FNCA SAFETY MANAGEMENT SYSTEM PROJECT

SELF-ASSESSMENT / PEER REVIEW

This first page in the template is a title page for the self-assessment or peer review report.

This message and the other messages in italics in the template can be deleted in the report.

FNCA SAFETY MANAGEMENT SYSTEM PROJECT
SELF-ASSESSMENT / PEER REVIEW

A INTRODUCTION

This tool is for the assessment of the Safety Management System within nuclear facilities. It can be used for self-assessment by the organisation and it can also be used for peer review by teams from other organisations. It has been developed by the FNCA project on Safety Management System (SMS) for Nuclear Facilities. It is generally based on nuclear industry safety guidance materials including IAEA GS-G-3.1 and the self-assessment / peer review tool used within the FNCA Nuclear Safety Culture project.

The self-assessment and peer review process is powerful because it benefits both the reviewed organisation and the organisations conducting the peer review. The self assessment process involves the reviewed organisation systematically examining their internal safety systems and performance and this provides a good basis for improvement in itself. The further peer review process makes use of the peer's knowledge and experience. This both identifies areas for improvement for the reviewed organisation and it shares with all involved the knowledge of the strengths in the system.

The self-assessment and peer review process considers both the structure and completeness of the SMS itself and on the performance i.e. implementation of the processes. This is needed because the there may be an area for improvement in the performance even when the SMS is sound. The converse is also true.

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B ORGANISATION / FACILITY

This section provides context about the organisation and nuclear facility to allow understanding the self-assessment / peer review of the facility.

1 Reviewed Organisation

Please provide simple descriptions here and attach organisation documents available in English to explain further.

Describe the organisation purpose, structure and main activities.

Briefly describe the main nuclear facilities operated by the organisation.

Summarise the history of development of the safety management system in the organisation. Include information on certifications to international standards such as ISO 9001 and national standards.

Where the particular nuclear facility being reviewed has a different history of development of the safety management system for the organisation, describe this.

2 Reviewed Facility

As discussed at the inaugural FNCA SMS project workshop in Sydney, it is likely that the reviewed facility will be a research reactor but this tool may also be applied (as appropriate) to other non-power nuclear installations or facilities.

Background information on the research reactors in each FNCA country is available from the IAEA Research Reactor Data Base (RRDB) on the IAEA web site. It is proposed that each country report on one research reactor or a small group of research reactors at one site or operated by one organisation, selected from the RRDB. The main selected reactor should preferably be currently operational or being maintained for an intended future operation. If no reactor is in one of these states, then a report on a reactor in shutdown or decommissioning status should be made. Where the nuclear facility is not a research reactor, equivalent information should be provided.

Please provide current information on the facility in the format of the IAEA Research Reactor Database and any other information that can be released which will help the peer review process.

Please provide a summary of the document structure of the SMS for the facility.

FNCA SMS PROJECT
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C ASSESSMENT

1 Management System

1.1 Integration

Best practice is reflected by the integration of arrangements for safety, health, environment, security and quality. Collectively these arrangements are the Safety Management System (SMS)*.

a) Are the organisational arrangements for safety, health, environment, security and quality fully integrated?

b) If they are not fully integrated, which aspects are not well integrated?

c) Are there areas where incomplete integration causes inefficiency or difficulty?

d) For areas where there is incomplete integration of safety, health, environment, security and quality, are there plans for improving the integration? What are these?

e) Other comments.

1.2 General

Best practice is reflected by an SMS that is known, understood and followed by everyone.

a) What are the lines of communication with the regulator for nuclear safety and radiation safety and are these documented?

b) How effective these are lines of communication?

c) What other external organisations are important for safety e.g. for emergency response or maintenance?

d) Are the lines of communication to these other external organisations clear and documented?

e) What is the process for reporting of accidents and incidents, near misses and safety concerns and what documents describe this process?

f) To what extent do individual workers feel empowered to report unsafe work?

g) What is the safety review and approval process for large projects and is this documented?

h) How does this safety review and approval process identify those projects requiring regulator approval?

i) How does the SMS ensure that workplace activities and jobs are properly planned and authorised?

j) How does the organisation and the facility keep up to date with nuclear industry best practice?

k) Other comments.

1.3 Safety Culture†

Best practice is demonstrated by an SMS which gives safety obvious high priority.

* Safety Management System will generally be used in a broad sense to include health and environment.
† This tool only considers the extent to which safety culture activities are documented in the SMS.

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a) What things in the documented SMS promote and support a strong safety culture?

b) Do the measures include tools to support individuals and teams to carry out their tasks safely and successfully, taking into account of the interaction between individuals, technology and the organisation?

c) Do the measures include means to reinforce a learning and questioning attitude at all levels of the organisation?

d) Do the measures include means by which the organisation continually seeks to develop and improve its safety culture?

e) Does the organisation evaluate the effectiveness of the measures and feedback the results of the evaluation to their activities?

f) Other comments.

1.4 Grading[‡]

Best practice is reflected by an SMS that is graded, with the complexity of the arrangements reflecting the risk to safety.

a) Is the process for review of accident / incident reports graded i.e. does this process allow for quick closure of reports where there is low risk?

b) Is the process for review safety changes graded i.e. does it allow approval of low-risk changes quickly and efficiently?

c) Are there areas where the SMS is not sufficiently detailed to achieve good safety? What are these?

d) Other comments.

1.5 Documentation[§]

Best practice is reflected by SMS documentation that has a clear structure, is appropriate to user expertise at each level, and is available as needed within the organisation.

a) How clear is the structure of the SMS?

b) What is the process for revision of the high-level safety documents e.g. safety policy?

c) How are changes to these high-level safety documents communicated to the facility staff?

d) What is the extent of involvement of the workers in writing the detailed job instructions?

e) Are the safety requirements made clear in these detailed working documents?

f) Other comments.

[‡] This is also called a "risk-based" approach.
[§] Documentation is also covered in section 4.

2 Management Responsibility

2.1 Management Commitment

Best practice is where senior management are openly committed to safety and the commitment is fully understood by all staff.

a) In what ways do senior management show commitment to safety?

b) Are these measures documented in the SMS?

c) What measures are taken to demonstrate the commitment to staff?

d) Other comments.

2.2 Interested Parties[**] (Stakeholders)

Best practice is where the organisation fully understands and addresses the needs of interested parties (stakeholders).

a) Does the SMS ensure that the organisation keeps up to date with safety regulations? How effective are these measures?

b) How does the facility keep up to date with IAEA safety requirements and guides?

c) Other comments.

2.3 Organisational Policies

Best practice is reflected by organisational policies that commit senior management achieving to good safety.

a) Do the organisation's safety, health, and the environment policies commit senior management to achieving good safety performance?

b) Other comments.

2.4 Planning[††]

Best practice is reflected by senior management planning that continually sets and reviews safety goals, strategies, plans and ambitious objectives.

a) Does the facility have clear safety goals, strategies and objectives?

b) How frequently are these reviewed?

c) Are the safety goals, strategies and objectives for the facility different from those for the overall organisation? How are these set?

d) Does **t**he SMS promote continual improvement?

e) Other comments.

[**] Interested parties are also called stakeholders. These are both external such as regulators, owners, suppliers and customers, and internal such as internal safety approval bodies.
[††] This section only considers safety planning by senior management.

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2.5 Responsibility and Authority

Best practice is reflected by an SMS which clearly communicates responsibility and authority for safety to all levels.

a) Is the responsibility for good safety clearly assigned to senior management in the SMS?

b) Does the SMS assign responsibility for good safety to working staff?

c) Does the SMS give working staff the authority to act (empowerment) in potentially unsafe situations?

d) Other comments.

3 Resource Management[‡‡]

3.1 Human Resources

Best practice is reflected by an SMS that uses all human resources effectively in achieving safety.

a) Are the necessary competencies for personnel performing work affecting nuclear safety and radiation protection determined?

b) What are the formal processes for training staff reactor operations, nuclear safety and radiation protection? Are all staff covered?

c) Do these training processes include formal accreditation?

d) Is the effectiveness of the training evaluated and improved continually?

e) How does the organisation ensure competent people are selected for reactor operations, nuclear safety and radiation protection?

f) Other comments.

3.2 Infrastructure

Best practice is where the infrastructure fully supports the safety requirements.

a) Does the organisation determine, provide and maintain the infrastructure, such as workspace and associated utilities, process equipment, and supporting services, to achieve nuclear safety and radiation protection?

[‡‡] The provision of resources, infrastructure and the working environment are not considered in detail in this tool.

4 Implementation of Generic Processes[§§]

4.1 Developing Processes and Process Management

Best practice is demonstrated by organisations which have simple processes that are continually improved. Examination of specific processes is in section 5.

a) Is the SMS generally simple and easy to understand? How could it be made clearer?

b) Is there evidence that continual improvements are being made to the SMS?

c) Is there evidence that the safety performance is showing continual improvement?

d) Other comments.

4.2 Generic Management System Processes

Best practice is reflected by simple, effective management processes that properly address safety.

4.2.1 Document control

a) Does the document control process include formal review and approval?

b) Are there any workplace activities that are not fully covered by procedures / instructions?

c) Is the document layout of working instructions clear and easy to read?

d) Do the working level documents make safety requirements clear to working staff? How is this done?

e) Are the working instructions easily available to all the staff who need to use them? Are they regularly used?

f) Is the process of revising working instructions effective and timely?

g) Other comments.

4.2.2 Safety Records

a) What measures in the SMS prescribe how safety records (e.g. incident reports and investigations) are controlled and kept?

b) Are there any safety areas where the record keeping should be increased i.e. more records should be kept?

c) Are there any areas where too many records kept?

d) How easy is it to retrieve safety information from the records? Can this be improved?

e) Other comments.

[§§] There are a number of operational processes important to safety including reactor operations and maintenance, radiation protection and nuclear safety. See the next section.

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4.2.3 Communication

a) How do senior management communicate with working staff?

b) How often do they use verbal communication i.e. face to face meetings?

c) What forms of written communication and electronic media are used by senior management?

d) Are there ways for working staff to present ideas and raise issues with management? How effective are these?

e) Other comments.

4.2.4 Management of organisational changes***

a) What significant organisational changes have there been over the past decade?

b) How were staff informed of these organisational changes?

c) Were there any major changes important to safety? Were these changes made smoothly?

d) Were there any changes which had an effect on regulatory approvals?

e) Other comments.

*** These organisational changes will include major changes to the organisation structure, major changes to the business management system and certification to external safety and other standards.

5 Performance of Specific Processes

A sound system will be reflected by good performance in the facility.

5.1 Operation and Maintenance

5.1.1 Planning

a) Are there clear processes for planning and coordinating operations and maintenance? What are they are they and how effective are they?

b) Does the structure of the operating organisation lead to good coordination between groups?

c) To what extent are contractors used?

d) Is there a maintenance plan or plans? What timeframes do these plans cover?

e) What level of preventive maintenance is there? How was this determined?

f) What steps are there to ensure that appropriate inspection and testing is performed?

5.1.2 Management of Reactor Operation and Maintenance

a) What meetings or other processes are there to coordinate day to day maintenance? How effective are these processes?

b) How are preventive maintenance requirements managed?

5.1.3 Monitoring, measurement and analysis of data

a) What analysis of maintenance records is performed?

b) What use is made of these analyses?

5.1.4 Feedback to the Planning

a) What steps are taken to ensure that operational experience is fed back into the operations and maintenance planning? How can this feedback be improved?

b) Other comments.

5.2 Radiation Protection

5.2.1 Planning

a) Are there clear radiation protection requirements?

b) What is the structure of the groups providing radiation protection services? Is there good coordination with operations?

c) Are the radiation protection personnel sufficiently independent from operations to ensure they are objective in performing their work?

d) Is there a radiation protection plan or plans? What timeframes do these plans cover?

5.2.2 ALARA

a) What steps are designed to ensure doses to workers are ALARA?

b) Are average worker doses decreasing?

5.2.3 Management of Radiation Protection

a) How effective are the processes for entry and exit from radiation areas?

b) Are there many incidents involving contamination of personnel? What is the procedure for investigating these incidents?

5.2.4 Handling of Radioactive Waste

a) What steps are taken to minimise the generation of radioactive waste?

b) How is this waste collected, treated and stored?

c) Can waste management be improved? If so, how?

5.2.5 Monitoring, measurement and analysis of data

a) What analysis of radiation records is performed?

b) What use is made of these analyses?

5.2.6 Feedback to the Planning

a) Are the radiation surveys updated based on experience?

b) What other steps are taken to ensure that radiation protection experience is fed back into the planning? How can this feedback be improved?

c) Other comments.

5.3 Emergency Preparedness

5.3.1 Planning

a) Are there clear requirements for all staff on how to behave in an emergency?

b) How are staff informed in an emergency and is this process fully effective?

c) Are there up to date lists of internal emergency contacts? Of external emergency contacts?

d) How was the emergency plan developed? Who is responsible for maintaining this?

e) Does the emergency plan make clear the interface arrangements for response by external emergency services?

5.3.2 Emergency Exercises and Drills

a) What high-level emergency exercises have there been in the last three years? How were these exercises planned?

b) Did these high-level exercises involve staff from outside the facility? Was there involvement by external emergency services from outside the organisation?

c) How often are low-level emergency drills (e.g. evacuation exercises) practiced?

5.3.3 Monitoring, measurement and analysis of data

a) How are emergency exercises and drills evaluated and who by?

b) Are the lessons learnt communicated to those concerned?

5.3.4 Feedback to the Planning

a) What other steps are taken to ensure that learning from emergency exercises is fed back into the planning? How can this feedback be improved?

b) How often are the emergency plans updated?

c) Other comments.

5.4 Other Key Safety Issues

5.4.1 Criticality Safety

a) What are the measures in place to ensure criticality safety?

b) How are the staff involved trained in criticality safety?

5.4.2 Operating Experience Feedback

a) How are investigation results and other safety data communicated back to staff?

b) What systems are there to get operating experience from outside facilities and organisations? Are there other opportunities?

5.4.3 Aging Management

a) Is aging management a significant issue in the facility? If so, what activities have been undertaken?

b) Have remaining life studies been undertaken? If so, what were the outcomes?

c) Is there a need or are there plans to increase aging management activities?

5.4.4 Safety of other activities

a) What procedures are in place to review and approve changes and new activities (e.g. experiments)? How effective are these procedures?

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b) Are there special procedures to review and approve changes involving the reactor itself?

c) Other comments.

6 Measurement, Assessment and Improvement

6.1 General

Best practice is where individuals at all levels continually review their work critically to find ways to improve.

a) What measures are there for working staff to improve safety?

b) Are these safety improvement processes widely used by working staff?

c) Are there are other ways to improve safety that could be implemented?

d) Other comments.

6.2 Monitoring and Measurement

Best practice is where the management system sets clear standards and monitors performance against them.

a) Does the SMS give clear safety standards for the facility? How are these standards communicated?

b) Is safety performance monitored and measured against standards?

c) Does the facility have safety key performance indicators (KPIs)? If so, what are they?

d) If the facility does have KPIs, are they effective in helping to improve safety?

e) Other comments.

6.3 Self-assessment

Best practice is demonstrated by an SMS with self-assessment processes that go beyond basic conformance to regulations and procedures.

a) Does the SMS include senior management activities (e.g. meetings) designed to assess safety performance?

b) Is there a process (or processes) to evaluate staff understanding of safety requirements? What are these?

c) What activities do working staff perform that are designed to assess and improve safety (e.g. workplace inspections)?

d) Are workplace inspections followed up quickly and effectively?

e) Do working staff feel comfortable raising safety issues? What evidence is there to support this conclusion?

f) Other comments.

6.4 Independent Assessment

Best practice is demonstrated by an organisation that seeks independent assessment of safety practices and performance.

a) What safety reviews of the facility are there by experts from elsewhere in the organisation?

b) Do these reviews go beyond simply assessing conformance to procedures and regulations?

c) What types of independent safety reviews by experts from outside the organisation have been performed? How often do these take place?

d) Do these independent assessments go beyond simply assessing conformance to procedures and regulations?

e) Would the facility benefit by more independent safety assessment? What further independent assessments might be beneficial?

f) Other comments.

6.5 SMS Review

Best practice is shown by an organisation where senior management critically review the management system itself on an ongoing basis.

a) How often is the SMS itself reviewed and is this frequently enough?

b) Is the process for review of the SMS formalised?

c) Who performs the reviews?

d) Other comments.

6.6 Non-conformances, Corrective and Preventive Actions

Best practice is shown by organisations that encourage "no-blame" reporting of non-conformances and regard these as opportunities for improvement.

a) Is there a "no-blame" culture in the facility which allows reporting of non-conformances?

b) Do the reporting processes allow reporting of preventive actions in addition to corrective actions?

c) Is there a formal process for identifying the underlying causes (often called root causes) of significant incidents and accidents? Is this always used? How effective is it?

d) Other comments.

6.7 Improvement

Best practice is demonstrated by an organisation that continually seeks to improve.

a) Has the facility been involved in any benchmarking studies of safety performance? If so what were they?

b) If there have been benchmarking studies, were they effective in improving safety performance?

c) Are there other opportunities for safety improvement activities?

d) Other comments.