Annexure - -SIS Documentation

SIS Safety Lifecycle Plan Doc No: XXXXX

	Document Description or Title	Requirement Source and Text	Essential Contents	Document Format/Software	Author/ Updating Accountability	Approval By
	SIS Concept, Design & Installation Phase					
1	SIS Safety Lifecycle Plan	61511 Section 5,6	Safety Management System plan, Safety lifecycle framework, Safety lifecycle activities and details			
2	Hazards and Risk Assessment - HAZOP	61511 Section 8	HAZOP Analysis Basis, Recommendations and worksheets			
3	LOPA Procedure	61511 Section 9	LOPA Methodology			
4	LOPA Assessment Report	61511 Section 9	LOPA Scope, Assumptions, recommendations and worksheets			
5	SIS safety requirements specification	61511 10	The requirements shall be sufficient to design the SIS and shall address all issues indicated in Section 10.3.1 of IEC 61511			
6	SIL Verification Report	61511 Section 7.0	SIL Verification procedure, Assumptions, Verification Calculations			
7	Factory Acceptance Testing (FAT) Plan and Report	61511 Section 13	FAT Plan shall include types of tests to be performed including black-box system functionality tests - Test cases, test description and test data. - Test environment and tools - Test criteria on which the completion of the test shall be judged - Procedures for corrective action on failure of test - Test personnel competences The results of FAT should be documented, stating:- - the test cases; - the test results; and - whether the objectives and criteria of the test have been met. If there is a failure during test, the reasons for the failure should be documented and analysed and the appropriate corrective action should be implemented			

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8	SIS Safety Validation Plan and Report	61511 Section 15. .	Validation plan of the SIS shall define all activities required for validation. The following items shall be included. - The validation activities including validation of the safety instrumented system(s) with respect to the safety requirements specification including implementation and resolution of resulting recommendations. - Validation of all relevant modes of operation of the process and its associated equipment; - the procedures, measures and techniques to be used for validation; - when these activities shall take place; - the persons, departments and organizations responsible for these activities and levels of independence for validation activities; - reference to information against which validation shall be carried out (for example, cause and effect chart).			
9	Functional Safety Assessment Report	61511 Section 5	SIS Functional Safety Assessment checklist duly completed with report including recommendations for additional measures if any required for achieving functional safety			
10	Operations and maintenance procedures	61511 Section 16 ;	Operation and maintenance procedures shall be developed in accordance with the relevant safety planning and shall provide the following: - the routine actions which need to be carried out to maintain the "as designed" functional safety of the SIS, for example, adhering to proof-test intervals defined by the SIL determination; - the actions and constraints that are necessary to prevent an unsafe state and/or reduce the consequences of a hazardous event during maintenance or operation (for example, when a system needs to be bypassed for testing or maintenance, what additional mitigation steps need to be implemented			
10	Proof Testing Plan and Procedure	61511 Section 16.	Proof test records shall include the following information as a minimum: a) description of the tests and inspections performed; b) dates of the tests and inspections; c) name of the person(s) who performed the tests and inspections;			

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10	Proof Testing Plan and Procedure …continued		d) serial number or other unique identifier of the system tested (for example, loop number, tag number, equipment number, and SIF number); e) results of the tests and inspection (for example, "as-found" and "as-left" conditions).			
11	SIS Management of Change Procedures & Change Management Log	61511 Section 17	Appropriate information shall be maintained for all changes to the SIS. The information shall include - a description of the modification or change; - the reason for the change; - identified hazards which may be affected; - an analysis of the impact of the modification activity on the SIS; - all approvals required for the changes; - tests used to verify that the change was properly implemented and the SIS performs as required; - appropriate configuration history; - tests used to verify that the change has not adversely impacted parts of the SIS which were not modified.			
12	SIS Management of Change Procedures & Change Management Log	61511 Section 17	Appropriate information shall be maintained for all changes to the SIS as above.			
13	Audit Report	IEC 61511 Section 5	SIS Audit checklists completed and Audit report			
14	SIS Failure Tracking	61511 Section 16	Discrepancies between expected behavior and actual behavior of the SIS shall be analyzed and recorded. The maintenance procedures to be followed when faults or failures occur in the SIS, including – procedures for fault diagnostics and repair; – procedures for revalidation; – maintenance reporting requirements; – procedures for tracking maintenance performance.			
15	SIS Demand Tracking	61511 Section 16	SIS Demand tracking shall include monitoring and recoding the following: - the actions taken following a demand on the system; - the failures of equipment forming part of the SIS established during routine testing or actual demand; - the cause of the demands; - the cause of false trips (Refer Annexure 3 for sample Demand tracking register)			