**Section 2**

**DAM SAFETY MANAGEMENT SYSTEM TEMPLATE**

**TEMPLATE TO GENERATE DSMS MANUAL**

NOTE: This template is available to Local Water Utilities that are members of the Water Directorate as a Word Document for ease of use. This is supplied in an accompanying document.

For typical responses, refer to the following **Section 3: Sample DSMS Manual**. Note throughout the Template ‘Reg’ refers to clauses in the Dam Safety Regulation and ‘Std’ refers to clauses in ISO 55001.

|  |  |
| --- | --- |
| 1. **INTRODUCTION** | **(Refer Std: Clauses 4.2, 4.4, 5.1 and 8.1)** |
| Water Utility/Council name | Insert your details throughout the template  See 1 in Section 3 **Sample DSMS Manual**, for an example of wording |
| DSMS reference (Title, date, location) |  |
| Acknowledgement that you are following the Global Asset Management Standard, AS ISO 55001 (‘**the Asset Management Standard**’). |  |

|  |  |
| --- | --- |
| 1. **THE DAM & ITS CONTEXT**   **2.1 DAM CHARACTERISTICS** | **(Refer Std: Clauses 4.1 and 4.2)**  See 2.1 in Section 3 **Sample DSMS Manual** for an example of wording |
| Name |  |
| Location |  |
| River/stream |  |
| Owner |  |
| Dam catchment |  |
| Wall height: |  |
| Storage volume: |  |
| Material stored: |  |
| Purpose: |  |
| Type: |  |
| Overtopping/overflow protection: |  |
| Engineering/construction: |  |
| **Consequence categories:**  Sunny day consequence category  Flood consequence category  Note: Categories determined by Consulting Dams Engineer (see Section D below), as per Clauses 6 and 7 of Regulation. | Insert likely consequences (refer Section 3 for typical wording)  Insert likely consequences (refer to Section 3 for typical wording)  Insert Name of Consulting Dams Engineer |

|  |  |
| --- | --- |
| **2.2 HISORY AND OWNERSHIP** | **(Std: Clause 8.2)**  Insert details  See 2.2 in Section 3 **Sample DSMS Manual**, for an example of wording |

|  |  |
| --- | --- |
| **2.3 DAM’S STATUS** | **(Std: Clause 8.2)**  See 2.3 in Section 3 **Sample DSMS Manual**, for an example of wording |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **2.4 STAKEHOLDERS** | **(Reg: Clauses 12, 13 and 14; Std: Clauses 4.2 and 9.1)**  See 2.4 in Section 3 **Sample DSMS Manual** for an example of wording | | | | |
| **Type of Stakeholder** | **Stakeholder name** | **Location/ position** | **Number of stake holders** | **Potential impact** | **Contact type, frequency** |
| Insert Council/ LWU Owner | Employees  Council/ LWU name | Onsite  Onsite | Insert no. | Bodily harm, private property  Commercial | Verbal, annual  N/A |
| Residential | Neighbours (smallholdings) | Downstream | Insert no. | Bodily harm, private property | Email, annual |
| Small businesses | List businesses affected | Downstream | Insert no. | Bodily harm, commercial | Email, annual |
| Organisations | Regulator | Offsite | 1 | Legal | As per regulation |
|  | Insert any downstream users (for example irrigators) | Downstream | Insert no. | Environmental | Email, annual |
|  | Insert Council/LWU name | Owner | Insert no. | Legal | Email, annual |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2.5 REGULATORY ENVIRONMENT** | **Required dam safety review actions (Std: Clauses 4.2, 7.5 and 9.1 )**  See 2.5 in Section 3 **Sample DSMS Manual** for an example of wording | | | |
| **Area** | **Scope** | **Frequency** | **When**  (Insert appropriate dates) | **By Whom**  (Insert appropriate names) |
| DSMS review | Cl.17 and  ISO 55001 – Cl.9.3 | Annually | in June | Management and key staff |
| OM Plan – update | Cl.9 | 5 years |  | Competent dams engineer |
| EM Plan – update contact details | Cl.10(5) | Annually | in June | Management |
| EM Plan – general update | Cl.9 | 5 years |  | Management |
| EM Plan – Emergency exercise | Cl.22  (theoretical only) | 3 years |  | Management |

|  |  |
| --- | --- |
| **3. DAM SAFETY MANAGEMENT OBJECTIVES** | **(Reg: Clauses 12, 13 and 14; Std: Clauses 4.1, 5.1, and 6.2.1)**  See 3 in Section 3 **Sample DSMS Manual** for an example of wording |
|  | Insert objectives outlined in Section 1: General Information |

|  |  |
| --- | --- |
| **4. DSMS SCOPE** | **(Reg: Clause 13; Std: Clauses 4.3, 4.4 and 6.2.2)**  See 4 in Section 3 **Sample DSMS Manual** for an example of wording |

|  |  |
| --- | --- |
| **4.1** **CRITERIA** | Insert criteria as outlined in Section 1: General Information  See 4.1 in Section 3 **Sample DSMS Manual** for an example of wording |

|  |  |
| --- | --- |
| **4.2 THE DAM & ITS IMMEDIATE ENVIRONMENT** | Insert details of key components, including dam wall (including geographic components); spillway; catchment area including any rivers and/or creeks  See 4.2 in Section 3 **Sample DSMS Manual** for an example of wording |

|  |  |
| --- | --- |
| **4.3 ROLES & FUNCTIONS** | **(Std: Clauses 5.3, 6.2.2, 7.1 and 10.2)**  Certify that all the people in key roles understand their roles and functions  See 4.3 in Section 3 **Sample DSMS Manual** for an example of wording |
| **Owner Council/LWU** (Insert name) | * Ensure that Regulation followed * Provide necessary funds/resources * Ensure dam manager has adequate DSMS skill set * Overall responsibility for O&M Manual and Emergency Manual * Liaise with the Regulator |
| **Manager**  (Insert name) | * Enact O&M manual * Conduct monthly visual inspections of dam * Ensure staff know/practice incident reporting requirements * Notify owner immediately of any significant problems/issues * Oversee dam maintenance * Provide access to inspectors/contractors |
| **Consulting Dams Engineer** (Insert Name) | * Conduct inspections of dam as requested * Measure for significant changes/movement of structure * Report on an exception basis |
| **Hired Experts**  (Insert Names) | * Deliver reports as requested/specified by the LWU * Write O&M and Emergency Manual |

|  |  |
| --- | --- |
| **4.4 INFORMATION SYSTEMS** | **(Std: Clauses 6.1, 7.5, 7.6.1, 7.6.2, 7.6.3, 8.1 and 9.1)** |
| Insert details of organisation’s information systems  See 4.4 in Section 3 **Sample DSMS Manual** for an example of wording | |

|  |  |
| --- | --- |
| **4.5 DOCUMENTARY ELEMENTS** | **(Std: Clauses 5.1 and 7.6.1)**  Insert details of documents and procedures outlined below  See 4.5 in Section 3 **Sample DSMS Manual** for an example of wording |
| **Documentary Element** | **Detail & Regulatory Connection** |
| * Policy | Statement of practical commitment to meet requirements of Regulation |
| * O&M Plan | Record of O&M procedures required to meet the Regulation |
| * Emergency Plan | Documented dam information/procedures re potential failure of the dam (see Clause 10 of the Regulation). |
| * DSMS Manual | Master document describing DSMS.  DSMS’ purpose is to meet the overarching aims of the Act (see Clause 3) and the specific requirements set out in the Regulation. |

**5. RISK MANAGEMENT (Reg: Clauses 13–15; Std: Clauses 4.1, 6.2.2 and 8.1)**

Refer to 5 in **Section 3 Sample DSMS Manual** in for information required in the strategy with respect to risk management.

**6. INCIDENT REPORTING (Reg: Clause 19; Std: Clauses 6.2.2 and 8.1)**

Refer to 6 In Section 3 for information required in the strategy with respect to incident reporting.

**7. SAFETY REVIEW (Reg: Clauses 13 and 20; Std: Clauses 6.1, 6.2.2, 8.1, 9.1 and 10.2)**

Refer to 7 in Section 3 for information required in the strategy with respect to the requirements for safety review.

8. NOTIFICATION OF CHANGES (Reg: Clause 21; Std: Clauses 6.2.2, 8.1 and 8.2)

Refer to 8 in Section 3 for information required in the strategy with respect to the requirements for notification of changes.

9. COMPLIANCE WITH THE ASSET MANAGEMENT STANDARD—ISO 55001 (Reg: Clause 13; Std: Clauses 5.1, 6.2.2 and 8.1)

Refer to 9 in Section 3 for information required in the strategy with respect to the requirements for compliance with asset management standard 1SO 55001.

**10. RESOURCES FOR DSMS (Reg: Clauses 9, 10, 12 and 13; Std: Clauses 5.1, 5.3, 6.1, 6.2.2, 7.1, 7.3 and 7.4)**

Refer to 10 in Section 3 for information required in the strategy with respect to the requirements for compliance with resources.

**11. COMPETENCE (Std: Clause 7.1 and 8.1)**

Refer to 11 in Section 3 information required in the strategy with respect to the requirements for compliance with competence.

**12. OUTSOURCED ACTIVITIES (Std: Clause 8.3)**

Refer to 12 in Section 3 for information required in the strategy with respect to the requirements for compliance with outsourced activities.

**13. PERFORMANCE EVALUATION & IMPROVEMENT (Std: Clauses 6.1, 6.2.2, 9.1, 10.1, 10.2 and 10.3)**

Refer to 13 in Section 3 for information required in the strategy with respect to the requirements for compliance with performance evaluation and improvement.

|  |  |
| --- | --- |
| **14. INTERNAL AUDIT CHECKLIST** |  |
| **14.1: ISO 55001 ADVICE & COMPLIANCE REQUIREMENTS**  ISO 55001 (Asset Management Standard) Compliance Map | Note: 14.1 outlines the Clauses in ISO 55001 that LWUs are required to comply with - and is a checklist.  Please also refer to Section 3 **Sample DSMS Model** to review the Section numbers presented in Column 2 below. |

|  |  |  |  |
| --- | --- | --- | --- |
| **ISO 55001 REQUIREMENTS** | | **DSMS MANUAL COVERAGE REFERENCES** (numbers refer to both the Template and the Sample DSMS Manual) | **COMMENT** |
| **4.1** | **Context of the organisation** *Understanding the organisation and its context* | Section 2.1 Dam's characteristics  Section 5 Risk Management, Section 3 DSM Objectives, Policy |  |
| **4.2** | **Context of the organisation** *Understanding the needs and expectations of stakeholders* | Policy;  Section 1 Introduction;  Section 2.4 Stakeholders | This is primarily adherence to the Regulation. |
| **4.3** | **Context of the organisation** *Determining the scope of the asset management system* | Section 4 DSMS Scope |  |
| **4.4** | **Context of the organisation** *Asset management system* | Section 1 Introduction;  Section 4 DSMS Scope |  |
| **5.1** | **Leadership** *Leadership and commitment* | Policy;  Section 1 Introduction;  Section 3.2 Objectives;  Section 4.5 Documentary Elements,  Section 5 Risk Management, Section 9 Compliance with AS ISO 55001;  Section 10 Resources for DSMS;  Section 13 Performance Evaluation and Improvement | The DSMS Manual is the SAMP. |
| **5.2** | **Leadership** *Policy* | Policy;  Section 13.4 Review of Management System |  |
| **5.3** | **Leadership** *Organizational roles, responsibilities and authorities* | Section 10 Resources for DSMS;  Section 4.3 Roles and Functions |  |
| **6.1** | **Planning** *Actions to address risks and opportunities for the asset management system* | Section 4.4 Information Systems,  Section 5 Risk Management, Section 6 Incident Reporting, Section 7 Safety Review,  Section 10 Notification of changes,  Section 13 Performance Evaluation and Improvement |  |
| **6.2.1** | **Planning** *Asset management objectives and planning to achieve them* **-** Asset Management Objectives | Section 3 DSM Objectives, Section 13.4 Review of Management System |  |
| **6.2.2** | **Planning** *Asset management objectives and planning to achieve them* **-** Planning for asset management | Comprehensive relevance throughout most of the DSMS Manual | Refer also to the Emergency Plan and Operations and Maintenance Plan which are the Asset Management Plans. |
| **7.1** | **Support** *Resources* | Policy;  Section 4.3 Roles and Functions,  Section 10 Resources for DSMS | Policy commitment translates to commitment that the resources will be provided. |
| **7.2** | **Support** *Competence* | Section 11 Competence,  Section 13.4 Review of Management System. |  |
| **7.3** | **Support** *Awareness* | Section 10 Resources for DSMS |  |
| **7.4** | **Support** *Communication* | Section 10 Resources for DSMS |  |
| **7.5** | **Support** *Information Requirements* | Section 2.5 Regulatory environment - required dam safety review actions,  Section 4.4 Information Systems | Primarily as required by the Regulation; then as deemed suitable for recording in the Excel register. Technical information management detail stated in the Operations and Maintenance Plan. Consideration of information requirements is evident throughout DSMS Manual and Operations and Maintenance Plan. |
| **7.6.1** | **Support** *Documented Information -* General | Policy;  Section 4.4 Information Systems,  Section 4.5 Documentary Elements |  |
| **7.6.2** | **Support** *Documented Information -* Creating and Updating | N/A | Formal procedures not warranted due to size of the organisation. |
| **7.6.3** | **Support** *Documented Information -* Control of Documented Information | Section 4.4 Information Systems,  Section 13.4 Review of Management System |  |
| **8.1** | **Operation** *Operational planning and control* | Comprehensive relevance throughout most of the DSMS Manual | Refer also to the Emergency Plan and Operations and Maintenance Plan. |
| **8.2** | **Operation** *Management of change* | Section 2.2 Dam's History,  Section 2.3 Dam's status,  Section 5 Risk Management, Section 7 Safety Review,  Section 8 Notification of changes,  Section 13.4 Management Review |  |
| **8.3** | **Operation** *Outsourcing of asset management activities* | Section 12 Outsourced activities,  Section 13.4 Review of Management System | Refer also to the Emergency Plan and Operations and Maintenance Plan for aspects such as Competence, Awareness and Documentation and control of the activities. |
| **9.1** | **Performance evaluation** *Monitoring, measurement, analysis and evaluation* | Section 2.4 Stakeholders,  Section 2.5 Regulatory environment - required dam safety review actions;  Section 4.4 Information Systems,  Section 7 Safety Review;  Section 13 Performance Evaluation and Improvement | Refer also to the Emergency Plan and Operations and Maintenance Plan. |
| **9.2** | **Performance evaluation** *Internal audit* | Section 13.3 Internal audit |  |
| **9.3** | **Performance evaluation** *Management review* | Section 13.4 Review of Management System | Prescribed asset management requirements exist via the Regulation. |
| **10.1** | **Improvement** *Nonconformity and corrective action* | Section 13 Performance Evaluation and Improvement |  |
| **10.2** | **Improvement** *Preventive action* | Section 7 Safety Review;  Section 4.3 Roles and Functions,  Section 13 Performance Evaluation and Improvement |  |
| **10.3** | **Improvement** *Continual Improvement* | Section 13 Performance Evaluation and Improvement, Policy |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **14.2.1 DAM SAFETY INSPECTION AND REVIEW**  **AUDIT CHECKLIST** | Note: Subsections 14.2.1 and 14.2.2 are presented in the formats suggested for inclusion in your DSMS. | | |
| **Audit Question** | **Audit Findings**  **C- Compliant**  **OFI - Opportunity for improvement, CAR – Corrective Action Required,**  **NC- Non-conformity** | **Audit Evidence – reference to documentation** | **Opportunity for Improvement - Suggestions** |
| Are competence requirements defined? |  | (Insert relevant information throughout) |  |
| Is the person aware of competence requirements? |  |  |  |
| Is person aware of their responsibility? |  |  |  |
| Are inspection records retained? |  |  |  |
| Is the current inspection checklist being used? |  |  |  |
| Is person aware of specific requirements as detailed in the Operations and Maintenance Plan? |  |  |  |
| Is person aware of what action to take if a problem is identified? |  |  |  |
| Is person aware of what action to take if a questionable trend is noted? |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **14.2.2 DAM SAFETY MANAGEMENT SYSTEM AUDIT CHECKLIST** |  | | |
| **Audit Question** | **Audit Findings**  **C- Compliant**  **OFI - Opportunity for improvement, CAR – Corrective Action Required,**  **NC- Non-conformity** | **Audit Evidence – reference to documentation** | **Opportunity for Improvement - Suggestions** |
| Are key documents and records known and accessible? |  |  |  |
| Has the Management System Review been carried out as planned? |  |  |  |
| Are actions from the Management System Review being addressed in a timely and effective manner? |  |  |  |
| Are records with the Excel Workbook up to date? |  |  |  |
| Are competency requirements up to date? |  |  |  |
| Is the stakeholder table reflective of current circumstances? |  |  |  |
| Are identified risks being mitigated? |  |  |  |
| If any incidents have occurred, were they reported in writing to the Regulator within 72 hours? |  |  |  |

|  |  |
| --- | --- |
| **15. DSMS MANAGEMENT REVIEW MINUTES** | (Insert relevant information)  Refer to 15 in Section 3 for information required in the strategy with respect to the requirements for Management Review Minutes. |

(Insert LWU)  **DSMS Review Minutes** (Insert date)

**Reg: Clause 19; Std: ISO 55001**

1. **Status of actions from previous meeting**

|  |
| --- |
| Review of actions arising from meeting of (Insert date) |
| Review of minutes from meeting of (Insert date) |

1. **Changes in external and internal environment/issues Insert details below**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Discussion | | | | |
| Conclusion | | | | |
| **Action items** |  | **None** | **Person Responsible** | **Deadline** |
|  | | |  |  |
|  | | |  |  |
|  | | |  |  |

1. **Information on the performance and effectiveness of the DSMS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Discussion | | | | |
| Conclusion | | | | |
| **Action items** |  | **None** | **Person Responsible** | **Deadline** |
|  | | |  |  |
|  | | |  |  |
|  | | |  |  |

1. **Other actions required by the Asset Management Standard (AS ISO 55001)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Discussion | | | | |
| Conclusion | | | | |
| **Action items** |  | **None** | **Person Responsible** | **Deadline** |
|  | | |  |  |
|  | | |  |  |
|  | | |  |  |

NOTE:

On the following page is a sample Declaration to be signed by the General Manger/CEO and included at the start of your DSMS.

**DAM SAFETY MANAGEMENT POLICY**

**(Std: Clauses 4.1, 4.2, 5.1, 5.2, 6.2.2, 7.1 and 8.1)**

Given the existence of a declared dam on its property, (Insert Council/LWU Name) is legally bound under the *Dams Safety Act 2015* (‘**the Act**’) to meet the safety requirements that are outlined in the Dam Safety Regulation 2019 (‘**the Regulation**’).

(Insert Council/LWU Name) is therefore committed to implementing and continuously improving effective systems and procedures to meet the requirements of the Regulation.

In addition, (Insert Council/LWU Name) will incorporate this policy and its practical outworking within the company business plan. The business plan will also acknowledge that a failure of the dam would involve potentially significant legal, commercial, and reputational consequences.

Signed: …………………………….………………………….. (CEO/General Manager, Insert LWU)

Date: ………………………………….