The View from Operations

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BROOKHAVEN NATIONAL LABORATORY

a passion for discovery

U.S. DEPARTMENT OF ENERGY | Office of Science

View From Operations

- WHY am I standing giving this talk rather than, say, Kling or Shrey?

  - Because this talk is intended to be more critical of the MCR Group than has been the case in the past.

Target … BNL

- Inbound phone service inoperative 3 times during Run16.
- Fire Alarm computer – spontaneous communication interruption never diagnosed
  - band aid – ping MCR fire alarm computer twice a day
  - Unwelcome LOUD additional noise.
- Beeper System – Laboratory provided no backup for beepers shutdown for months during “Meteorological Tower” refurbishment
  - support groups & CAS critical alarms affected during Shutdown15

Target … C-AD

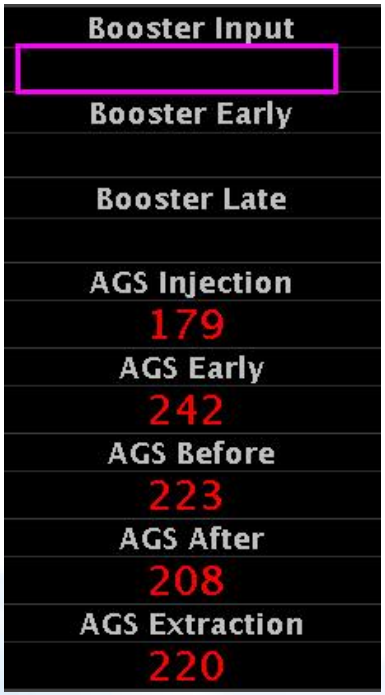
- Retreat16
  - Where is the water fountain? Retreat13 redux.
  - Venue with a writing surface is preferred.
  - The limit on the number of attendees invited to attend should higher. The more (operators) the better.
  - Hamilton acoustics surprisingly good – Can hear audience question even in the last (forbidden) row.
- ECI
  - “Holiday” emergency call ins e.g. Memorial day
    - When calling for help operator greeted with “unable to come in” (safety issue DWI) or no response.
    - Rather than name [group] names will ask that each group supervisor designate an individual(s) to be available during holidays when RHIC operates e.g. Xmas in the past.

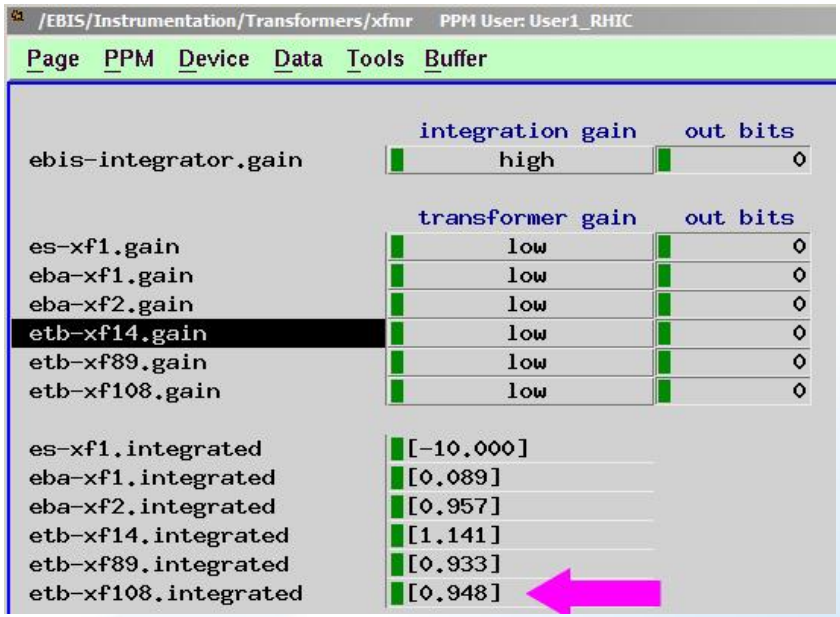
Target … C-AD

- Heavy Ion “Chopper”
  - Need for a standard means of reducing Heavy Ion input to Booster.
  - OCs try to enforce standard practice – still not everyone using the same method.
- Operator /CAS responsibilities
  - Operators and CAS might be taught to do some tasks to alleviate load on support groups e.g.
    - Sublimate RHIC vacuum
    - Reset LINAC LLRF
    - More….
- LINAC
  - Reorganization is a work in progress
  - Response to interruptions will be more critical for Run17 (p^)
  - Concern will be who best to call-in when a problem occurs
  - Call-In “board” in LCR MUST BE TAKEN DOWN

Target … C-AD

- Booster Input scaler electronics (911B) does not work for Heavy Ions from xf108.
  - Pet page provides raw numbers
  - KLZ uses a GPM work around – prefers piping (calibrated) number from pet to scalar application.





Target … C-AD

- AGS Permit Pulls
  - Operators continue to observe permit pulls from BLMs while no beam is in the AGS.
  - Less frequent than before “the fix”
- PASS
  - HMI display at center console does not work – fixed Wednesday 7/28 after I asked questions.
  - Coordinators need functionality restored at center console PASS HMI to give simultaneous release for sweep teams.

Target … C-AD

- APEX
  - Schedule could use better work planning – that is -- order of experiments should be such that configuration for the “next” experiment is easy rather than order by availability of experimenter.
    - Noted by C. Harper at Retreat15
  - Studiers in the (dark) past – submitted a list of prerequisites to MCR so operators could facilitate setup/transition from one experiment to the next. A good idea to return to that practice.
    - Noted by C. Harper at Retreat15

Target … C-AD

- At home diagnostic capability
  - Communication is key and oftentimes MCR cannot articulate a problem on the phone to the satisfaction of an expert.
  - MOST groups e.g. Rf & RHIC power supply groups – login from home to look at e-logs / LogView / relevent applications to examine their equipment and to reduce the uncertainty inherent with communications between experts and non-experts.
  - All groups e.g. vacuum should adopt this best practice.

Target … C-AD

- New Equipment
  - If operators can damage new equipment by operating other equipment then they must be given instructions on how to operate in order to protect the new equipment.
  - We are trying to do things too fast.
  - e.g. of the above – LEReC 9 MHz Rf testing while trying to make an access to other parts of the RHIC trips off Rf.
- E-logs
  - Images without accompanying text do a disservice to those trying to follow along. Some clueless individuals (e.g. myself) often miss the point or the motivation for the post.

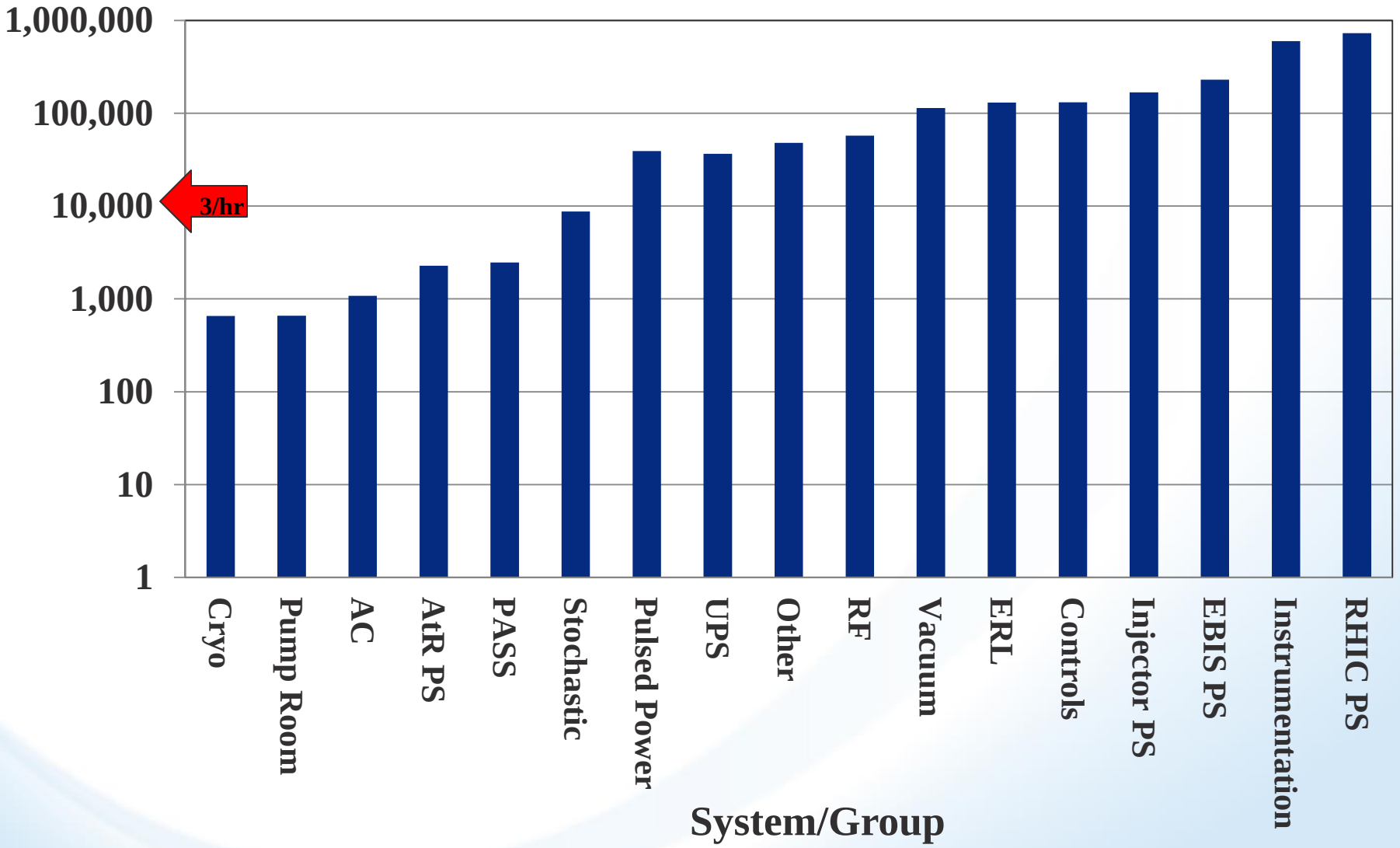
Target … Individual Kudos

- Al Marusic
  - Always lurking in the aether to help.
  - Has gotten better at reporting what he does to make things work
- Angelika Drees
  - Like Al – lurking in the aether -- assisting at all hours.
  - gave operators latitude to collimate more often.
- Kevin Mernick
  - Wears many hats – solves many problems
- Freddy Severino –
  - credit in particular for enabling AGS bunch merge, amongst other things
- CAS
- Scheduling Physicist – best ever ;)

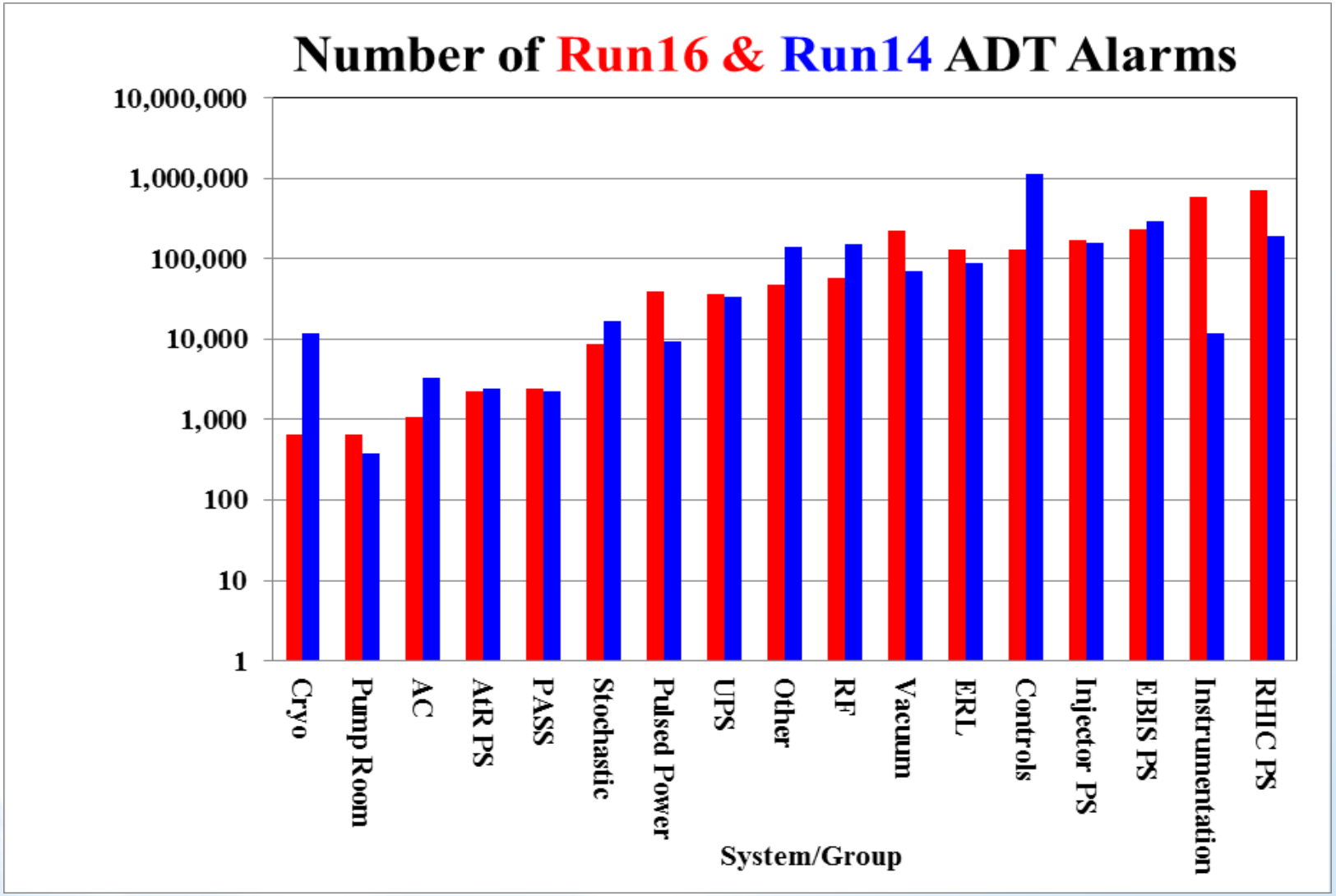
Alarm Overload (nothing new) Time for it to STOP

- G. Marr worked long and hard with Controls (Seth & others) to add alarm management capability to the Alarm Display.
  - One of the tools developed allows operators to send e-mails to supervisors in order to ask for action.
  - Few supervisors pay attention.
- Still TOO MANY Alarms – many nuisance alarms.
  - 2,745,700 Alarms during Run16
  - IF we ignore alarms that annunciate less than once per day – result is 2,283,400 Alarms
- We are formulating an action plan and will contact support groups – we expect some cooperation

Number of Run16 ADT Alarms



Number of Run16 & Run14 ADT Alarms Trying to make sense of this



Some Examples of Alarms we will investigate

System	Alarm "type"	# "type" alarms	% of group Total
RHIC PS	ps.Ctrl.M	330000	45.2%
Instrument	BPM	276000	45.9%
EBIS	various	229900	100%
Injector PS			
	ttl	31500	18.7%
	bta	10750	6.4%
	D3/D6	18000	10.7%
Controls			
	Heart Beat	27500	20.9%
	Wfg / Qfg	76000	57.8%
ERL	Rf	121400	92.9%
Vacuum			
	b3/b4_Pressure	15250	13.4%
	gauge controller	44000	38.5%
Rf	llrf	22000	38.3%
UPS	Siemens	10400	28.4%
PPS	g9/g10	15800	40.4%

Target … MCR Group

- Some Operators not current with RHIC evolution (read eLog) after being off shift for a few weeks.
- Some “operators” not recording changes or important information to be passed on.
- Operators doing a poor job at alarm management
- Shift Change
  - Some crews are better at conveying information at shift change than others. Becomes a real problem when eLog entries are sparse as well.

Target … MCR Group Leader

- Whining
  - What I view as whining is due to lack of information.
    - MCRGL & RMSs need to educate more.
  - Examples
    - After MCR declares PHYSICS “why aren’t the experiment detectors on and ready”
    - The diamond shaped beam pipe in IR2 should not be there – it causes trouble and delays in filling.
    - One experiment run coordinator not familiar with “standard practice”
    - Too much time spent making polarization measurements (Run15) – “View from Operations” Run15
    - During a run “just because we can return to a previous energy/species configuration in the same run – does not mean we should”
- BLIP Raster
  - Confusion during the commissioning period.
  - Botched by MCRGL – should have made a larger education/familiarization effort sooner.

Target … MCR Group Leader

- Staffing
  - Two open requisitions at the end of FY15 and I hired only one new Operator.
  - Came back to haunt me and hurt the group during Run16 when one operator went out on Maternity leave and one operator was out for an extended period because of illness.
- Electron Machine Operations
  - Charged by my supervisor with getting operators trained in electron accelerator operations e.g. ERL/CeCPoP.
  - PFI “grades”
    - “D” (CeCPoP).
    - “C” ERL
  - 50% of Operator crews had one operator instead of two. Contributed to burn out such that operators took time off on unscheduled days rather than spending time at the electron machine controls.

RHIC Performance…

Performance s all

RHIC Success

- A large part of the RHIC success story is predicated on Performance.
- Consider two Data Driven Individuals
  - Janet Yellen
  - Wolfram Fischer – the more successful of the two
  - Wolfram has an uncanny ability to analyze the data and determine a course of action – knowing that RHIC performance is his ACE in the hole.
  - Run16 is a prime example
- Wolfram – given events of Run16 why continue to push performance (e.g. intensity)?
  - sPhenix?

END