ESH&Q

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Triennial Operations Peer Review

June 20th 2017

Outline

- ESH&Q Vision, Strategy
- Safety Statistics
- Progress since 2015
- Evolution of ESH&Q since 2015
  - Response to Recommendations
  - Benchmarking
- Staffing and Budget 2015 – 2017

ESH&Q Vision and Strategy

Vision: To enable the safe performance of cutting-edge synchrotron science through implementation of ESH&Q programs that ensure the protection of workers, visitors, facilities and the environment.

Strategy:

- Maintain a staff of seasoned ESH&Q professionals with strong accelerator backgrounds
- Staff is integrated into all NSLS-II accelerator and experimental operations
- Strong links to the central ESH&Q through the deployed services model
- Actively engaged in work-planning including managing the Experimental Safety Review process for beamlines and laboratories and User Science through the Safety Approval Form process
- Manage all events and injuries from the time of event notification through investigation completion.

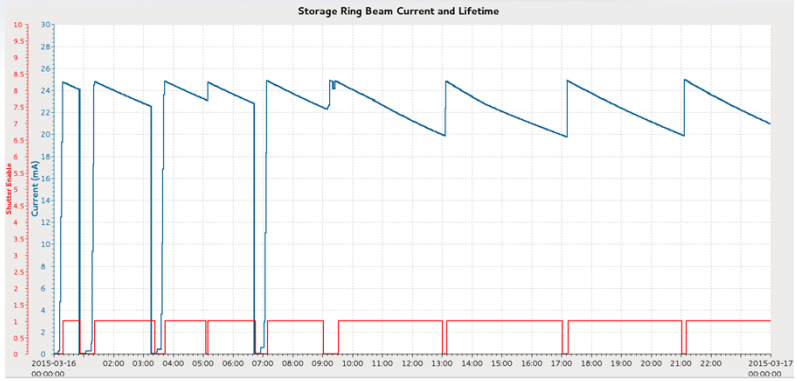
Safety Statistics

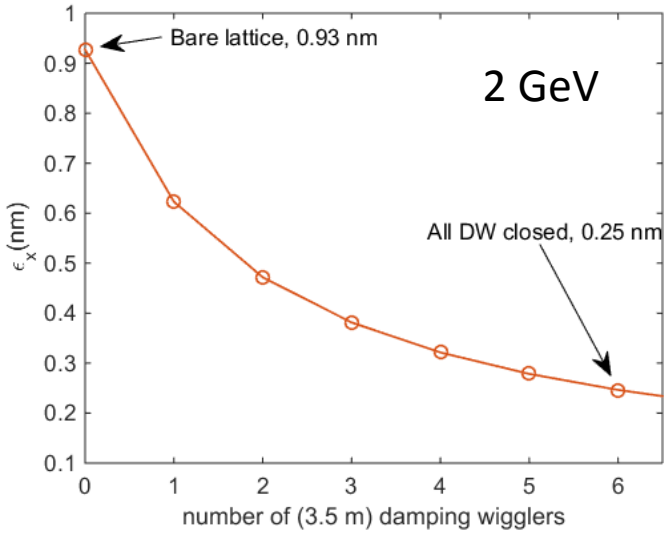
	Hours Worked	First Aid Cases	Recordable Cases	TRC Rate	DART Cases	DART Rate
FY15	783,888	5	0	0	0	0
FY16	761,128	3	0	0	0	0
FY17 (YTD)	452,357	3	4	1.77	2	0.88
DOE Goals				0.65		0.25

- Outstanding Safety Statistics through FY16, > 2.0 M hours worked without a lost time incident.
- FY17 uptick in Recordable/DART cases
  - FY17 Recordable cases include a worker getting wind-blown debris in his eye, a shoulder strain and two back injuries.
  - Both back injuries were DART cases, one person is still out.
  - All injuries are investigated and communicated with staff
  - ESH engaging with groups to discuss injuries to identify possible causes
  - Staff distractions due to work load and budget uncertainties are likely contributing causes
- Actions taken: increased messaging: All-hands, newsletter, group meetings
  - Messages stress safety is forefront to budget and schedule, report all events, it's OK to stop and evaluate needs

Progress Since 2015

- Authorization Basis Documents – numerous Safety Assessment Document and Accelerator Safety Envelope revisions implemented and approved to improve system performance or reliability
  - July 2015: Top-off mode of operations
  - December 2015: Eliminate SR stored beam low energy limit
  - June 2016: Reduce minimum booster injection energy to 90 MeV
  - January 2017: PPS certification frequency extended from 6 to 12 months





Progress Since 2015

Instrument Readiness Reviews: An IRR is required prior to commissioning and operation of new beamlines, or an accelerator or beamline modification. An IRR is also required prior to performing an ARR.

Aug/Sept 2015: Top-Off
October 2015: 16-ID LIX
December 2015: 2nd SCRF Cavity
March 4, 2016: 17-ID AMX/FMX
March 24, 2016: 8-ID ISS
June 28/29, 2016: 4-ID ISR, 17-BM XFP, 21-ID ESM
August 9/10 2016: 8-BM TES, 11-BM CMS
October 19, 2016: 12-ID SMI (Ph. 1), 2-ID SIX FE/ID
November 3, 2016: 12-ID SMI (Final)
November 8, 2016: 02-ID SIX (Ph. 2), 19-ID NYX
January 18, 2017: 02-ID SIX (Final)
June 1, 2017: 21-ID ESM EPU 105, 6-BM BMM FE/3PW

13 IRRs have been convened to assure readiness of the accelerator to support Top-Off, installation of the second SCRF cavity and for assuring readiness of 12 beamlines.

Evolution of ESH&Q Since 2015

Fully transition the NSLS-II organization from a construction project to an efficient and effective facility operations organization. The tasks to achieve this goal include, but are not limited to, rebalancing the staff skill mix and transitioning the staff size to an appropriate level, transferring non-mission specific business operations to laboratory central services, and re-assessing the Environmental Safety & Health (ES&H)/Quality Assurance (QA) program to streamline its processes and retain a core ES&H/QA staff within the NSLS-II organization that reports directly to facility

- Organizational Changes
  - Field Deployed Service Model implemented for ESH and QA staff
    - ESH&Q Manager reports directly to NSLS-II Director
    - Staff matrixed through a Service Level Agreement
    - Performance Management "delegated" to Manager
    - Staff reductions: 4.5 FTEs ($700 K)
- Benchmarking Exercise – September 2015
  - Staff from BNL, SLAC, APS and ALS participated
  - APS and NSLS-II most similar and resources mapped well
  - Several recommendations regarding services provided through Radiological Controls Division

Benchmarking

Element	APS	NSLS-II
User Safety/Oversight	3.9	1.7
Accelerator/ Beamline	22.9	20.7
Common	0	2.4
Staff Safety	3.6	5.3
Management	1.4	1.3
Total	**31.8**	**31.4**

- Significant difference in FTE resources associated with PPS design/install and FLOCOs (ALS does not provide 24/7 coverage) between APS/NSLS-II and others
- NSLS-II supports work planning, Experimental Safety Reviews, Self-assessment, IH monitoring, ODH monitoring, configuration management (SSWP), etc.
- NSLS-II is the only site with dedicated resources to support the Authorization Basis and USI process (0.9 FTE)
- NSLS-II is the only site where PPS certifications are performed by ESH
- Other sites rely upon others to perform these functions
- Very difficult to compare site models

Benchmarking Exercise Recommendations

- Several comments concerning Radiological Control Division charges:
  - TLD charges are high and should consider going to a quarterly or longer exchange period and/or contract out
    - RCD performed a make or buy evaluation presented to senior management with the decision to maintain the program as-is
    - TLD exchange frequency predicated by software. Resource and ability to rewrite the software not available/feasible due to outdated programming language, security issues, links into HR and other QA issues. Total charges are not expected to change since the base program needs to be supported (i.e., TLD rate goes up).
    - Energy Employee Occupational Injury Compensation Program Act significant driver to exposure monitoring
  - Better management of Radiological Control Technician time should be exercised.
    - RCT allocations have been reduced by ~ 1.4 FTEs
- Other changes since 2015
  - Approval to move to annual PPS certifications granted in January 2017. Eliminates the need for extended shutdowns and/or additional staffing to continue six-month testing.
  - Issuance of TLDs for tours and groups reduced to 1 TLD per 10 visitors.
  - Discussions underway to evaluate best practices among facilities to reduce costs associated with beamline construction including process for validating shielding design, reduced PPS requirements for enclosures < 50 R, etc.

Budget Overview

	FY16 BES-SUF funds			FY16 Other funding source		
	FTEs	Direct ($k)	Burdened ($k)	FTEs	Direct ($k)	Burdened ($k)
Total	**289.5**	**69,858.2**	**98,011.3**	**42.6**	**10,951.0**	**13,805.7**
Facility Management and Business Operations	21.6	11,217.0	15,384.3	4.0	822.1	823.2
Facilties (management and biz services)	21.6	4,035.4	5,726.8	4.0	792.4	793.5
Space and power		7,181.6	9,657.5		29.6	29.6
Accelerator Operations	107.5	20,195.5	31,342.9	1.2	271.2	387.3
Accelerator ops	107.5	20,195.5	31,342.9		-	-
R&D	-	-	-	1.2	271.2	387.3
Beamline Operations	145.5	35,071.1	46,298.3	37.2	9,857.8	12,595.2
Experimental Program	91.3	18,626.9	28,434.7	22.9	4,346.5	6,517.8
Beamline Development	54.2	16,444.2	17,863.6	14.3	5,511.2	6,077.3
ESH&QA	14.9	3,374.6	4,985.8	0.2	-	-
ESH	13.1	3,374.6	4,985.8	-	-	-
QA	1.8			0.2		

Overall ESH&Q Staffing 2015 - 2018

Staff Levels	FY15		FY16		FY17	
	FTE	$K	FTE	$K	FTE	$K
Total	18.1	5,900.5	15.1	4,985.8	14.9	5,215.0
Manager	1.0	399	1.0	429.8	0.9	409.8
Professional	11.3	2,335.6	10.7	2,277.4	10.4	2,285.5
Scientific	2.6	793.7	1.0	369.7	1.3	416.0
Technical	0.2	44.8	0.1	14.5	0.1	10.9
Administrative	3.0	399.4	2.3	286.1	2.3	210.7
MS&T		1,928.0		1,608.3		1,882.1

- FY15 – 16 represent Actuals; FY17 is Projected

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Scientific	2.6	793.7	1.0	369.7	1.3	416.0
Technical	0.2	44.8	0.1	14.5	0.1	10.9
Administrative	3.0	399.4	2.3	286.1	2.3	210.7
FS Professional	1.1	291	1.0	257	0.8	226
FS Technician	3.3	634	1.7	351	2.25	402
MS&T		1,003.0		1,000.3		1,254.1

- FY15 – 16 represent Actuals; FY17 is Projected
- FS not included in FTE total and are purchased through M&S. Shown to illustrate reductions
- Staff reduction of ~ 4.5 FTEs ($700K) maintained since FY15 levels (3.2 FTE + 1.4 FS)

Summary

- Safety performance is commendable. FY17 uptick in injuries being managed by full investigation of injuries and increased communications with staff.
- ESH&Q staff fully engaged in NSLS-II operations and projects.
- Readiness Reviews have been effective enabling the commissioning and operation of 3 accelerators, 19 beamlines and 20 laboratories.
- Budget reflects concerns raised during the June 2015 review. Staff reduction of 4.5 FTEs ($700K) maintained.
- Benchmarking in 2015 identified numerous differences across all light source facilities. Areas for reduction evaluated and, where possible, have been implemented.