

IMPLEMENTATION OF A NEW CORRECTIVE ACTION PROGRAM, REACTOR RUN TRACKING, AND SAMPLE TRACKING SOFTWARE USING DEVONWAY

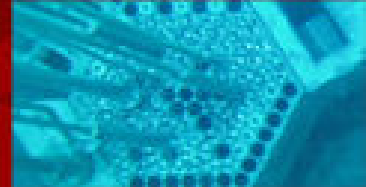


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2009: Facility cleanup, renovation, and new operator training course.

Introduction

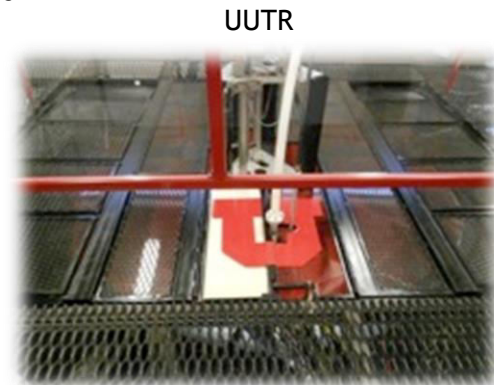
2010: Established new education curricula and new safety culture elements and lab protocols.

2011: Relicensed TRIGA for the next 20 years.

2015-2016:

- Replacement of fission counter and cleanup of control console.
- Repair of log power and replacement of area radiation monitors (ARMs).

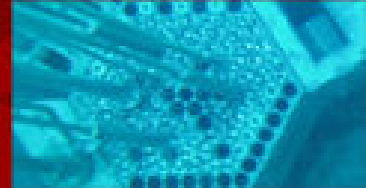
2012: Implemented DevonWay CAP system



2018: Installation of New neutron monitoring channels.

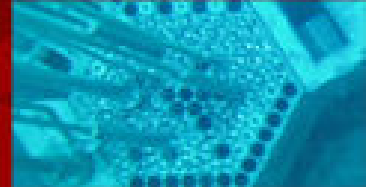


2018: Received DOE NEUP Reactor Infrastructure Grant to replace reactor console.

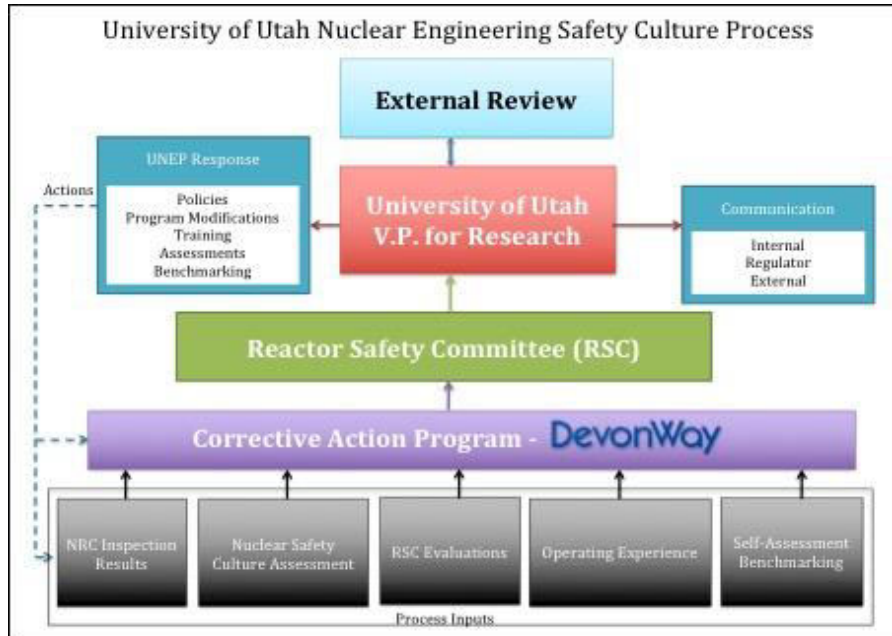


Introduction

- UNEP focuses on a **strong safety culture** with an industry proven Corrective Action Program (CAP), DEVONWAY.
- DEVONWAY is a “Quality, Work, and Safety Management Software.”
- Used by many high-reliability organizations, including 65 U.S. Nuclear Power Sites and National Labs.
- Contains a series of modules that can easily be modified based on customer needs.
- All data is easily searchable with easy to generate reports.

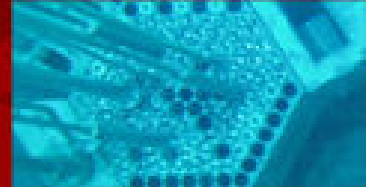


Implementation of DEVONWAY



- Easy to use web interface or smart phone/tablet app with engaging easy-to-use screens that present the relevant information at the right time.
- Infrequent users can quickly understand what to do.
- Entries are automatically routed to the correct person for approval.





Reactor Run Tracking

Reactor Run RUN 2018-0042 | Status: Working | Assigned: Foley, Amanda | Due: 03-Aug-2018

DESCRIPTION:
TI vertical flux characterization with Ni wire

Activity Log:

- 01-Aug-2018 14:44: Review / Approve Reactor Run task completed by Amanda Foley
- 01-Aug-2018 14:43: Comment by Amanda Foley during Review / Approve Reactor Run: Must upload PyNIC Files
- 01-Aug-2018 14:34: Reactor Run created by Foley, Amanda

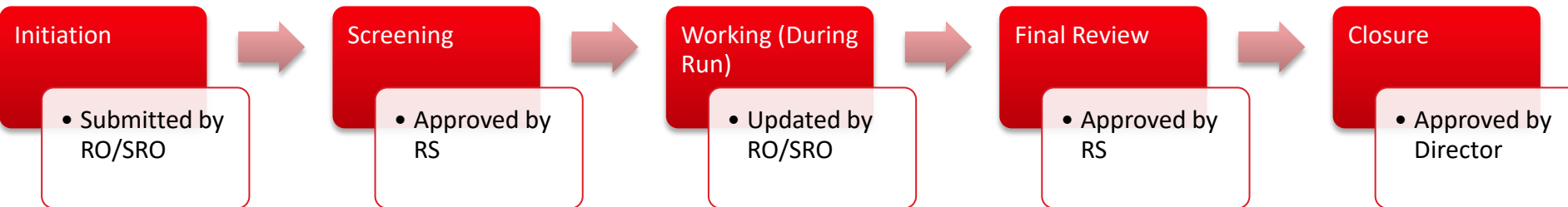
Details:

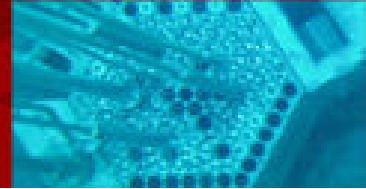
- Identifier: RUN-2018-0042
- Initiated On: 08/01/2018 14:34 MDT
- Initiated By: Foley, Amanda
- Current Task: Working
- Current Assignee: Foley, Amanda; Reactor Supervisor
- Date of Reactor Run: 08/03/2018
- Start Time: 11:00
- Duration of Reactor Run (hr): 2.000
- Reactor Operator:

#	By	Date	Time	Task	Comment
2	Foley, Aman...	08/01/...	14:44	Review / Approve Reactor Run	Review / Approve Reactor Run task completed by Amanda Foley

Workflow Steps: Initiate (green arrow) → Screening (green hexagon) → Working (orange hexagon) → Final Review (grey hexagon) → Close (grey square)

- Tracks samples, SCRAMs, operator hour, key reactor parameters, total operating hours, and power produced.
- Automatic reports for quarterly operator hours, operator reactivity manipulations, SCRAMs, and power production.





Reactor Run Tracking

Reactor Run > **New** Status: Initiate

Nuclear Engineering
THE UNIVERSITY OF UTAH

i Fields Colored **green** are required for entry. Upload / reference applicable documents.

Date of Reactor Run: Start Time:

Duration of Reactor Run (hr): Reactor Operator:

Reactor Supervisor: Senior Reactor Operator:

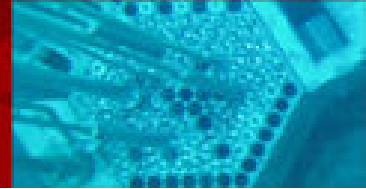
Run Number:

Description:

Assigned Operators / Trainees Samples Reference Documents

Select Operator / Trainee

No items to display.



Reactor Run Key Parameters

Reactor Run Parameters > New Status: Active

Reactor Operator:
Albright, Lucas; Active

Date: 05/16/2018 Time: 11:19

Power Setting: 8 Power UOM: kW W

% Power: 65.6%

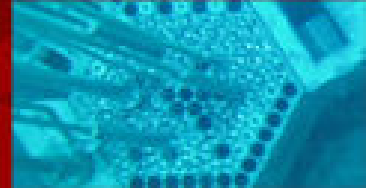
Fuel1 temp (C): 44.0 Fuel2 temp (C): 46.0

Linear: 7.65 Linear UOM: kW W

Pool Temp (C): 40

Description:

- Tracks key parameters and reactivity manipulations during run that are logged in log book.
- Allows uploading of digital strip charts and records for long term storage and access.



SCRAM Module

Return Save Options Submit

SCRAM RUN-2018-0037 New Status: Initiate

Fields Colored green are required for entry. Upload / reference applicable documents.

Occurrence Date: 10/29/2018 Occurrence Time: 06:52

Description:

Scram Type:

Cause:

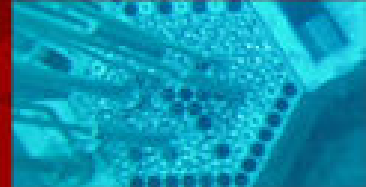
Action:

Reference Documents

Attach Files

Details Upload File Drop to attach f

- Initiates CAP item to track failures and repairs.
- Requires approval by Reactor Supervisor to restart reactor.

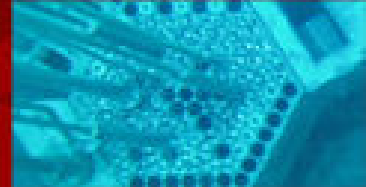


Reactor Operator Hours

[Edit Report](#)
[Export](#)
[Display](#)
[Notification](#)

Quarter Student Hours

Trainee / Student	Identifier	Q2 2018	Q3 2018	Q3 2019	Totals
		Hours spent	Hours spent	Hours spent	Hours spent
Abdinor, Jamal	RUN-2018-0024				
	Totals				
Albright, Lucas	RUN-2018-0004	21.00			21.00
	RUN-2018-0005	5.00			5.00
	RUN-2018-0006				
	RUN-2018-0018	3.25			3.25
	RUN-2018-0020	1.00			1.00
	RUN-2018-0023	1.00			1.00
	RUN-2018-0035	4.00			4.00
	Totals	35.25			35.25
Alroumi, Fawaz	RUN-2018-0002	18.00			18.00
	RUN-2018-0004	6.00			6.00
	RUN-2018-0005	12.00			12.00
	RUN-2018-0006				
	RUN-2018-0023	2.00			2.00
	RUN-2018-0036	6.00			6.00
Totals	44.00			44.00	
Amevi Adjei, Christian	RUN-2018-0002	6.00			6.00
	RUN-2018-0017	5.00			5.00
	RUN-2018-0023	5.00			5.00
	RUN-2018-0026				
	RUN-2018-0036	6.00			6.00
Totals	22.00			22.00	



Sample Tracking

Sample > RUN-2018-0042 > New Status: Initiate

i Fields Colored green are required for entry. . Upload / reference applicable documents.

Sample for: Sample Type: Irradiation

Batch ID:

Description:

Date In: 10/29/201 Time In:

Date Out: Time Out:

Irradiation Time (min): Reactor Power Setting: PowerUOM: kW W

Sample State: Quantity: UOM:

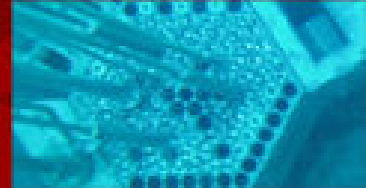
Irradiation Port number: Decay Time in Pool (hr): Predicted Dose @ 30cm (mr/hr):

Measured Dose @ 30cm (mr/hr): Radioactive Isotopes: Sample Data Analysis (Attached): Yes No

Storage Location:

Find Items (LO...)

- Tracks samples from cradle to grave.
- Two types of samples: environmental and irradiated.
- Tracks irradiation key parameters, analysis reports, and responsible person.



Sample Tracking

Details Reference Documents **Disposal** Troubleshooting

Disposed Of: Yes
 No

Method of Disposal:

Disposal Description:

Disposal Type:

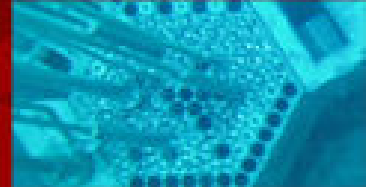
Material Release Survey Completed: Yes
 No

Disposal Date:

Recipient:

Released to:

- System reminds users to dispose of sample after decay.
- Tracks disposal or shipment to another facility.



Corrective Action Program (CAP)

- Contains four key areas:
 - Condition reports.
 - Tracks surveillances.
 - Walkthroughs.
 - Nonconformance reports.
 - Maintenance items.
 - Failures.
 - Process improvements.
 - Changes to procedures.
 - Recommendations.

Save Options Send to CAP Admin Screening

New Condition Report Status: Initiate

Fields Colored green are required for entry.

Department: Select Department

Subject: Enter Subject

Description: Enter Description

Immediate actions taken: Enter Immediate actions taken

Identified By: Select Identified By

Significance Level: Select Sig Level

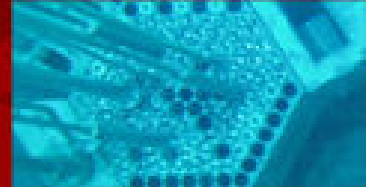
Location: Select Location

Date of Event: 10/29/2018

Time of Event: hh:mn

Notifications

Person / Team	Closure Notice	Opt-in Comments
Lund, Matthew	<input checked="" type="checkbox"/>	<input type="checkbox"/>



Corrective Action Program (CAP)

Search Items

Return Search Tips

Browse Search

- 1. Application/Data Issues
- 2. Equipment Failure
- 3. Human Performance
- 4. Procedural issues
- 5. Miscommunication
- 6. Training deficiencies
- 7. Other
- 8. No Cause Found

Cause Codes

Save Options Submit

New Nonconformance Report Status: Initiate

Fields with a green color are required for entry. If the nonconformance may impact nuclear material control of physical security, notify the safeguards and security director by adding him/her to the notifications tab.

Department: Select Department

Subject: Enter a subject

Description: Enter a description

Item Identification / Description: Enter item identification details

Unmet requirement: Enter the unmet requirements

Responsible Manager: Choose a person

Date of Event: 10/29/2018

Notifications

Choose a Person

Person	Closure Notice	Opt-in Comments
Lund, Matthew	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Documents

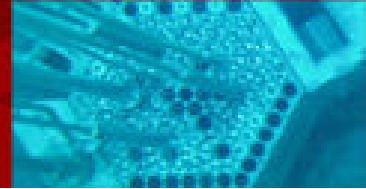
Attachments

Details Upload File Drop

Documents

+ Add

No items to display.



Acknowledgements

This project is supported by the University of Utah Nuclear Engineering Facility and a NRC Award through the University of Utah Nuclear Engineering Program.



U.S. NRC