



# Repair Assessment Reporting RAR

Randy Michaud

“Stay-Treat...July 16, 2015”

# What is it?

## Pre-2010, referred to as *Escalation Report*

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Bypassed interlocks in out-of-service equipment installing the bypass must fill out a tag when the interlock is bypassed. This tag, installing the bypass, the date, the purpose number is not required for out-of-service equipment attached to the equipment until the bypass is removed, a separate tag, and the tag must be placed in the equipment when installing the equipment. If a tagged piece of equipment (i.e., the interlock is still bypassed) is installed, an *Accelerator Bypassed-Interlock Log* entry must be generated when the log entry is made must be attached to the equipment.

### 4.2.6 Repair Assessment Reporting

The Repair Assessment Committee (RAC) reviews accelerator repair events and determines if the event could potentially improve accelerator operations. If the RAC determines that additional work with the appropriate managers to apply which is tasked with performing a detailed Repair Assessment Report. The repair assessment report is for problems on specific groups or individual equipment. It identifies recurring problems, educates and informs Jefferson Lab staff and, ultimately, improves lessons learned.

Details of the repair assessment reporting process, document, *Accelerator Repair Assessment* reporting process, establishes the reporting events, and defines RAC and Repair Investigation

Repair Assessment Reports focus on the root cause of these problems, and lessons learned. They contain names of individuals; rather, they

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problems and constructive suggestions for improvement. The process for writing a Repair Assessment Report is shown in Figure 4-1.

**Repair Assessment Report**

Date Report Requested: \_\_\_\_\_ Date Report Completed: \_\_\_\_\_  
Repair Investigation Team Leader: \_\_\_\_\_  
Team Members: \_\_\_\_\_

**Title:** \_\_\_\_\_  
**Date/Time of Original Problem:** \_\_\_\_\_  
**Elog/OPS-PR Number(s):** \_\_\_\_\_

**Charge:** \_\_\_\_\_  
[Repair Assessment Committee and team agree on what the report is expected to address]

**Problem Statement:** \_\_\_\_\_  
[Include original symptoms, cause(s) of problem, and final outcome (repairs, adjustments, or improvements)]  
*Include, attach, or link to supporting documents; e.g., log entries.*

**Associated Problems:** \_\_\_\_\_  
[Identify associated problems such as lack of spares, inadequate documentation, insufficient training, or non-existent diagnostic and maintenance procedures]  
*Include, attach, or link to supporting documents; e.g., log entries.*

**Corrective Actions Taken:** \_\_\_\_\_  
[Describe corrective actions that have already been taken; e.g., more spares have been provided, redesign is in progress, documentation and procedures (including HSA/H) were revised]  
*Include, attach, or link to supporting documents; e.g., ATLAS entries.*

**Open Action Items:** \_\_\_\_\_  
[List and describe related open action items, including the definition of the task, person responsible, and due date]  
*Include, attach, or link to supporting documents*

**Lessons Learned:** \_\_\_\_\_  
[List improvements that will reduce downtime in the future and/or improve operations]

Figure 4-1: Repair Assessment Report Template



Repair Assessment Reports  
Accelerator Division

Not Logged In. (Login)

search

MAIN MENU  
New Report  
Reports  
Action Items  
Help/About  
RAR Procedure (pdf)

CONTEXT MENU

Columns

Group by:

NO GROUPING

Oldest:

01/01/1995

Newest:

Apply Filters

### Repair Assessment Reports

Num	% Done	Requested	Completed	Leader	Title
660	0%	03/23/15	05/13/15	C_Mounts	C100 Zones Loss of Power Event
640	NA	03/16/15	04/30/15	B_Freeman	1L18 Vacuum Event
620	NA	04/18/14	06/04/14	B_Merz	MZAAR03 Failure
600	100%	10/01/13	11/28/13	M_Drury	2L22-2 Runaway Tuner Investigation
581	NA	03/28/12	04/13/12	L_Carino	2S Vacuum Event
580	NA	03/15/12	04/25/12	C_Mounts	2L22 Coupler Failure
578	NA	03/07/12	06/01/12	T_Michaelides	BSY BLM HV Power Supply Repair
575	NA	01/27/12	01/27/12	T_Lamieu	test
577	100%	01/20/12	03/12/12	S_Philip	ARC3 Shunt Adder Repair
576	100%	10/17/11	11/28/11	W_Oren	MYR7S03 and MYR9S04 Fire Incident Investigation (Tracked by CATS)
541	NA	01/04/11	02/07/11	N_Okay	Hall C vacuum (burn through) event
540	100%	12/21/10	02/16/11	R_Wright	Hall B FSD/Valve Lost Time
520	100%	08/12/10	11/10/10	J_Heckman	VBV2L17A RAR
500	100%	04/26/10	05/25/10	Y_Wang	SL02 RF Vacuum Leak
480	100%	12/18/09	01/04/10	B_Cumbia	IOCNL3 Crate
440	NA	12/11/09	12/18/09	D_Smith	0L04 Filament Board
420	100%	10/05/09	10/10/09	R_Adams	Injector BCM B Chain Fault
460	100%	09/14/09	09/15/09	G_Marble	VBV0L06A blocking beam
400	75%	08/24/09	08/31/09	M_Joyce	D0G9E Vacuum Leak
369	100%	07/27/09	07/27/09	T_Larrieu	Test Only
227	NA	07/08/09	07/08/09	T_Larrieu	Test
160	100%	06/15/09	08/31/09	N_Wilson	ARC 3 Magnet
380	100%	05/01/09	05/12/09	S_Philip	ARC 4 Power Supply
365	100%	06/06/08	06/28/08	J_Ludwig	20080606 RER Pockels Cell HV
363	0%	05/29/08	06/30/08	C_Jones	20080529 RER Chiller System
368	100%	05/18/08	03/31/09	N_Okay	20080518 REQ Hall C Transport
362	NA	05/12/08	05/13/08	H_Robertson	20080512 RER FSD ioc
367	75%	05/08/08	05/13/08	N_Okay	20080508 RER VBAT00A Flange
364	100%	04/10/08	08/01/10	S_Wood	20080410 RER MARC1A
366	0%	01/23/08		R_Gonzales	20080123 Note Hall C Target Trips
361	NA	01/20/08	01/29/08	M_Washington	20080120 RER CARM 41
360	NA	02/02/07	02/15/07	M_Epps	20070202 RER 362MeV Set Up
342	100%	12/11/06	12/15/06	K_Mahoney	20061211 RER Hall Dump FSD Card Swap
341	NA	10/23/06	11/07/06	S_Wood	20061023 RER MARC7A
339	NA	08/09/06		R_Kazimi	20060809 Note Capture RFCM
340	NA	08/09/06	08/14/06	R_Nelson	20060809 RER Capture RFCM
338	NA	06/26/05		T_Whitlatch	20050627 Note Hall A Be Window
335	NA	06/10/05	06/14/05	J_Heckman	20050610 RER VBV3C07
334	NA	05/10/05	05/19/05	J_Creel	20050510 RER Site Power Outage CRYO
337	NA	05/07/05		J_Ludwig	20050507 REQ INU HV
336	NA	04/18/05		N_Okay	20050418 Note Hall B Early Shutdown
331	NA	04/02/05		S_Suhring	20050402 REQ MARC1A H20 Recovery
332	NA	04/02/05	04/11/05	B_Merz	20050402 RER MARC1A H20 Recovery
333	NA	04/02/05	04/13/05	C_Jones	20050402 RER SAB Domestic Water Leak
330	NA	03/24/05	03/29/05	S_Wood	20050324 RER MARC2A
328	NA	12/21/04		J_Ludwig	20041220 RER VBV1L13AB
329	NA	12/20/04	12/21/04	G_Marble	20041220 RER VBV1L13AB
327	NA	11/11/04	12/20/04	M_Epps	20041111 RER PSS Drop Recovery
326	NA	11/11/04		S_Suhring	20041111 REQ PSS Drop Recovery



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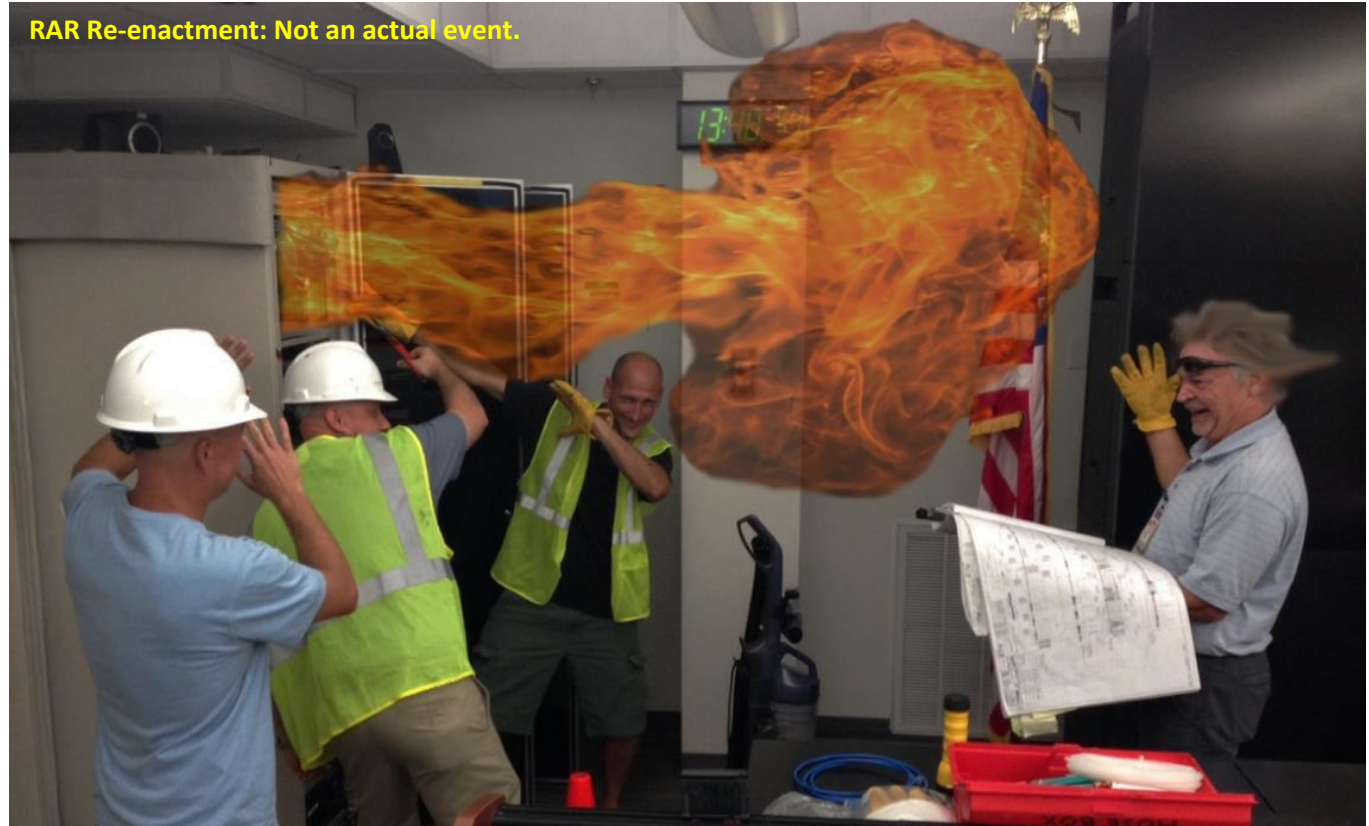


7/27/2015

# Who is it?

## Repair Assessment Committee (RAC)

Brian  
Clyde  
Randy  
Scott



During OPS, review downtime weekly for RAR “opportunities” and make team assignments.

# RARs

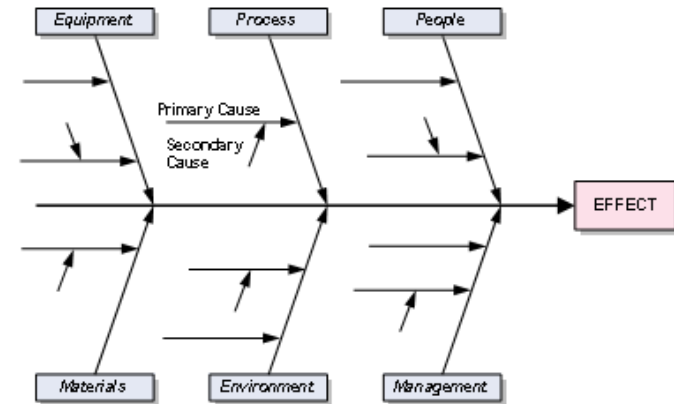
Requested	Completed	Leader	Title
03/23/15	05/13/15	C_Mounts	C100 Zones Loss of Power Event
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Recent Process Improvements	Continued Improvement Opportunities
Quality of written reports	100% report team engagement
Short, direct action items	Long, vague, unassignable action items
Tracking completed actions	Completing assigned action items
Defined process	Inconsistent use of process
Root Cause/Direct cause focus	Root Cause tools not fully utilized

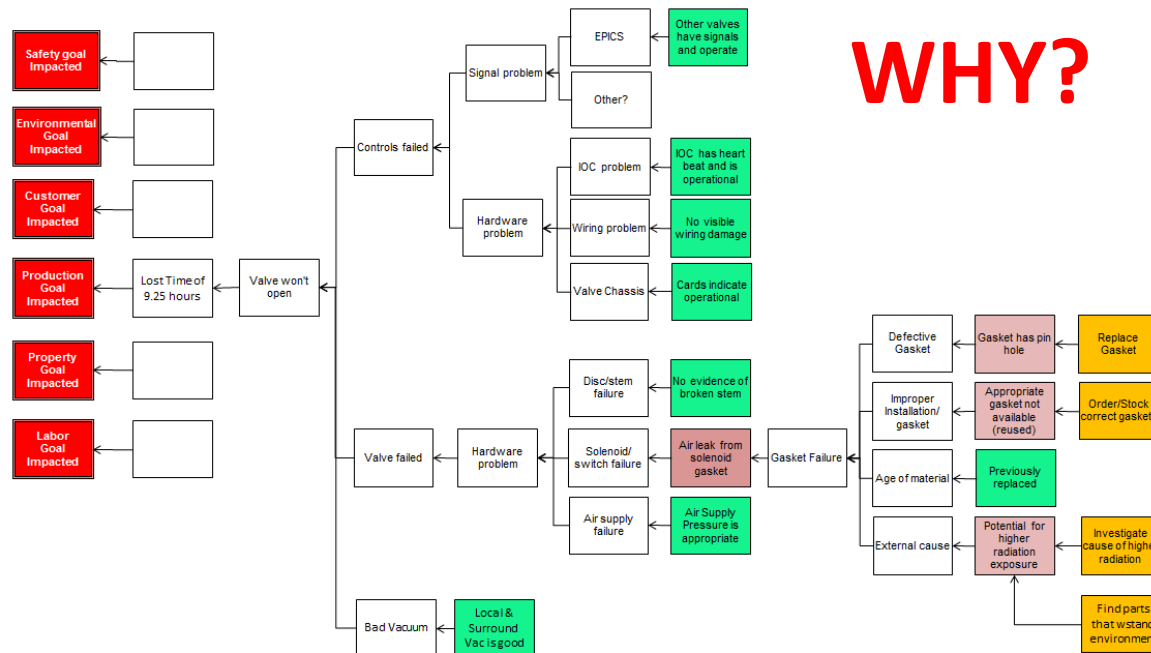
# Focus on Root Cause Analysis



WHY?  
WHY?  
WHY?  
WHY?  
WHY?



Step 2. Develop the Cause Map (using 5 Why's method)



- Fix the problem – use root cause analysis to *understand* how to *prevent* the event from happening again.
- If a team “knows the answer” without working through the tools or investigation, secondary factors may become primary factors when the failure happens again ;)

# Machine Improvement Examples

- Vacuum valve control boxes to the VAC Group, proactive replacement of gaskets, switches, and air lines.
- C100 tuner controls software, firmware, and mechanical upgrades.
- Hot Checkout Process developed.
- ABIL Process developed.
- Linac viewer bellows replacement.



# Continuous Improvement

Are you too busy to improve?



# Discuss - “Arsonist-Fireman Syndrome”

“Arsonist-Fireman Syndrome is a cultural phenomenon...Its most prominent symptom is a focus on “firefighting” (i.e. troubleshooting a problem once it has happened) rather than “fire prevention” (i.e. preventing the problem in the first place).” –Robert Reid, PEX, 2012

## Does our culture?

- Celebrate the fireman vs. those who prevented a fire?
- Use resources to create new value vs. put out fires?
- Focus mostly on daily priorities vs. long term priorities?

## Interesting article:

[“Reward Firefighting And You'll Create A Culture Of Arsonists”](#)

Forbes, Jimmy Leppert -Kotter International Contributor, July 2013

