and FESS as to the hazards of water on the floor was not clearly communicated, emphasized, or understood.
 Other: No clear line of authority. It was not clear to ES&H personnel, or other lab personnel, during the incident who was actually the "lead person".
 Procedure Development or Use: No clear procedure for dealing with potential Be7 contamination.
 Supervisory Involvement: RSO/DSO is not always contacted when there is a contamination event in the field.
 Training: Little training for RSO's and DSO's in principles of incident management.
 Work Practices: RCT response to a unanticipated condition did not include contacting RSO's.

Error Precursor Human Nature / Assumptions (inaccurate mental picture): RSO assumption that RCT knew the potential hazards involved.

Human Nature / Inaccurate risk perception (Pollyanna): 1. Response time to sump replacement. 2. Reporting at the AD 0900 meeting potential radiological hazard not communicated.
 Individual Capabilities / Imprecise communication habits: RSO and RCT less than adequate to understand the potential radiation hazard.
 Individual Capabilities / Lack of knowledge (mental model): RCT did not understand the specific hazard involved in the coverage of the job.
 Individual Capabilities / Lack of proficiency / Inexperience: RSO's have not had an actual potential contamination issue.
 Task Demands / Simultaneous, multiple tasks: Multiple personnel with different agendas attended the meeting in the Dungeon during the incident response.

Causal Codes

Item ID	Causal Code	Narrative
102678	A3.B1.C04 Infrequently performed steps were performed incorrectly	The fact this was a potential 7Be contamination event added to the confusion since there was no plan in place for 7Be contamination, thus causing a delay in decontamination of the FESS technicians and leading to possible spread of contamination.
102679	A4.B2.C06 Means not provided for assure procedures/ documents/ records were of adequate quality and up-to-date	RSO's not entirely sure how they should handle the situation, thus causing a delay in the decontamination of the FESS personnel and allowing potential contamination spread.
102679	A6.B1.C02 Training requirements not identified	RCT's were not trained in how to handle a 7Be personnel contamination event. RSO's training minimal in handling personnel contamination events.
102680	A4.B3.C08 Job scoping did not identify special circumstances and/or conditions	FESS was not aware that if water overflowed the sump pit that there would be other radiological concerns. The water which overflowed the sump pit then flowed into the abort absorber room where there was potential 7Be contamination. FESS was never informed to not re-enter the area until the new job specific RWP was finalized. FESS technicians were not informed to contact anyone if the abort area was flooded. FESS technicians felt that radiation safety taking their clothes meant that there was a major issue involved and decided to stop the job.
102680	A4.B3.C11 Inadequate work package preparation	FESS technicians were not informed that there was a job specific RWP being written and they continued with the job.
102680	A5.B4.C05 Information sent but not understood	At the AD 0900 meeting, ES&H reported that if the sump pit overflowed, then it would present a radiological issue. Information was given quickly and was not emphasized.
102680	A5.B4.C06 Suspected problems not communicated to supervision	RCT's did not communicate with the RSO about FESS technicians already exposed to the water when they returned with the job specific RWP.
102681	A4.B1.C07 Responsibility of personnel not well-defined or personnel not held accountable	At the meeting in the Dungeon, many people were present with several different agendas being discussed thus causing confusion during the FESS personnel response. During the meeting when the possible FESS technician contamination was brought up, no member of ES&H took the lead for 30-40 minutes.

102682	A3.B3.C01 Attention was given to wrong issues	RCT's frisked the FESS technicians to determine if there was any contamination. This is the general contamination procedure which is used. However, 7Be cannot be picked up on a frisker.
102683	A3.B3.C01 Attention was given to wrong issues	RCT's at the scene thought the issue was with Tritium. They were not aware that the actual issue was with 7Be contamination.
102683	A4.B3.C08 Job scoping did not identify special circumstances and/or conditions	FESS technicians were not informed of the hazards presented by the water flooding (potential 7Be contamination).
102684	A3.B3.C01 Attention was given to wrong issues	RCT's at the scene thought the issue was with Tritium. They were not aware that the actual issue was with 7Be contamination.
102684	A5.B2.C08 Incomplete/situation not covered	RCT's were not aware of the correct hazards presented by the water. They thought the issue was with tritium and not 7Be. The RSO created a job specific RWP, however the possible hazard was not communicated (verbal or on the RWP) to FESS personnel or the RCT's (possible 7Be contamination).
102685	A4.B1.C07 Responsibility of personnel not well-defined or personnel not held accountable	At the meeting in the Dungeon, many people were present with several different agendas being discussed thus causing confusion during the FESS personnel response.
102685	A4.B2.C06 Means not provided for assure procedures/ documents/ records were of adequate quality and up-to-date	RSO's not entirely sure how they should handle the situation, thus causing a delay in the decontamination of the FESS personnel and allowing potential contamination spread.
102686	A3.B3.C01 Attention was given to wrong issues	RCT's frisked the FESS technicians to determine if there was any contamination. This is the general contamination procedure which is used. However, 7Be cannot be picked up on a frisker. RCT's at the scene thought the issue was with Tritium. They were not aware that the actual issue was with 7Be contamination.

iTrack Items

Item	Responsible Person	Category	Item Title	Item Description	Item Due Date	Item Status	CAP	CAP Scheduled Date	CAP Close Date	CAP Title	CAP Description	C
102677	Compton, Joe	Lessons Learned	MI-40 Sump Pump End of Life Failure	MI-40 sump pump failed due to end of life. FESS technicians replaced the pump.	31-MAR-20	Closed	84991	31-OCT-19	31-OCT-19	Replace Sump Pump	Replace failed sump pump which reached its end of life.	FE req fai su
102678	Graden, Kathy	Management Concern	Develop response plans on potential beryllium 7 personnel contamination incidents.	The fact this was a potential 7Be contamination event added to the confusion since there was no plan in place for 7Be contamination, thus causing a delay in decontamination of the FESS technicians and leading to possible spread of contamination.	28-AUG-20	Closed	85900	19-JUN-20	22-MAY-20	Develop RP procedure for response to potential personnel contamination.	Develop an RP procedure for response to potential personnel contamination, including specifics necessary for Be-7. Plan should include process for field decontamination, routine questions to obtain high-level understanding of the event before getting into full details, communication chain, roles & responsibilities, and necessary documentation requirements.	Pe de pr be inc req Pr RC de in RS asl a l un th be Cc ch res an do req we de pr up rec ite
102678	Schoell, Maddie	Management Concern	Develop response plans on potential beryllium 7 personnel contamination incidents.	The fact this was a potential 7Be contamination event added to the confusion since there was no plan in place for 7Be contamination, thus causing a delay in decontamination of the FESS technicians and leading to possible spread of contamination.	28-AUG-20	Closed	85919	28-AUG-20	15-SEP-20	Develop RP procedure for response to potential personnel contamination.	Develop an RP procedure for response to potential personnel contamination, including specifics necessary for Be-7. Plan should include process for field decontamination, routine questions to obtain high-level understanding of the event before	Pe de pr fir ap

											getting into full details, communication chain, roles & responsibilities, and necessary documentation requirements.	
102678	Quinn, Matthew	Management Concern	Develop response plans on potential beryllium 7 personnel contamination incidents.	The fact this was a potential 7Be contamination event added to the confusion since there was no plan in place for 7Be contamination, thus causing a delay in decontamination of the FESS technicians and leading to possible spread of contamination.	28-AUG-20	Closed	86154	28-AUG-20	24-AUG-20	Develop RP procedure for response to potential personnel contamination.	Develop RP procedure for response to potential personnel contamination is captured in CAP 85919. This CAP closed with final approval of procedure	PF be an 8/
102679	Graden, Kathy	Management Concern	Provide incident training/drills for contamination events for the RSO's and RCT's, including beryllium 7	Provide more opportunities for incident training/drills for contamination events, including for beryllium 7. These do not occur very often and training/drills will keep skills sharp.	30-SEP-20	Closed	85901	31-AUG-20	31-AUG-20	Develop RSO/RCT training for Decontamination	Personnel Decontamination in the Field procedure and checklist was developed and training on this procedure was completed in August 2020.	Pe De in pr ch de tra pr co At
102679	Graden, Kathy	Management Concern	Provide incident training/drills for contamination events for the RSO's and RCT's, including beryllium 7	Provide more opportunities for incident training/drills for contamination events, including for beryllium 7. These do not occur very often and training/drills will keep skills sharp.	30-SEP-20	Closed	85903	30-SEP-20	14-SEP-20	Review and update RCT Decontamination training	Review & Update RCT decontamination training as necessary following development of RP procedure (see item 102678). Created a personnel decontamination in the field procedure. Procedure was reviewed by RCTs in August 2020 to fulfill RCT continuing training requirement.	Re UJ de tra ne fol de RI (sc 10 a p de in pr Pr re RC 20 RC tra rec
102679	Graden, Kathy	Management Concern	Provide incident training/drills for contamination events for the RSO's and RCT's, including beryllium 7	Provide more opportunities for incident training/drills for contamination events, including for beryllium 7. These do not occur very often and training/drills will keep skills sharp.	30-SEP-20	Closed	85902	03-JUL-20	14-SEP-20	Create Personnel Decontamination in the Field procedure and provide training to RCTs	Create personnel decontamination in the field procedure. Procedure was reviewed by RCTs in August 2020 to fulfill RCT continuing training requirement.	Pe de pr be inc 10 pe de in pr Pr re RC 20 RC tra rec
102680	Graden, Kathy	Management Concern	Evaluate opportunities to improve communication within the Radiations Physics Operations Department regarding current status of radiological issues	Evaluate opportunities to improve communication. Communication improvement between personnel inside of department as well as with other departments/divisions/sections. Recommend that inside of an incident plan/procedure a communication plan/chain on who to be notified be included.	30-APR-20	Closed	85915	30-APR-20	28-APR-20	Ensure RWPs include all hazard/mitigation information rather than relying solely on verbal communication	RSOs will include descriptions of potential hazards and their mitigations on RWPs.	Sp de ha mi be jol RV

			throughout the lab									
102680	Chelidze, Nino	Management Concern	Evaluate opportunities to improve communication within the Radiations Physics Operations Department regarding current status of radiological issues throughout the lab	Evaluate opportunities to improve communication. Communication improvement between personnel inside of department as well as with other departments/divisions/sections. Recommend that inside of an incident plan/procedure a communication plan/chain on who to be notified be included.	30-APR-20	Closed	85913	30-APR-20	28-APR-20	Ensure RWPs include all hazard/mitigation information rather than relying solely on verbal communication	RSOs will include descriptions of potential hazards and their mitigations on RWPs.	Sp de ha mi be jol RV an ha up inc loc Ra
102680	Schoell, Maddie	Management Concern	Evaluate opportunities to improve communication within the Radiations Physics Operations Department regarding current status of radiological issues throughout the lab	Evaluate opportunities to improve communication. Communication improvement between personnel inside of department as well as with other departments/divisions/sections. Recommend that inside of an incident plan/procedure a communication plan/chain on who to be notified be included.	30-APR-20	Closed	85905	30-APR-20	28-APR-20	Ensure RWPs include all hazard/mitigation information rather than relying solely on verbal communication	RSOs will include descriptions of potential hazards and their mitigations on RWPs.	Sp de ha mi be jol RV
102680	Schoell, Maddie	Management Concern	Evaluate opportunities to improve communication within the Radiations Physics Operations Department regarding current status of radiological issues throughout the lab	Evaluate opportunities to improve communication. Communication improvement between personnel inside of department as well as with other departments/divisions/sections. Recommend that inside of an incident plan/procedure a communication plan/chain on who to be notified be included.	30-APR-20	Closed	85904	30-APR-20	22-APR-20	Update RPO Meeting Template to ensure awareness among department members	Update RPO Department Meeting template to include contamination information for relevant areas.	RI M/ up ou ha co an art 7 ε co
102680	Quinn, Matthew	Management Concern	Evaluate opportunities to improve communication within the Radiations Physics Operations Department regarding current status of radiological issues throughout the lab	Evaluate opportunities to improve communication. Communication improvement between personnel inside of department as well as with other departments/divisions/sections. Recommend that inside of an incident plan/procedure a communication plan/chain on who to be notified be included.	30-APR-20	Closed						
102680	McGimpsey, Susan	Management Concern	Evaluate opportunities to improve communication within the Radiations Physics Operations Department regarding current status of radiological issues throughout the lab	Evaluate opportunities to improve communication. Communication improvement between personnel inside of department as well as with other departments/divisions/sections. Recommend that inside of an incident plan/procedure a communication plan/chain on who to be notified be included.	30-APR-20	Closed	85914	30-APR-20	28-APR-20	Ensure RWPs include all hazard/mitigation information rather than relying solely on verbal communication	RSOs will include descriptions of potential hazards and their mitigations on RWPs.	Sp de ha mi be jol RV
102681	Kenney, Amber	Management Concern	ES&H section should develop	ES&H section should provide clear lines of authority.	12-JUN-	Closed	86431	12-JUN-20	26-JUN-	Review CAP submitted by Matt	Review CAP and approve or redirect	C/ an

			a section-wide succession of command plan for incident response that includes DSO's, RSO's, and RCT's and provide RSO's and DSO's training in the principles of incident management	Provide RSO's and DSO's training in principles of incident management. During the incident response, it was unclear who should be in command of the incident.	20				20	Quinn		su
102681	Quinn, Matthew	Management Concern	ES&H section should develop a section-wide succession of command plan for incident response that includes DSO's, RSO's, and RCT's and provide RSO's and DSO's training in the principles of incident management	ES&H section should provide clear lines of authority. Provide RSO's and DSO's training in principles of incident management. During the incident response, it was unclear who should be in command of the incident.	12-JUN-20	Closed	86230	05-JUN-20	11-JUN-20	Take Incident Command System Training	SRSO will take Introduction to Incident Command System training course and evaluate its usefulness for other staff.	SF Int In Cc Sy co ma tal as
102681	Quinn, Matthew	Management Concern	ES&H section should develop a section-wide succession of command plan for incident response that includes DSO's, RSO's, and RCT's and provide RSO's and DSO's training in the principles of incident management	ES&H section should provide clear lines of authority. Provide RSO's and DSO's training in principles of incident management. During the incident response, it was unclear who should be in command of the incident.	12-JUN-20	Closed	86229	12-JUN-20	09-JUN-20	Update FESHM 3020 to include RSO responsibilities	FESHM Chapter 3020 will be updated to include RSO responsibilities during incident response.	A de res we FE 30
102682	Schoell, Maddie	Management Concern	Bring Beryllium 7 detector online	Bring the Beryllium 7 detector online. Thus, results could be obtained in minutes as opposed to hours.	31-OCT-20	Closed	85876	31-OCT-20	21-FEB-22	Bring the Multi-Cell Wipe Counter Online	With the calibration sources now on site, develop procedures for use of Multi Cell wipe counter & begin utilizing.	At ye pe in' be th' ce' wi fea ins fie Be ser to thi co (11 ab ba
102682	Schoell, Maddie	Management Concern	Bring Beryllium 7 detector online	Bring the Beryllium 7 detector online. Thus, results could be obtained in minutes as opposed to hours.	31-OCT-20	Closed	86546	31-OCT-20	21-FEB-22	RPO review of detector procedure	Review Detector procedure, approve use of detector	At ye pe in' be th' ce' wi fea ins fie Be ser to thi

												co (11 ab ba
102682	Schoell, Maddie	Management Concern	Bring Beryllium 7 detector online	Bring the Beryllium 7 detector online. Thus, results could be obtained in minutes as opposed to hours.	31-OCT-20	Closed	87771	31-MAR-20	21-FEB-22	Most testing has been completed	Most testing has been completed to understand the capabilities of the detector.	Al ye pe in' be thi ce' wi fe' ins fie Be ser to thi co (11 ab ba
102683	Graden, Kathy	Management Concern	Evaluate need for better signage in potential contamination areas	Evaluate the need for signage for areas where there could be potential for contamination. For Example in this case, the contamination area is behind a chain link fence. However, with the water overflowing the sump pit, it was easily able to flow into the contamination area allowing water to become contaminated and escape the contamination area.	22-MAY-20	Closed						
102683	McGimpsey, Susan	Management Concern	Evaluate need for better signage in potential contamination areas	Evaluate the need for signage for areas where there could be potential for contamination. For Example in this case, the contamination area is behind a chain link fence. However, with the water overflowing the sump pit, it was easily able to flow into the contamination area allowing water to become contaminated and escape the contamination area.	22-MAY-20	Closed	85906	22-MAY-20	11-MAY-20	Update general RWP's with language about water near posted Contamination Areas	Update general RWP's for areas that have posted Contamination Areas to include information about what to do if water is found in/near those areas.	In: ad "S Re se M Bc RV
102683	McGimpsey, Susan	Management Concern	Evaluate need for better signage in potential contamination areas	Evaluate the need for signage for areas where there could be potential for contamination. For Example in this case, the contamination area is behind a chain link fence. However, with the water overflowing the sump pit, it was easily able to flow into the contamination area allowing water to become contaminated and escape the contamination area.	22-MAY-20	Closed	85907	22-MAY-20	01-JUN-20	Update general RWP's to specify dose vs. contamination hazards/mitigations	Update general RWP's to include separate descriptions for dose hazards/mitigations and contamination hazards/mitigations.	RI ge an ha mi alr ad cu Fu im th be lay ha ca co fut
102683	McGimpsey, Susan	Management Concern	Evaluate need for better signage in potential contamination areas	Evaluate the need for signage for areas where there could be potential for contamination. For Example in this case, the contamination area is behind a chain link fence. However, with the water overflowing the sump pit, it was easily able to flow into the contamination area allowing water to become contaminated and escape the contamination area.	22-MAY-20	Closed	85911	22-MAY-20	11-MAY-20	Update general RWP's to specify locations of additional radiological postings within beamline enclosures	Update general RWP's to include descriptions of areas that have additional High Radiation Area and/or Contamination Area postings.	Uf fol to loc po Ra an Cc Ar 09 AI 20 10
102683	Schoell, Maddie	Management Concern	Evaluate need for better	Evaluate the need for signage for areas where there could be	22-MAY-	Closed	85908	22-MAY-20	29-MAY-	Update general RWP's to specify	Update general RWP's to include	RI ge

			signage in potential contamination areas	potential for contamination. For Example in this case, the contamination area is behind a chain link fence. However, with the water overflowing the sump pit, it was easily able to flow into the contamination area allowing water to become contaminated and escape the contamination area.	20				20	dose vs. contamination hazards/mitigations	separate descriptions for dose hazards/mitigations and contamination hazards/mitigations.	an ha mi alr ad cu Fu im the be lay ha ca: co fut
102683	Schoell, Maddie	Management Concern	Evaluate need for better signage in potential contamination areas	Evaluate the need for signage for areas where there could be potential for contamination. For Example in this case, the contamination area is behind a chain link fence. However, with the water overflowing the sump pit, it was easily able to flow into the contamination area allowing water to become contaminated and escape the contamination area.	22-MAY-20	Closed	86169	22-MAY-20	29-MAY-20	Evaluate need for local signage around contamination areas	duplicate of CAP 86189	du 86
102683	Schoell, Maddie	Management Concern	Evaluate need for better signage in potential contamination areas	Evaluate the need for signage for areas where there could be potential for contamination. For Example in this case, the contamination area is behind a chain link fence. However, with the water overflowing the sump pit, it was easily able to flow into the contamination area allowing water to become contaminated and escape the contamination area.	22-MAY-20	Closed	86169	22-MAY-20	28-MAY-20	Evaluate need for local signage for potential contamination areas	RPO decided to update and improve language and descriptions on RWP's for posted Contamination Areas, unique isotope concerns, and what to do if water is found in the vicinity. RPO feels that this better addresses identifying hazards in and around Contamination Areas, rather than posting "potential" areas locally.	RV (sc &
102683	Chelidze, Nino	Management Concern	Evaluate need for better signage in potential contamination areas	Evaluate the need for signage for areas where there could be potential for contamination. For Example in this case, the contamination area is behind a chain link fence. However, with the water overflowing the sump pit, it was easily able to flow into the contamination area allowing water to become contaminated and escape the contamination area.	22-MAY-20	Closed	85910	22-MAY-20	13-MAY-20	Update general RWP's to specify locations of additional radiological postings within beamline enclosures	Update general RWP's to include descriptions of areas that have additional High Radiation Area and/or Contamination Area postings.	Uf fol to loc po Ra an Cc Ar 10 10
102683	Chelidze, Nino	Management Concern	Evaluate need for better signage in potential contamination areas	Evaluate the need for signage for areas where there could be potential for contamination. For Example in this case, the contamination area is behind a chain link fence. However, with the water overflowing the sump pit, it was easily able to flow into the contamination area allowing water to become contaminated and escape the contamination area.	22-MAY-20	Closed	85912	22-MAY-20	29-MAY-20	Update general RWP's to specify dose vs. contamination hazards/mitigations	Update general RWP's to include separate descriptions for dose hazards/mitigations and contamination hazards/mitigations.	RI ge an ha mi alr ad cu Fu im the be lay ha ca: co fut
102684	Quinn, Matthew	Management Concern	State relevant radiological hazards on the job specific RWP's so that	Evaluate the need for specific hazards to be listed on the job specific RWP's. Thus, all parties will be aware of the hazards. Recommend that for	19-AUG-21	Closed	90302	19-AUG-21	19-AUG-21	Create RWP procedure	A RPO department procedure for creating RWP's has been written and approved.	A de pr cr

			all parties are aware of the hazards being addressed by the job specific RWP.	supervised accesses, 7Be wipes results be placed on the radiation survey maps where 7Be contamination is likely. This would be easy to perform once the portable 7Be detector is online. Recommend that during long shutdowns, the survey maps for supervised access be updated with current information regularly for more accurate hazard readings.								ha an
102684	Schoell, Maddie	Management Concern	State relevant radiological hazards on the job specific RWP's so that all parties are aware of the hazards being addressed by the job specific RWP.	Evaluate the need for specific hazards to be listed on the job specific RWP's. Thus, all parties will be aware of the hazards. Recommend that for supervised accesses, 7Be wipes results be placed on the radiation survey maps where 7Be contamination is likely. This would be easy to perform once the portable 7Be detector is online. Recommend that during long shutdowns, the survey maps for supervised access be updated with current information regularly for more accurate hazard readings.	19-AUG-21	Closed	85916	31-MAR-21	19-AUG-21	Develop RP procedure on RWPs	Develop RPO procedure on RWPs (their use, information that needs to be included, process, archive, etc.)	ES pr Ra Wi cr inc rec en ha inf inc sp
102684	Schoell, Maddie	Management Concern	State relevant radiological hazards on the job specific RWP's so that all parties are aware of the hazards being addressed by the job specific RWP.	Evaluate the need for specific hazards to be listed on the job specific RWP's. Thus, all parties will be aware of the hazards. Recommend that for supervised accesses, 7Be wipes results be placed on the radiation survey maps where 7Be contamination is likely. This would be easy to perform once the portable 7Be detector is online. Recommend that during long shutdowns, the survey maps for supervised access be updated with current information regularly for more accurate hazard readings.	19-AUG-21	Closed	85917	22-APR-20	22-APR-20	improve communication about radiological hazards	Improve communication methods within RPO and with individuals outside of RPO about contamination and other radiological hazards	Th ac ad otl pk re up mc (It ac 85 ge RV inf ab po (It ac 85 -uj to ha inf rat rel co (fc RV 10 pk 85 85 RV 10 pk 85 85
102684	Schoell, Maddie	Management Concern	State relevant radiological hazards on the job specific RWP's so that all parties are aware of the hazards being addressed by the job specific RWP.	Evaluate the need for specific hazards to be listed on the job specific RWP's. Thus, all parties will be aware of the hazards. Recommend that for supervised accesses, 7Be wipes results be placed on the radiation survey maps where 7Be contamination is likely. This would be easy to perform once the portable 7Be detector is online. Recommend that during long shutdowns, the survey maps for supervised	19-AUG-21	Closed	85918	22-MAY-20	22-MAY-20	Update initial entry surveys to include Be-7 information where appropriate	Include Be-7 information for contamination wipes taken during initial entry surveys. (depends on Item 102682 action plan 85876)	Ge wi po be inc of po on su

				access be updated with current information regularly for more accurate hazard readings.								
102684	Schoell, Maddie	Management Concern	State relevant radiological hazards on the job specific RWP's so that all parties are aware of the hazards being addressed by the job specific RWP.	Evaluate the need for specific hazards to be listed on the job specific RWP's. Thus, all parties will be aware of the hazards. Recommend that for supervised accesses, 7Be wipes results be placed on the radiation survey maps where 7Be contamination is likely. This would be easy to perform once the portable 7Be detector is online. Recommend that during long shutdowns, the survey maps for supervised access be updated with current information regularly for more accurate hazard readings.	19-AUG-21	Closed	86209	22-MAY-20	29-MAY-20	Consider re-surveying enclosures	Consider re-surveying of enclosures	UJ co su: ad ne Cc Cc Pr
102685	Quinn, Matthew	Management Concern	Evaluate the need to separate the response, analysis, recovery, and reporting activities	Evaluate the need to ensure that the response activity is separate/isolated from the analysis, recovery, and reporting activities.	30-APR-20	Closed	85920	22-APR-20	22-APR-20	Identify roles & responsibilities in response to potential personnel contamination	Identify roles & responsibilities for various personnel involved in responding to potential personnel contamination.	Th ad cr RI res: po pe co (sc 10 pk 85
102686	Quinn, Matthew	Management Concern	Recommend revision contamination response procedure to instruct RCT's to contact the area RSO for any contamination issues or incidents, whether coded or not.	The need for RSO/DSO to be contacted when there is any personnel contamination event whether the event is coded or not. In this case, the RCT's were not aware the issue was beryllium 7. Also, if they were aware of the correct issue, they were using only the general contamination procedure which does not have directions for beryllium 7 contamination. RSO presence would have helped with the response.	30-APR-20	Closed	86129	22-APR-20	22-APR-20	RP Contamination Response	This item will be addressed in the creation of the RP procedure on response to potential personnel contamination (see item 102678, action plans 85900 & 85919), and in updates to RCT decontamination training (see item 102679, action plan 85903).	Th ad cr RI res: po pe co (sc 10 pk 85 up de tra 10 pk
102686	Schoell, Maddie	Management Concern	Recommend revision contamination response procedure to instruct RCT's to contact the area RSO for any contamination issues or incidents, whether coded or not.	The need for RSO/DSO to be contacted when there is any personnel contamination event whether the event is coded or not. In this case, the RCT's were not aware the issue was beryllium 7. Also, if they were aware of the correct issue, they were using only the general contamination procedure which does not have directions for beryllium 7 contamination. RSO presence would have helped with the response.	30-APR-20	Closed	85921	22-APR-20	22-APR-20	clarify RSO & RCT roles in response to potential personnel contamination	Clarify RSO & RCT roles in response to potential personnel contamination.	Th ad cr RI res: po pe co (sc 10 pk 85 up de tra 10 pk

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