

	Specification	Kusile Power Station Project
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


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1. INTRODUCTION

This document outlines the documents that should be ready and available at commercial operation of units at the Kusile Power Station.

2. SUPPORTING CLAUSES

2.1 SCOPE

This document entails the list of documents that will make up the documentation handover package for each system to be handed over to the Kusile Power Station Generation Team (GX) by the Kusile Execution Team (KET) via SmartPlant Owner Operator (SPO) electronically, and hard copies, as agreed.

Documentation required for handover will be divided into the following two categories:

- Category 1 – list of minimum documentation required to operate and maintain the plant as defined and agreed upon by GX and KET.
- Category 2 – list of complete documentation requirements as stipulated in the VDSS of each contract.

*Please note that not all documentation will be handed over into the SPO O&M environment. The documents that will reside in the Design vs. O&M environment are noted in the appendices as (D) for the design environment and (O) for the O&M environment. Access to the information in either environment will be available to the relevant GX staff.

For the purpose of handover, KET must ensure that 2 hard copies and 1 electronic copy of the documents (if applicable) listed in Appendix A and Appendix B are provided.

2.1.1 Purpose

The purpose of this guideline is to document the agreement between the KET and GX on the documentation required per discipline, per system at handover of each commercial unit.

2.1.2 Applicability

This document shall be implemented by all people working for Kusile Power Station Project.

2.1.3 Effective Date

01 September 2017

2.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

N/A

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2.2.2 Informative

[1] GGG0806	Generic Plant Breakdown
[2] 240-7210055	Engineering Management Framework and Operating Model
[3] 240-124499765	Kusile Project Documents and Records Retention Guideline
[4] ISO 9001:2008	Quality Management System – Requirements
[5] SANS 10007:2004	Quality Management Systems for Configuration Management
[6] 474-190	Design Base Standard

2.3 DEFINITIONS

Quality control (QC)	A process that forms part of the quality management system focused on fulfilling quality requirements.
Document	Any written, recorded or pictorial data which describes, illustrates, defines, specifies, reports or certifies project information.
Documentation Centre	The documentation administration and storage area holding all documents belonging to the project.
Handover Package	A file consisting of all documents related to a specific system which gets handed over to GX as per the documentation requirement.
Electronic Records	Information which is generated electronically and stored by means of computer technology.
Main Documentation Centre	The central documentation storage and administration area of a business holding all received documents generated by suppliers and those generated internally.
Review	The process of considering whether the contents of the current document version are still valid, need a revision, no longer applicable, or are replaced by other documents.
Reviewer	A person who checks the correctness and appropriateness of the contents of the documents before authorization of the document.
SHEQ Management System	Any OHSAS 18001, ISO 14001 and/or ISO 9001 based or aligned to the SHEQ Management System.
Stakeholder	Any group or individual who can affect or is affected by the content of the document or record.
Tags	Tags are a means of identifying equipment using a KKS code. In our context, tags form the equipment or component level of the plant breakdown structure (PBS).

2.3.1 Classification

Controlled disclosure

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2.4 ABBREVIATIONS

CO	Commercial Operation
COC	Certificate of Compliance
FMECA	Failure Mode Effects and Criticality Analysis
GX	Generation
HAZOP	Hazard and Operation Study
ISO	International Organization for Standardization
KET	Kusile Execution Team
KKS	Kraftwerk –Kennzeichen System
P&ID	Piping and Instrumentation Diagram
PBS	Plant Breakdown Structure
QAD	Quality Assurance Department
QMS	Quality Management System
VDSS	Vendor Document Submittal Schedule
SANS	South African National Standard
SHE	Safety, Health & Environment
SPO	SmartPlant Owner Operator

2.5 ROLES AND RESPONSIBILITIES

2.5.1 Documentation Manager

- Document the documentation handover process between KET and GX.
- Coordinate documentation handover process between KET and GX.

2.5.2 Configuration Manager

- Provide the status accounting for all handover documentation.
- Ensure that all plant configuration information (KKS - PBS and tags) is correctly loaded and is linked to the configuration item and documentation.

2.5.3 Project Engineering Manager

- Ensure that documentation required for handover is agreed upon between the KET and GX.
- Ensure that the Engineering stakeholders have reviewed the list of documents in Category 1 and Category 2.

2.5.4 GX Team

- Ensure that documentation required for handover is defined and agreed upon with KET.
- Participate and coordinate the documentation handover process.

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Mildred Nyoka	Contracts Management
Manake Dikobe	Quality Management
Shamita Jagjiwan	System Integration Management
Yuvir Gokul	Engineering Design Work Lead
Grace Olukune	Project Engineering Management
Tumiso Railo	Project Engineering Management
Lerato Thindeka	Project Commissioning

5. REVISIONS

Date	Rev.	Compiler	Remarks
January 2016	0	Makwena Makgwane	First issue
July 2017	1	Makwena Makgwane	Document number change, added Category 2 list

6. DEVELOPMENT TEAM

The following people were involved in the development of this document

- Makwena Makgwane

7. ACKNOWLEDGEMENTS

Thanking the review team for their support and input in developing this document.

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2.6 PROCESS FOR MONITORING

Adherence to this document shall be monitored throughout the execution or the construction of the Kusile Power Station Project. Reviews shall be conducted to verify compliance.

2.7 RELATED/SUPPORTING DOCUMENTS

[7]	240-128515868	Category 1 Documentation Handover List
[8]	240-128515910	Category 2 Documentation Handover List
[9]	240-129703805	Handover Review Process Work Instruction

3. DOCUMENT CONTENT

3.1 DOCUMENTATION HANDOVER STRUCTURE

3.1.1 Documentation Handover

The documentation handover process will commence with the handover of Category 1 documentation to GX. The handover of documents will take place as per the Eskom Generic Plant Breakdown Structure (PBS).

The detailed handover process with clear roles and responsibilities has been documented within the Handover Review Process Work Instruction (240-129703805).

3.1.2 Category 1 Documentation

For each system, a documentation handover package made up of the documents (if applicable) listed in Appendix A, will be submitted to the project Doc Centre in preparation of the documentation handover to GX.

3.1.3 Category 2 Documentation

Appendix B outlines the detailed requirements for Category 2 documents. For each system, an assessment will be made by the relevant Engineering and Contract Management representatives to identify Category 2 documents applicable and also those that have been provided for within each contract. The identified and available documents will be handed over within 6 months of commercial operation (CO) of the unit to GX.

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation
Joseph Ngqendesha	Generation: Design & Specifications Management

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APPENDIX A: CATEGORY 1 DOCUMENTATION HANDOVER LIST

1. Engineering Documentation

- 1.1. Specification (Employer's Contract) (D)
- 1.2. Integrated Design Review Reports (D)
- 1.3. Pre Commissioning Review Reports (D)
- 1.4. Handover Design Review Report (D)
- 1.5. Engineering Change Process Reports (D)

2. Final System Design Package

- 2.1. Operating / Control Philosophy (D)
- 2.2. HAZOP Reports (D)
- 2.3. FMECA and RAM Studies Reports (D)
- 2.4. As built P&ID (O)
- 2.5. Process Flow Diagrams (O)
- 2.6. Isometric Drawings (O)
- 2.7. Equipment Detailed Drawings (O)
- 2.8. Site Layout Drawing / Location Drawing (O)
- 2.9. Floor Layout Drawing per Building (O)
- 2.10. Room Layout Drawings (O)
- 2.11. Air duct & HVAC Layout (O)
- 2.12. Cable Layout (O)
- 2.13. Drainage Layout (O)
- 2.14. Earth Mat Layout (O)
- 2.15. Equipment List (O)
- 2.16. Instrument List (O)
- 2.17. Punch List (D)
- 2.18. Buildings List (D)
- 2.19. Bill of Materials (D)
- 2.20. Signal List (O)
- 2.21. Single Line Drawings (O)
- 2.22. Cable Schedules (O)
- 2.23. Cable Block Diagrams (O)
- 2.24. Load Schedules/Load Lists (O)
- 2.25. General Arrangements (GA) (O)
- 2.26. Wiring Diagrams (O)

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- 2.27. Circuit Diagrams (O)
 - 2.28. Schematic Diagrams (O)
 - 2.29. Termination Diagrams (O)
 - 2.30. Detailed Design Drawings (O)
 - 2.31. Functional / Logic Diagrams (O)
 - 2.32. Set point and Parameter list (O)
 - 2.33. Alarm List/Trip & Alarm Schedules (O)
 - 2.34. Material Specifications (O)
 - 2.35. Welding Specifications (O)
 - 2.36. Design Calculations (D)
 - 2.37. Design Specifications (D)
- 3. Operating and Maintenance Documentation**
- 3.1. Maintenance Manuals (O)
 - 3.2. Operating Manuals (O)
 - 3.3. Technical Manuals (O)
 - 3.4. Spares List (O)
 - 3.5. Operating and Maintenance Requirements (O)

4. Commissioning Documentation

- 4.1. Commissioning Procedure / Manual (O)
- 4.2. Handover Certificate (O)
- 4.3. Commissioning Certificate (O)

5. Project Execution**5.1. MECHANICAL**

- 5.1.1. Contractor's Application for Eskom's Inspection of the Works/Part of Works (D)
- 5.1.2. Data Pack (e.g. Material Certificates, Qualifications, NDE and Welding Documentation, Isometrics Drawings, Cutting Instructions, Factory Design Review Reports, C&I Loop checks, Material Safety Data sheets, Site Test results, Site Test results etc.) (O)
- 5.1.3. Partial/final inspection certificate (D)
- 5.1.4. Defects Notification Certificate/ Clearance (D)
- 5.1.5. Safety and Housekeeping Certificate (D)
- 5.1.6. Safety Clearance Certificate (D)
- 5.1.7. Completion Certificate (D)
- 5.1.8. Defects Certificate (D)

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- 5.4.2. Data Pack (e.g. Material Certificates, Qualifications, NDE and Welding Documentation, Isometrics Drawings, Cutting Instructions, Factory Design Review Reports, C&I Loop checks, Material Safety Data sheets, Site Test results, Site Test results etc.) (O)
 - 5.4.3. Partial/final inspection certificate (D)
 - 5.4.4. Defects Notification Certificate/ Clearance (D)
 - 5.4.5. Safety and Housekeeping Certificate (D)
 - 5.4.6. Safety Clearance Certificate (D)
 - 5.4.7. Completion Certificate (D)
 - 5.4.8. Defects Certificate (D)
 - 5.4.9. Take Over Certificate (D)
 - 5.4.10. Specific Requirements (D)
 - 5.4.11. KKS and Labelling Certificate (D)
- 6. Test and Statutory Certificates**
- 6.1. Factory Acceptance Test (FAT) (D)
 - 6.2. Site Acceptance Test (SAT) (D)
 - 6.3. Inspection Test Procedures (ITP's) (D)
 - 6.4. QCP's / QIP's (signed off) (D)
 - 6.5. COC (Domestic Circuits) (D)
 - 6.6. Electrical Tests – Motors (D)
 - 6.7. Calibration Certificates (D)
 - 6.8. Erection Check Sheets (D)
 - 6.9. Protection and Optimising Test Certificates (D)
 - 6.10. Fire Protection Certificates (D)
 - 6.11. Other (Safety valves, Ventilation, Boiler Statutory Tests, Transformer Impact Recording, Boiler Registration Certificate, Type Test Certificates) (D)
 - 6.12. Synchronisation Tests (D)
 - 6.13. Grid Code Compliance Certificate (D)
 - 6.14. Defects List (D)

7. Safety Requirements

- 7.1. Safety Signs, Labels and Colour Coding (D)
- 7.2. Demarcation of Hazardous Areas (Certificates & Reports) (D)
- 7.3. Lighting (D)
- 7.4. Safety and Housekeeping Certificate (D)

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- 5.1.9. Take Over Certificate (D)
- 5.1.10. Specific Requirements (D)
- 5.1.11. KKS and Labelling Certificate (D)

5.2. C&I

- 5.2.1. Contractor's Application for Eskom's Inspection of the Works/Part of Works (D)
- 5.2.2. Data Pack (e.g. Material Certificates, Qualifications, NDE and Welding Documentation, Isometrics Drawings, Cutting Instructions, Factory Design Review Reports, C&I Loop checks, Material Safety Data sheets, Site Test results, Site Test results etc.) (O)
- 5.2.3. Partial/final inspection certificate (D)
- 5.2.4. Defects Notification Certificate/ Clearance (D)
- 5.2.5. Safety and Housekeeping Certificate (D)
- 5.2.6. Safety Clearance Certificate (D)
- 5.2.7. Completion Certificate (D)
- 5.2.8. Defects Certificate (D)
- 5.2.9. Take Over Certificate (D)
- 5.2.10. Specific Requirements (D)
- 5.2.11. KKS and Labelling Certificate (D)

5.3. ELECTRICAL

- 5.3.1. Contractor's Application for Eskom's Inspection of the Works/Part of Works (D)
- 5.3.2. Data Pack (e.g. Material Certificates, Qualifications, NDE and Welding Documentation, Isometrics Drawings, Cutting Instructions, Factory Design Review Reports, C&I Loop checks, Material Safety Data sheets, Site Test results, Site Test results etc.) (O)
- 5.3.3. Partial/final inspection certificate (D)
- 5.3.4. Defects Notification Certificate/ Clearance (D)
- 5.3.5. Safety and Housekeeping Certificate (D)
- 5.3.6. Safety Clearance Certificate (D)
- 5.3.7. Completion Certificate (D)
- 5.3.8. Defects Certificate (D)
- 5.3.9. Take Over Certificate (D)
- 5.3.10. Specific Requirements (D)
- 5.3.11. KKS and Labelling Certificate (D)

5.4. CIVIL

- 5.4.1. Contractor's Application for Eskom's Inspection of the Works/Part of Works (D)

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- 8. Guarantees and Warrantees
- 8.1. Related Extract from SOW or Works Information Indicating Plant area/Component (D)
- 8.2. Certificate from Supplier indicating validity of the Guarantee/Warrantees Period (D)

9. Special Tools List (O)**10. Insurance Cover (90 Days Notification Period) (D)****11. Plant Out of Normal Status Approved**

- 11.1. Approved Out of Normal Status (D)
- 11.2. Out of Normal Status (Pending Approval) (D)

12. Training

- 12.1. Training Manuals (O)
- 12.2. Proof of Training (D)
- 12.3. Competency Declarations
 - 12.3.1. Plant Safety Regulations (D)
 - 12.3.2. High Voltage (HV) Regulations (D)
 - 12.3.3. PFFR (D)
 - 12.3.4. Other (D)

13. Provisional Hand Over Certificate

- 13.1. Provisional (D)
- 13.2. Pending Approval (D)
- 13.3. Approved (D)

14. Final Hand Over Certificate

- 14.1. Provisional (D)
- 14.2. Pending Approval (D)

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14.3. Approved (O)**8. APPENDIX B: CATEGORY 2 DOCUMENTATION HANDOVER LIST****1. Engineering Documentation**

- 1.6. Risk Assessments (D)
- 1.7. Non-Conformance Management (D)
- 1.8. ECN/FCN/Engineering Instructions (D)
- 1.9. Other Documentation and Reports (D)

2. Final System Design Package

- 2.39. Alarm Response Procedures (O)
- 2.41. Design Philosophy (D)
- 2.42. Material, Mass & Energy Balance Diagrams (D)
- 2.43. Control System IT Architecture (D)
- 2.44. Plant Protection Logics (O)
- 2.45. Safety Studies (D)
- 2.46. Plant System/Process Description (D)
- 2.47. Design assumptions (D)
- 2.48. Trade-offs (D)
- 2.49. Software Listing (D)
- 2.50. Load Flows (D)
- 2.51. Fault studies (D)
- 2.52. Cable Routing software (D)
- 2.53. CAD software data files (D)
- 2.54. Simulations (D)
- 2.60. Other Documentation (D)

3. Operating and Maintenance Documentation

- 3.6. Maintenance Instructions (O)
- 3.7. Operating Instructions (O)
- 3.8. Commissioning / Shutdown Procedures (O)
- 3.9. Storage and Handling (O)
- 3.10. Installation, Operating & Maintenance Manuals (IOM's) (O)

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3.11. Datasheets and Product Brochures (O)

3.12. Licences & Approvals (Regulatory, Statutory) (O)

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