"Understanding Principles and Concepts of Quality, Safety and Environmental Management System"

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1. WORKBOOK CONTENT

2. INTEGRATE WITH GOVERNANCE

All three Standards (Quality, Safety, and Environmental) require organisations to:-
a. Ensure their quality, safety and environmental objectives and plans are linked to or tied to and support the organisations Business and Operational plans and objectives;
b. The quality, safety and environmental systems should be incorporated into the organisations overall Management Systems.

The Quality (9001), Safety (4801), Environmental (14001) Management Systems cover specific aspects of an organisation, however it is logical to sit them directly under and integrate them into the organisations Governance, Compliance, Risk, Assurance and Continuity Management processes.

If you read, analyse and understand the intent, principles, concepts and requirements of the Quality (9001), Safety (4801) and Environmental (14001) Management System Standards they fit very closely to the intent, principles, concepts and requirements of the Australian Standards that cover Governance, Compliance, Risk, Assurance, Continuity.
These are:-
a. Governance (AS 8000, 8001, 802, 8003, 8004);
b. Compliance (AS3806)
c. Risk (AS/NZS 4360 & HB436)
d. Assurance (HB158 & 254)
e. Continuity (HB221)

The following Matrix is an example of how the specific requirements fit into these broader business standards:

Business Standard	Quality Clauses (9001)	Safety Clauses (4801)	Environmental Clauses (14001)
1. Governance (direction, structure, resources) (AS8000 Series)	5.1 Commitment 5.3 Policy 5.4.1 Objectives 5.4.2 Planning 5.5.1 Responsibilities 6.1, 6.3, 6.4 Resources 7.1 Planning for product realization 7.2.3 Communication	4.2 Policy 4.3 Planning 4.3.1 Plan for Hazard Mgmt 4.3.3 Objectives 4.3.4 OHS Mgmt Plan 4.4.1.2 Responsibilities 4.4.1.1. Provide Resources 4.4.3 Consultation, communication, reporting	4.2 Policy 4.3 Planning 4.3.1.Plan for Environmental Aspects 4.3.3. Objectives 4.4.1. Responsibilities 4.4.1. Provide Resources 4.4.3. Communications
2. Compliance (AS3806)	5.1 Meet customers and statutory requirements 7.2.1 Determine requirements 7.2.2 Validation of processes	4.3.2. Identify, access to and communicate, legal and other requirements 4.5.1.1. Monitor performance of management system and compliance to legislation	4.3.2. Identify, access to, legal and other requirements 4.5.2.1. Periodically evaluate compliance to legal requirements.
3. Risk (AS/NZS4360)	7.2.1. Determine requirements 7.2.2. Review requirements 7.4.1. Purchasing process 4.1. General requirements 7.5.1 Control of Production 8.2.4 Monitor & Measure 8.5.4 Preventive Action	4.1.1. Plan for & establish methodology for hazard mgmt and risk control. 4.4.6. Ensure hazards and associated risks are identified and controlled 4.4.3.3. Reporting 4.4.7 Emergency preparedness	4.3.1.Identify environmental aspects of all products, activities, services. 4.4.6 Operational Controls 4.4.7 Emergency Preparedness 4.4.3 Communications

Business Standard	Quality Clauses (9001)	Safety Clauses (4801)	Environmental Clauses (14001)
4. Assurance (HB158 and 254)	5.6 Management Review 7.1.3. Inspect purchased products 7.2.2. Review requirements 7.6. Decide what monitoring and measurements to ensure compliance to clause 7.2.1. 8. Measurement, Analysis 8.2.2. Internal Audits	4.3.3. Review Objective, targets 4.3.4. Mgmt plan review 4.4.5. document, data review 4.4.7. Emergency procedure review 4.5.4 OHSMS Audit 4.6. Management review	4.5.5. Internal Audit 4.4.7.Emergency procedures review 4.5.1. Monitoring & Measurement 4.5.2 Evaluation of Compliance, mgmt system and legal requirements 4.6. Management review
5. Continuity (HB221)	8.2.1 Customer Satisfaction 8.5. Improvement of system 8.5.2. Corrective action 8.5.3 Preventative action	4.4.3.3. Reporting general 4.5.2. Incident reporting ,investigation, corrective / preventative action 4.4.7. Establish emergency procedures	4.5.3.Non conformances corrective / preventative action 4.4.7.Emergency preparedness

You can see from the above it is logical and sound business practice to incorporate Internal Audit and Management Review into the Business overall assurance programme. The same goes for specific compliance, risk, continuity requirements of quality, safety, environmental standards. These should be incorporated into the overall business program for compliance, risk and continuity.

For Organisations to remain viable, to grow and to fulfil legislative/legal/other requirements they need to define how their business is managed and operated. They do this by establishing a formal management system that covers each business function and incorporates quality, safety and environmental management system requirements

3. ACHIEVING LEGISLATIVE REQUIREMENTS/OBLIGATIONS

Many say implementing a management system does not ensure compliance to legislation. This is only partly true. If you do not implement the system for the right reasons, do not resource it, do not identify and assess your compliance requirements, do not train your staff and do not measure, evaluate and enforce the system then you will not achieve compliance.

If you understand the requirements of the Australian Standards for Management Systems, identify and asses the processes used to produce your product and manage/operate your business, clearly define what standard you want to achieve, identify and assess all potential risks and integrate your compliance requirements you will achieve and exceed the minimum requirements/obligation of the legislation.

The Trade Practice Legislation requires you to "Ensure your product is safe when used for the purpose for which it was designed". The Workplace Health & Safety Legislation requires the CEO, Directors and others who take part in the management of the Organisation to "Ensure the organisation complies with the Act" and to "Ensure the health, safety and welfare of everyone directly or indirectly impacted by the organisations' activities". The Environmental Protection Legislation requires an Organisation to "protect the environment from Harm that may be caused by their processes or their product" and to "Ensure the organisation complies with the legislation.

Are not the above also key requirements of the Australian Standards for Management Systems?

4. FOCUS OF STANDARDS

Most people and organisations **believe** the **focus** of the standards are:

a. **Quality** Standard AS/NZS **ISO 9001** – Focuses on the **product or service** to client;
b. **Safety** Standard AS/NZS **4801** – Focuses on **safety** of the **workers**;
c. **Environmental** Standard AS/NZS ISO **14001** – Focuses on the **environment** impacted by the production process or service delivery process.

In **actual** fact the **focus** or **intent** is:

a. **Quality**

The quality standard establishes the principles and content of a management system which can apply to safety and environmental management systems. Quality docs **focus on ensuring** the **product or service meets the required specification** (the **client, industry and legislative specification**) in a **consistent manner**. **Quality** also **infers** that the **product is "fit for purpose"** and **safe when used**, **serviced**, **installed** for **what it is designed**. In other words, the producer or supplier of service is to test and ensure the item is safe when used properly. **Quality** can **also apply** to the **process used** to **produce** a **product** or service used **internally** by the organisation and **not just** those delivered to the **external client**.

b. **Safety**

The safety standard **covers** not only the **worker** it also covers the **product or service, plant, facilities, public or anyone** that **may be impacted** by the **activities** in the **production process, purchasing process, maintenance process or service delivery**. The standard **reinforces** the **requirements of the quality management systems**.

c. **Environment**

The environmental standard establishes the requirements for an environmental management system (based on ISO 9001) and **requires** the organisation to **identify** and **analyse** what the **impact** is on the **environment** by **their operations** in the following areas:

    (i).   purchasing;
    (ii).   production process;
    (iii).   whole of life impact of their product (use to disposal)(product whole of life);
    (iv).   maintenance; and
    (v)   energy use.

Isn't the above also the foundations/focus of legislation?

5. PRINCIPLES, GENERAL REQUIREMENTS OF STANDARDS

5.1. Quality (refer to ISO 9001and ISO 9004)

5.1.1. Fundamentals of Quality and Organisations (clause 0.1 and 0.2 of introduction section of both standards)

The adoption of a quality management system (QMS) should be:
a. **Strategic decision** of an organisation;
b. Designed and implemented **based on varying needs**, particular objectives, the products provided, the process employed and the size and structure of the organisation.

The quality standard is **not intended to imply uniformity** of structure of the system and documentation. The standard can be used by **internal** and **external parties**, including certification bodies, to assess the organisations ability to meet customer, regulatory and the organisations own requirements. The standard promotes the adoption of a **process approach** when developing, implementing and improving the effectiveness of a QMS, to enhance customer satisfaction by meeting customer requirements.

The purpose of an organisation is:
a. To **identify** and **meet the needs** and expectations of its customers and other interested parties (stakeholders needs) (people in the organisation, suppliers, owners, society) to **achieve competitive advantage**, and to do this in an effective and efficient manner; and
b. To **achieve, maintain and improve** overall **organisational performance** and **capabilities**.

The application of quality management principles (standard based on eight principles) not only provides direct benefits but also makes an **important contribution to managing costs and risks**. Benefit, cost and risk management considerations are important for the organisation, its customers and other interested parties.

The above is **depicted within figure 1** "model of a process based quality management system" **found on page vii of ISO 9004** and **page vi** of **ISO 9001**. *"Inputs - customer requirements → Outputs – customer satisfaction → Product Realisation → measurement / analysis / improvement → management responsibility → resource management → continuous improvement."*

In addition to this process based system the **methodology** known as "**Plan-Do-Check-Act**" (PDCA) can be applied to all processes. PDCA involved:
- Plan: establish the objectives and processes necessary to deliver results in accordance with customer requirements and the organisation's policies;
- Do: implement the processes;
- Check: Monitor and measure processes and product against policies, objectives and requirements for the product and report the results;
- Act: take actions to continually improve process performance.

5.1.2   Quality Principles

The eight (8) quality management principles are (clause 3 page 4 and 5 of ISO 9004):

a. ***Principle 1 – Customer Focus***
"Organisations depend on customers therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer expectations".
b. ***Principle 2 – Leadership***
"Leaders establish unity of purpose and direction of the organisation. They should create and maintain the internal environment in which people can become fully involved in achieving the organisations objectives".
c. ***Principle 3 – Involvement of People***
"People at all levels are the essence of an organisation and their full involvement enables their abilities to be used for the organisation's benefit".
d. ***Principle 4 – Process Approach***
"A desired result is achieved more efficiently when activities and related resources are managed as a process".
e. ***Principle 5 – System Approach to Management***
"Identifying, understanding and managing inter-related processes as a system contributes to the organisation's effectiveness and efficiency in achieving its objectives".
f. ***Principle 6 – Continual Improvement***
"Continual improvement of the organisation's overall performance should be a permanent objective of the organisation".
g. ***Principle 7 – Factual Approach to Decision Making***
"Effective decisions are based on the analysis of data and information".
h. ***Principle 8 – Mutually Beneficial Supplier Relationships***
"An organisation and its suppliers are inter-dependent and a mutually beneficial relationship enhances the ability of both to create value".

5.1.3   QMS General Requirements (ISO 9001, clause 4.1)

The organisation shall:

a. **Establish, document, implement and maintain a QMS** and **continually check** its **effectiveness**;
b. **Identify** the **processes** needed for the QMS and their **application throughout** the **organisation**;
c. **Determine** the **sequence** and **interaction** of these **processes**;

d. **Determine criteria** and **methods** needed to **ensure** that both the **operation** and **control** of these **processes** are **effective**;
e. **Ensure** the **availability** of **resources** and **information** necessary to support the operation and monitoring of these processes;
f. **Monitor**, **measure** and **analyse** these **processes**;
g. **Implement actions** necessary to **achieve planned results** and **continual improvement** of these **processes**;
h. These **processes** shall be **managed in accordance** with the **ISO 9001 standard**; and
i. Any **outsourced processes** that affects product conformity is to be **controlled** by the organisation and **identified within** the **QMS**.

5.2   Safety (refer standard AS/NZS 4801 and AS/NZS 4804)

5.2.1   Fundamentals of Safety (see foreword of AS/NZS 4801 and AS/NZS 4804)

The **adoption and implementation** of a range of effective occupational health and safety (OHS) **management actions** in a **systematic manner** can contribute to optimal outcomes for all interested parties.

Implementation of an **effective OHSMS** should primarily **lead** to a **reduction** of workplace **illness** and **injury**, **minimising** the **costs** associated with workplace **accidents**. OHSMS are used by organisations to **demonstrate**, internally and in some cases externally (via self declaration or certification / registration) that they are **systematically controlling the risks** to all persons affected by the organisation's activities, products or services.

AS/NZS 4804 provides **general guidance** on:
a. how to set up a OHSMS;
b. how to continually improve the OHSMS;
c. the resources required to set up and continually improve an OHSMS.

AS/NZS 4804 describes a **systematic management** approach that **can assist** in both **meeting legal requirements** and **lead to sustained improvement** in OHSMS performance. It does **not prescribe the type, format or style** of OHSMS. It gives **guidance** to any **size organisation** so that it will:
a. be **appropriate** for the organisation;
b. be i**ntegrated** with other systems and core functions of the organisation;
c. **improve** the organisation's overall performance; and
d. **assist** the organisation to **meet** its **legal responsibilities**.

AS/NZS 4801 is a **specification** standard that **establishes** a framework primarily for enabling independent external audits and reviews of an organisation's OHSMS but it can be used as a framework for internal audits.

AS/NZS 4801 specifies the **framework** for establishing a Management System and against which **external** auditors will **assess** an OHSMS. However these audits and reviews would not be sufficient to provide an organisation with assurance that its performance not only meets, but will continue to meet, its ethical, legal and policy requirements. The organisation needs to have an effective internal process to continually monitor and verify they are complying.

As for the quality standard, the Safety Standard **does not lay down** specific **methods** or **uniformity**. It **allows** the organization to **adapt** to **their needs, risks and legislations**. It is **based** on **process management**.

These **standards share common** management system **principles** with **EMS (ISO 14001)** and **QMS (ISO 9001)**. It is also **aligned** to the **risk management philosophies** and methods as set out in **AS/NZS 4360**.

An effective OHSMS needs to reflect OHS issues in the organisation in which it is used. The basis of the approach is shown in **figure 1** (AS/NZS **4801, page vi** and AS/NZS **4804, page vi**) OHS management system model – "OHS Policy – Planning – Implementation – Measurement and Evaluation – Management review – Continuous Improvement.

The **OHSMS model incorporates** the **following principles** within an upward spiral of continual improvement as part of the organisation's overall management system (**see figure 1 in foreword** of AS/NZS 4801 and AS/NZS 4804).

a. *Principle 1 – Commitment and Policy*
    "Organisation should define its OHS policy and ensure commitment to its OHSMS".
b. *Principle 2 – Planning*
    "Organisation should plan to fulfil its OHS policy, objectives and targets".
c. *Principle 3 – Implementation*
    "Organisation should develop the capabilities and support mechanisms necessary to achieve its OHS policy, objectives and targets".
d. *Principle 4 – Measurement and Evaluation*
    "Organisation should measure, monitor and evaluate its OHS performance, and take preventative and corrective action".
e. *Principle 5 – Review and Improvement*
    "Organisation should regularly review and continually improve its OHSMS, with the objective of improving its OHS performance".

As the OHSMS matures, **OHS considerations** should be **integrated** into all **business decisions**.

5.2.3   General Requirements (AS/NZS 4801, clause 4.1 page 6)

The organisation shall **establish and maintain** an **OHSMS in accordance** with the **requirements** of **Clause 4** and the **sub clauses** of the **standard**.

5.3.   Environmental (refer standard ISO 14001 and ISO 14004)

5.3.1   Fundamental of Environment (see the introduction section of both standards)

Organisations of all kinds are increasingly concerned with **achieving** and **demonstrating sound environmental performance** by **controlling** the **impacts** of **their activities**, products and services on the environment, consistent with their environmental policy and objectives.

The environmental performance of an organisation is of importance to internal and external interested parties. Achieving sound environment and performance requires organisational commitment to a **systematic approach and to continuous improvement** of an environmental management system (EMS).

International standards covering environmental management are intended to provide organisations with the elements of an **effective EMS** that can be **integrated with other management requirements** and help organisations achieve environmental and economic goals.

ISO 14004 describes the **elements** of an EMS and **provides** organisations with **guidance** on how to **establish, implement, maintain** or **improve** an **EMS**. ISO **14001 specifies requirements for an EMS** to **enable** an organisation to develop and implement a policy and objectives which **take into account legal requirements** and **information about significant** environmental **aspects**.

An EMS can substantially enhance an organisation's ability to anticipate, identify and manage its interactions with the environment, meet its environmental objectives and ensure ongoing compliance with applicable legal requirements and with other requirements to which the organisation subscribes. The success of the EMS depends on commitment from all levels and functions of the organisation, and especially from top management.

The structures, responsibilities, practices, procedures, processes and resources for implementing environmental policies, objectives and targets can be co-ordinated with existing efforts in other areas (eg. Operations, finance, quality, OH&S).

ISO 14001 is based on the **methodology** known as **Plan-Do-Check-Act (PDCA)**:

- Plan: establish the objectives and processes necessary to deliver results in accordance with the organisation's environmental policy;

- Do: implement the processes;
- Check: Monitor and measure processes against environmental policy, objectives, targets, legal and other requirements and report the results;
- Act: take actions to continually improve performance of the environmental management system (EMS).

This **methodology** is **depicted** in **figure 1 "EMS model** for this international standard" (**ISO 14001, page v**). This is the **same as** that of the safety standard AS/**NZS 4801, page vi**.

Many organisations manage their operations via the application of a **system of processes** and their interactions, which can be referred to as the "**process approach**". ISO 9001 promotes the use of the process approach. Since PDCA can be applied to all processes, the two methodologies are considered to be compatible.

The **level of detai**l and **complexity** of the environmental management system, the **extent of documentation** and the resources devoted to it **depends on a number of factors**, such as the **scope** of the system, the **size** of an organisation and the **nature** of its activities, products and services.

In other words the system will be different from organisation to organisation there is <u>NO</u> standard layout, content etc. and an auditor cannot force this onto the organisation they are auditing so long as they meet all requirements.

General Requirements

ISO 14001, A1 of Annex A requires an organisation to:

a. **Establish** an appropriate environmental **policy**;
b. **Identify** the **environmental aspects** arising from the organisations **past**, **existing or planned** activities, products and services in order to determine the environmental impacts of significance;
c. **Identify** applicable **legal requirements** and **other requirements** to which the organisation subscribes;
d. **Identify priorities** and **establish appropriate** environmental **objectives** and targets;
e. **Establish a structure** and **a program**(s) **to implement** the policy and achieve objectives and meet targets;
f. **Facilitate planning, control, monitoring, preventative** and **corrective actions, auditing** and **review activities** to ensure both that the policy is complied with and that the EMS remains appropriate; and
g. **Be capable of adapting to changing circumstances**.

ISO **14001, Clause 4.1** requires an organisation to:
"**Establish, document, implement, maintain and continually improve an EMS in accordance** with the **requirements of the standard** and **determine how** it **will fulfil these requirements**. They shall **also define** and **document the scope** of its EMS".

When **conducting an audit** this is **what the auditor** is **verifying they are doing**.

5.3.3   Key Tasks
(Taken from AS/NZS ISO 14004:2004 standard (foreword)).

Key tasks for managers establishing, implementing, maintaining or improving an environmental management system include the need to:

- recognise that environmental management is among the highest organisational priorities;
- establish and maintain communication and constructive relations with internal and external interested parties;
- identify the environmental aspects of the organisation's activities, products and services;
- identify the legal requirements and other requirements to which the organisation subscribes, that relate to the organisation's environmental aspects;
- ensure the commitment of management and all persons working for or on behalf of the organisation to the protection of the environment, with clear assignment of accountability and responsibility;
- encourage environmental planning throughout the product or service life cycle;
- establish a process for achieving environmental objectives and targets;

- provide appropriate and sufficient resources, including training, to comply with applicable legal requirements and with other requirements to which the organisation subscribes, and to achieve environmental objectives and targets on an ongoing basis;
- Evaluate environmental performance against the organisation's environmental policy, objectives and targets and seek improvement where appropriate;
- Establish a management process to audit and review the environmental policy, objectives and targets and seek improvement where appropriate;
- encourage contractors and suppliers to establish an environmental management system;

Organisation may use this international standard, or related ISO documents, in various ways, including:

- as guidance to establish, implement, maintain or improve its environmental management system, knowing that this international standard is not intended for self-declaration or other conformity assessment purposes, and
- in support of the implementation or improvement of its environmental management system.

6. FOUNDATION OF THE STANDARDS

All three standards have the following as their foundation:

a. **Process** and **system methodology**;
b. **Integrate** quality, safety and environmental requirements **into** the **business**, **its functions** and **processes**;
c. **Direction** established **through planning, policy, objectives** and targets;
d. **Commitment** and **involvement by all** and especially senior management;
e. **Provision** of "**fit for purpose**" **resources** and **competent staff**;
f. **Identification** of **risk** and **elimination or minimisation** of these risks;
g. **Compliance** and **risk management**;
h. **Communication** and **consultation**;
i. **Documented system**;
j. **Monitoring, measure, audit, review**;
k. **Responsibilities** and **accountabilities**;
l. **Intervention** when things **go wrong** and implementation of **corrective and preventative action**; and
m. **Continuous Improvement**.

7. STARTING POINT FOR DEVELOPMENT AND IMPLEMENTATION

A quality, safety and environmental management system should reflect and directly relate to the:

a. Size of the organisation;
b. Complexity of it's processes;
c. Location of the organisation;
d. Level of risk;
e. Structure of the organisation, including the level of staff turn over; and
f. Environment in which the organisation operates.

Once the above has been clearly defined and understood the next step is to identify and define the processes directly and indirectly involved in producing the product. Part of this involves identifying the steps and activities/tasks within the processes. This is also the starting point for the step which is identifying and assessing the impact of compliance requirements and the potential risks that may impact the product, processes, the organisation, the human (staff, visitors, public etc) and the environment.

The next step is to define what management system is required and how the organisation will monitor, measure and evaluate the achievement of objectives and effectiveness of the system and controls. You can not "Ensure" the safety of the product, the human and protection of the environment unless you enforce compliance and measure/evaluate the effectiveness of your system and controls. This is establishing your Assurance program.

The last step is to accept that things will go wrong and therefore you need to plan for this so that you can effectively take control, manage it when it does and learn from it. This is a Continuity Plan.