



THREE-YEAR SECTOR SAFETY REVIEW REPORT

ICMS Document Number APS_2172860

Review Number	Review Title	Review Date
PSC-2020-TYSSR-XSD-CMS	Three Year Sector Safety Review of XSD-CMS (9-ID-B,C; 12-BM-B; 12-ID-B,C)	December 10, 2020
Scope / Agenda		Review Team
<p>XSD-CMS ES&H Plan Implementation 9-ID-B,C; 12-BM-B; 12-ID-B,C Specific Safety Issues</p> <p>PSC/AES Configuration Control Records RSS Component Survey & Alignment Update RSS Interface Identification PSS User Requirements Specification Ray Traces, Operational Envelope, Design Reviews Health Physics Survey Records ES&H Inspection Records</p> <p>ES&H Walk Through LOM 433E office areas, laboratories 9-ID-B,C; 12-BM-B; 12-ID-B,C beamlines, control areas, egress aisles</p>	<p>John Connolly Nena Moonier Paul Rossi Mike Fries Patti Pedergrana Liz Schmidt Steve Davey Ken Belcher Merrick Penicka Beth Heyeck</p> <p>Byeongdu Lee Alexis Quental</p>	
Review Chair	ESH/QA Representative	Responsible Manager
Nena Moonier	Mike Fries	John Connolly
Executive Summary:		
The XSD-CMS (9-ID-B,C; 12-BM-B; 12-ID-B,C) TYSSR was held on December 10, 2020.		

Section 1: TYSSR criteria are based upon APS User Safety Policies and Procedures, APS Procedure 3.1.102, Section Beamline Facilities Reviews (Formerly AP&P 3.1.18, APS document number APS_118581)

	Agenda Items / Review Criteria	Discussion / Objective Evidence	Action Required
1.	Date of last TYSSR	December 8, 2017	None

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Agenda Items / Review Criteria		Discussion / Objective Evidence	Action Required
2.	Beamline management presents a summary of the ES&H program and notes changes, if any, since the last TYSSR.	Alexis Quental presented the XSD-CMS Safety Presentation.	Presentation will be uploaded to ICMS
3.	Committee records concerns raised by Sector Personnel	None	None
4.	Committee reports outstanding action items, if any, from last TYSSR	None	None
5.	Each partner user group operating a beamline shall:	<i>See sub-items.</i>	
6.	Review beamline safety program and ES&H plan at least once every thirty-six months; revise them, as needed, and provide ES&H plan to APS User Safety Officer for approval.	The XSD Beamline Safety Plan is in ICMS, Content ID APS_1270900, and was last reviewed in September 2020. The Plan is valid until September 2023.	None
7.	Review beamline safety assignments annually and reassign responsibilities or create new roles, as needed; notify USO of changes in personnel assigned to ES&H roles.	Communicated through monthly data check of Beamline HR Admin application.	None
8.	The committee verifies that the following records are on file and consistent with the beamline:	<i>See sub-items.</i>	

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<p>9. Review/approval records for modifications to beamline safety systems since last TYSSR</p>	<p>9-ID:</p> <p>TN20-045 APS-U CSSI Instrumentation Final Design Review (sample support, CSSI solid sample station, liquid sample station, flight tube, sample motion system, attenuator, WAXS detector motion system). Review recommendations tracked to closed in the APS-U recommendations database.</p> <p>TN20-100 APS-U CSSI Instrumentation part II Final Design Review (transition cone for GIXS, CSSI and liquid setup to flight tube, detector motion system inside flight tube, beamstops upstream of detectors, end of beamline photon beamstop inside the flight tube) – to be scheduled the week of 12/14/2020</p> <p>12-BM:</p> <p>There have been no modifications to the beamline since the prior TYSSR.</p> <p>12-ID:</p> <p>TN18-016 Move 12-ID-A White Beam Stop and Collimator to fit the new double-multilayer mirror and double crystal monochromator.</p> <p>TN19-002 Shift the 12-ID-B Upstream Guillotine and Beam Transport to ensure proper radiation shielding when increasing the angle of the horizontally reflecting mirror.</p> <p>TN19-003 DALD Operation Authorization to 1. Relocate the 12-ID-B upstream guillotine and beam transport, 2. Open and close 12-ID-A-MH-1 panels, 3. Remove and replace 12-ID-A-MH-1-M-01 pink beam mask, and 4. Install pump out valve on the port of the 12-ID-A-P-01 white beam stop.</p> <p>TN20-051 APS-U 12-ID-C/D Instrumentation Procurement Readiness Review includes the SAXS flight tube and upgraded USAXS instrument. Review recommendations tracked to closed in the APS-U recommendations database.</p>	<p>None</p>
<p>10. Configuration control list</p>	<p>Current as of the beginning of the last run.</p>	<p>None</p>

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11.	Administrative Restrictions	<p>9-ID-B,C and 12-BM-B have no administrative restrictions.</p> <p>12-ID has an administrative restriction.</p> <p>Reason for the restriction: Modification of the B station guillotines and beam transport during the canted undulator upgrade in 2010.</p> <p>Component or Condition being restricted: 12-ID-B may only run in monochromatic beam</p> <p>Resolution Required: A full beamline design review and shielding modification must be done prior to propagating pink or white beam into the B station.</p> <p>References: ICMS documents APS_1309114 and APS_1688504</p> <p>Issued by: Clay White on 10/05/2015</p> <p>Last Reviewed by: Clay White on 01/28/2020</p>	None
12.	RSS component survey and alignment worksheets	9-ID was last surveyed during the Aug/Sept 2018 shutdown. 12-BM and 12-ID were last surveyed during the Aug/Sept 2020 shutdown.	None
13.	RSS interface Document	<p>9-ID: ICMS Content ID APS_1424724</p> <p>12-BM: ICMS Content ID APS_1218070</p> <p>12-ID: ICMS Content ID APS_1218071</p>	None
14.	PSS user requirements specification	<p>9-ID: ICMS Content ID APS_1001280</p> <p>12-BM: ICMS Content ID APS_1124563</p> <p>12-ID: ICMS Content ID APS_1124892</p>	None
15.	Sector floor plan, including egress aisles and work areas	<p>9-ID: ICMS Content ID APS_1428475</p> <p>APS-U feature beamline CSSI: See conceptual floor plan in CDR page 17, ICMS Content ID APS_2031369</p> <p>12-BM: See 12-BM FDR, page 4 of 39, ICMS Content ID APS_1290547</p> <p>12-ID: ICMS Content ID APS_1445322</p>	None

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Agenda Items / Review Criteria		Discussion / Objective Evidence	Action Required
16.	Beamline layouts showing major radiation safety shielding components	<p>9-ID: See Ray Trace Drawings ICMS Content ID APS_1413682</p> <p>APS-U feature beamline CSSI: See conceptual beamline layout in CDR page 17, ICMS Content ID APS_2031369</p> <p>12-BM: See 12-BM FDR, pages 6 – 8 of 39, ICMS Content ID APS_1290547</p> <p>12-ID: See 12-ID Canted Undulator Upgrade FDR ICMS Content ID APS_1309114</p>	None
17.	Synchrotron and Bremsstrahlung ray trace drawings for all operating modes	<p>9-ID: ICMS Content ID APS_1413682</p> <p>12-BM: ICMS Content ID APS_1413686</p> <p>12-ID: ICMS Content ID APS_1413687</p>	None
18.	Design drawings of RSS components that show functionality, shielding and aperture dimensions, and shielding material	<p>AutoCAD drawings of 9-BM and 9-ID RSS component drawings have been captured in .zip archives in ICMS. ICMS Content ID APS_1428477</p> <p>9-ID Beamline CRT: ICMS Content ID APS_1270525</p> <p>12-BM K2-22 collimator and P6-20S integral shutter are APS standard designs. Draft version of Beamline CRT: ICMS Content ID APS_1420418</p> <p>12-ID Beamline CRT: ICMS Content ID APS_1403038</p>	None
19.	Thermal analysis for RSS components connected to PSS water flow	<p>9-ID: MED Engineering Report - Thermal Analysis of P5-23 for 9-ID, 4.04keV / 6.16keV, ICMS Content ID APS_1270191</p> <p>12-BM: ICMS Content ID APS_1256118</p> <p>12-ID:</p> <p>M8-100400 ICMS Content ID APS_1284616</p> <p>M8-11 ICMS Content ID APS_1404867</p> <p>P9-50 ICMS Content ID APS_1407994</p> <p>PB Stop 66.7m ICMS Content ID APS_1253343</p> <p>PB Stop 74m ICMS Content ID APS_1253343</p>	None

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20.	Assembly drawings for x-ray shielded enclosures	9-ID-A APS_TECKNIT 1455 9-IA-A-MH1 APS_TECKNIT 1444 9-ID-A-MH2 APS_TECKNIT 1486 9-ID-A-MH3 APS_TECKNIT 1487 9-ID-A-MH4 APS_TECKNIT 1488 9-ID-B-SOE APS_TECKNIT 1536 9-ID-C-SOE1 APS_TECKNIT 1630 9-ID-B APS_TECKNIT 1491 9-ID-C-SOE2 Not Found 9-ID-C APS_TECKNIT 1629 12-BM-A hi2100-c.dwg (in beamline design library; identical to 3-BM-A) 12-BM-B APS_TECKNIT1949 12-ID-A ICMS Folio Content ID APS_1445154 12-ID-A-MH1 Not able to locate, note from previous TYSSR was APS_125318 but this is the FDR 12-ID-A-MH2 ICMS Content ID APS_1254163 12-ID-A-MH3 Not able to locate, note from previous TYSSR was APS_125318 but this is the FDR 12-ID-B APS_TECKNIT 2010 12-ID-C APS_TECKNIT 2044	None
21.	Date of last Health Physics routine survey	The last HP routine surveys were conducted on: 9-ID-B 10/09/2020 9-ID-C 09/24/2020 12-BM-B 02/07/2020 12-ID-B,C 10/28/2020 There were no items that needed mitigation in any of the surveys.	None
22.	ES&H coordinator provides recent ES&H inspection reports and identifies open safety issues, if any.	The last safety walk through for Sector 9 was completed on February 17, 2020. There were no issues of note. The last safety walk-through for Sector 12 was completed on March 2, 2020. There were no issues of note.	None
23.	Committee and beamline personnel discuss opportunities for improving the process	None	None

Section 2: Safety walk through was not held on the day of the review. Review held virtually due to the Lab operating in Limited Operations.

ICMS Workflow Approvals Required

Nena Moonier (Assessment Team Leader)
 Paul Rossi (Assessment Team Member)
 Mike Fries (Assessment Team Member)
 Patti Pedernana (Assessment Team Member)
 Elizabeth Schmidt (Assessment Team Member)
 John Connolly (Responsible Manager)

File / Distribution: PSC Deputy Assoc. Lab Director - Operations (Approver)
 CAT or XSD Division Director
 Sector Personnel and Safety Coordinator
 User Safety Officer
 PSC ESH/QA Representative
 User Experiment Oversight
 APS User Technical Interface
 AES-EFO Group

Supporting Documents:

- XSD-CMS Three-Year Sector Safety Review Notification Letter (APS_2172856)
- XSD-CMS Three-Year Sector Safety Review Agenda (APS_2172857)
- XSD-CMS Three-Year Sector Safety Review Meeting Minutes (APS_2172858)
- XSD-CMS Three-Year Sector Safety Review Presentation (APS_2172859)