SUCCESSFUL IMPLEMENTATION OF ISO 55001 - PAPAKURA FRANCHISE

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ABSTRACT

New Zealand's water infrastructure is facing unprecedented challenges, with rapid urbanisation and population growth, increasing legislative requirements, climate change and ageing infrastructure. Effective asset management is fundamental to providing communities with sustainable levels of service, in an environment of competing demands and constrained funding. The ISO 55001 standard is the international global benchmark for asset management capability and provides a framework for implementing an integrated and effective Asset Management System.

Veolia's Papakura Franchise involves the provision of water and wastewater services to over 55,000 people and includes significant customer service obligations along with contractual responsibility for full life-cycle asset management. In July 2021 Veolia achieved accredited certification of its Papakura Franchise activities and Asset Management System to the ISO 55001 standard, a New Zealand first for water activities of this size and scope. This paper outlines Veolia's journey to certification of its Asset Management System to ISO 55001. It describes the approach adopted by Veolia, the value of an ISO 55001 aligned Asset Management System, and key lessons learned during the implementation process.

The Papakura Franchise ISO 55001 certification journey reflects the importance of effective asset management to deliver upon Papakura community water and wastewater obligations. Top level management commitment and active buy-in from all stakeholders including field operators throughout the journey was critical to successful ISO 55001 implementation and is discussed in this paper.

Certification to ISO 55001 requires alignment of existing Asset Management System processes to the specifics of the ISO 55001 framework. The paper describes the methodology used by Veolia to assess gaps in its Asset Management System relative to the requirements of ISO 55001. The paper also outlines the implementation of focussed action plans to close out gaps and ensure systematic preparedness for Stage 1 and Stage 2 certification audits.

An ISO 55001 aligned Asset Management System brings value across diverse stakeholder groups. This paper discusses the key stakeholder benefits realised in terms of asset management planning, performance, decision-making and continual improvement.

The paper also discusses the lessons learned during Veolia's ISO 55001 journey and explores how the framework successfully applied to the Papakura Franchise can be used by other water authorities in New Zealand seeking to drive asset management best practice.

1. INTRODUCTION

Water infrastructure is under stress. The deployment of effective asset management is now more important than ever for communities faced with increasing pressures from rapid urbanisation and population growth, increasing legislative requirements, climate change and ageing infrastructure. Effective asset management is fundamental to providing communities with secure and sustainable levels of service in an environment of competing demands and constrained funding.

The ISO 55001 standard is the international global benchmark for asset management capability and provides a quality systems framework for implementing an integrated and effective Asset Management System. Veolia in July 2021 achieved for its Papakura Franchise activities and Asset Management System accredited certification to the ISO 55001 standard, a New Zealand first for water activities of this size and scope.

This paper describes Veolia's successful asset management journey to ISO 55001 accreditation. The paper discusses the methodology adopted by Veolia, key lessons learned during the implementation process and the value of an ISO 55001 certified Asset Management System to the organization. The paper will be of interest to water authorities considering ISO 55001 alignment in order to drive asset management best practices.

2. BACKGROUND

2.1. PAPAKURA DISTRICT FRANCHISE

Veolia is responsible for the management, operation and maintenance of the Papakura District public water and wastewater networks under a long-term Franchise Agreement. The Papakura District is located at the southern edge of the Auckland region, between the former Manukau City Council to the north, and the former Franklin District Council to the south, as shown in Figure 1, and falls within the governance jurisdiction of Auckland Council.

Veolia's Papakura Franchise involves the provision of water and wastewater services to over 55,000 people across an area of approximately 126 square kilometres. Veolia has full responsibility for all aspects of the provision of water and wastewater services of which key obligations include:

- Asset operation and maintenance of the water supply and wastewater collection;
- Full life-cycle asset management including maintenance and renewal / replacement;
- Management of sub-divisional / land development projects;
- Water meter reading, billing and collection of customer chargers; and
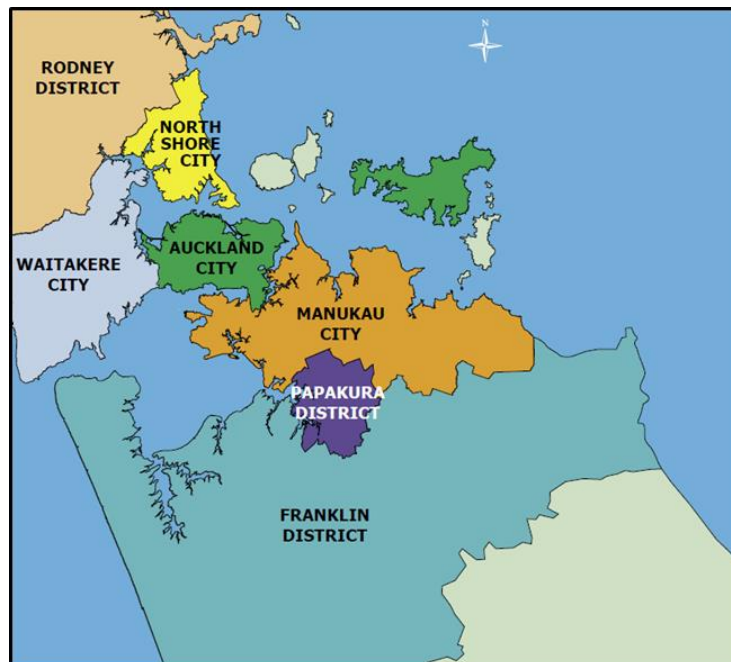- Customer services and call centre operation.

FIGURE 1. LOCATION OF THE PAPAKURA DISTRICT

2.2. ISO 55001:2014

The ISO 55000 family of standards aims to provide a standardised framework for an Asset Management System. The standards define requirements for implementing, maintaining and improving assets through a comprehensive Asset Management System. The standards can be applied to any organisation where physical assets are central to achieving organisational objectives.

The ISO 55000 series comprises three documents:

- ISO 55000: provides critical overview, concepts and terminology
- ISO 55001: prescribes the requirements for an effective Asset Management System

- ISO 55002: provides guidelines for the application of ISO 55001 aligned Asset Management System

Considering the scope of the ISO 55001 standard, it is important to acknowledge that assumptions made in the standard do not impose on organizations how to properly manage their assets. This standard only defines the requirements for the way in which an enterprise operates, defined by the core business management, allowing some operational flexibility within the organization.

The ISO 55001 asset management system reference seven main functional areas of each organization (according to the structure of the standard and Figure 2):

ELEMENTS OF ISO 55001	SUB ELEMENTS
CONTEXT OF THE ORGANIZATION	✓ Organizational Objectives ✓ Stakeholder Requirements ✓ Asset Management System Scope ✓ Asset Management Strategy
LEADERSHIP	✓ Leadership Commitment ✓ Asset Management ✓ Roles, Responsibilities and Authorities
PLANNING	✓ Risk and Opportunities
SUPPORT	✓ Resources ✓ Competence ✓ Awareness ✓ Information Requirements ✓ Documentation
OPERATION	✓ Planning, Implementation and Control ✓ Management of Change ✓ Outsourcing
PERFORMANCE EVALUATION	✓ Monitoring, Measurement, Analysis and Evaluation ✓ Internal Audit ✓ Management Review
CONTEXT OF THE ORGANIZATION	✓ Corrective and Preventative Action ✓ Continual Improvement

Figure 2. Elements of ISO 55001 standard with corresponding sub-elements

3. JOURNEY TO CERTIFICATION

ISO55001 is the accepted standard globally for asset management and evidencing asset management best practice. Veolia's journey to ISO 55001 certification for its Papakura Franchise reflects the importance of effective asset management to deliver upon Papakura community water and wastewater obligations. Additionally, asset Management is becoming increasingly important for Veolia's New Zealand clients as infrastructure demands increase and funding remains constrained. Once the senior leadership team shared their vision to obtain ISO 55001 asset management certification, the rest of the organization embraced the challenge.

Veolia's journey to ISO 55001 in Papakura initially began by clearly identifying and defining the objectives of the organization. This is a critical step in the implementation of the standard, as the design and operation of the system needs to ensure that all activities focus on maximizing the achievement of the objectives.

Veolia's Papakura Franchise already had an Asset Management System and asset management processes in place however, had not yet been certified with ISO 55001. Veolia conducted a "needs" analysis and identified three objectives during the initial decision process:

- Certification of the Papakura Franchise contract to ISO 55001:2014 (Asset management - Management systems).
- Establishment of ISO 55001 knowledge within the Veolia New Zealand team to enable assistance with future certifications of other contracts.
- Active buy-in and support from all stakeholders.

Implementing ISO 55001 instills a good structure and discipline and the initial approach to continual improvement integrating asset management with other ISO standards management.

3.1. READINESS ASSESSMENT

Various activities were undertaken to establish the organizational readiness for ISO 55001 implementation. As a first step a review of available literature on the development of Asset Management Systems to meet standard requirements was undertaken. This was followed by discussion sessions with personnel who were previously involved with development of a system for ISO certification and finally, key project personnel attended training courses on advanced asset management and on ISO 55001 standards.

To ensure that the same Asset Management System can be applied to different contracts within the business with varied requirements, it was decided to follow a 3-tier approach (refer to Figure 3).
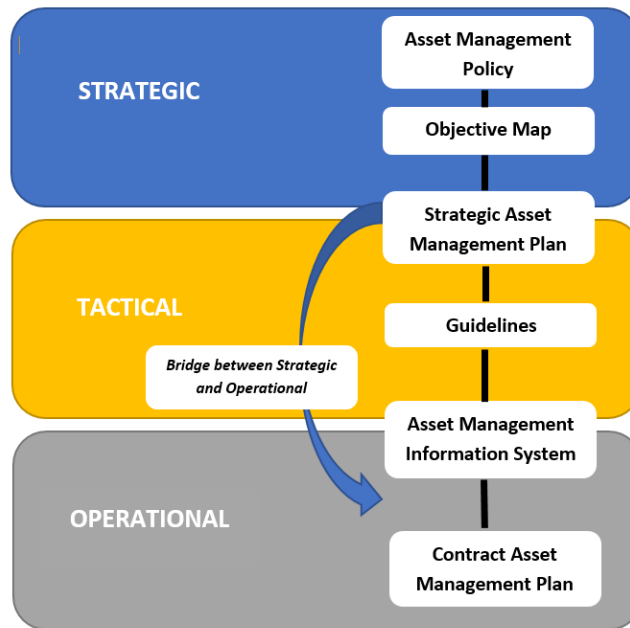
FIGURE 3. 3-TIER SYSTEM

The strategic level included Asset Management Policy and Strategic Asset Management. Objectives that are applicable for all asset management activities related to the Veolia's New Zealand service provision.

The tactical level included a Strategic Asset Management Plan (SAMP) and various asset management guidelines and procedures which outline Veolia New Zealand's way of managing assets.

The operational level included a project specific Papakura Asset Management Plan, procedures and work instructions.

3.2. GAP ANALYSIS

Veolia identified three options for undertaking the ISO 55001 gap analysis:

1. **Option One -** Require the services of an external consultant. The costs were estimated at ranging from approximately eight thousand New Zealand dollars for a limited detail gap analysis by an external certifying body to thirty to forty thousand dollars for a detailed gap analysis by a gap analysis consultant.
2. **Option Two** - Internal
3. **Option Three** - Internal with external certifying body fall back if required

Veolia chose Option Three, a combination of internal and external. The gap analysis assessed gaps in the Veolia Asset Management System against ISO 55001:2014. Initially a full onsite gap analysis audit of the Veolia New Zealand

and Papakura documentation and activity compliance were planned however due to COVID-19 was split into a two-phased gap analysis. Phase one covered gap analysis of the documentation in respect of the asset management system. Phase two covered activity compliance against the documented asset management system.

Gaps identified by way of the audit are reflective of an in place Asset Management System but which has not been previously subjected to the overarching integration of the ISO 55001 framework. The phase one gap analysis indicated some segmentation between the various documentation and as a result gaps in overall requirements which required closure for ISO 55001 compliance. The phase two gap analysis demonstrated overall, good compliance of on the ground practices against the documented Asset Management System. Gaps however existed and required closure in respect of understanding how these activities are integrated with corporate planning provisions such as policy, strategy and organisational objectives.

3.3. GAP CLOSE-OUT

The methodology for closing of gaps was dependent upon the extent and nature of the gaps. This will only be known post the gap analysis. Closing of gaps required involvement from the Papakura Operations team, Veolia's New Zealand Asset Management team, Strategic Projects and other Corporate departments. A specific methodology to close out the gaps has been followed which includes programme and responsibilities, developed from the outcomes of the gap analysis.

Gaps identified included the following:

(1) Further training to the various levels within the organization to ensure complete understanding of Veolia Asset Management System components, including terminology, and how these support the achievement of asset management objectives and outcomes.

(2) Establish a communication plan to enhance understanding of the Asset Management System and its role in achieving asset management outcomes at varying levels of the business.

(3) Establish communication plans and mechanisms (across appropriate levels of the organisation) to ensure the Asset Management Strategy and its application within the NZ business is understood.

(4) Resourcing Review - As a business, identify and communicate what is needed to deliver upon asset management outcomes.

(5) Recognise what various continual improvement items are being undertaken in respect of the Asset Management System and be able to articulate this from identification of need through to realisation of improvement.

(6) Develop/amend existing business processes to prescribe the management of Asset Management System improvements within the internal business system.

(7) Implement process for monitoring progression of actions relative to the due dates as prescribed in the Papakura risk register.

(8) Review and validation of Asset Management Plan project plans for currency. Justification of project plans should be understood with linkage to responsibilities. Projects shall be progressed in accordance with the Asset Management Plan, or where deferred due to other (higher) priorities, appropriate evidence of consideration demonstrated.

(9) Further review and understanding of the Papakura Lifecycle Management Plan, specifically:
  - Terminology - Routine O&M plan + Renewal / Replacement plan + Creation Plan.
  - Activities that sit under these plans.
  - Decision making process in respect of these plans.

(10) Develop requirements for explicit communication of documented roles and responsibilities. Incorporate awareness of roles and responsibilities into onboarding induction programs.

(11) Develop local 'sign-off' process for becoming competent in operating key Asset Management Systems (CMMS, SCADA, GIS etc).

(12) Develop understanding of the Management of Change (MoC) procedure and how it relates to change occurring within the Papakura contract. Whilst most changes within the Papakura contract fall outside of the MoC procedure, the understanding of the process will provide the ability to recognise any arising 'non-standard' change.

3.4. EXTERNAL CERTIFICATION

Strong commitment and project management were required to keep to the timeframe for closing of gaps so as to be ready for the Phase 1 certification audit. An accredited conformity assessment body was engaged to provide independent management system audit and certification services. The certification audits comprised a two-stage process.

The Stage 1 audit was conducted as a mandatory initial assessment to determine readiness for Stage 2 certification audit. The Stage 1 audit was undertaken over a day with the objective of the assessment being to conduct a certification assessment to ensure the elements of the proposed scope and the requirements of the management standard are effectively addressed by the organisation's management system and to confirm the forward strategic plan.

The scope of the assessment is the documented management system with relation to the requirements of ISO 55001:2014 and the defined assessment plan provided in terms of locations and areas of the system and organisation to be assessed.

The audit report concluded that the audit objectives have been achieved and the certificate scope remains appropriate. The audit team also concluded based on the results of this audit that the organization did fulfil the standards and audit criteria identified within the audit report and it is deemed that the management system continues to achieve its intended outcomes in Asset Management.

4. LESSONS LEARNED

A number of key risks and constraints were identified that could impact the ISO 55001 implementation process.

- **Active Management buy-in.** Case studies investigated confirmed that the commitment of the Operations Manager to the achievement of certification was indispensable and ensured undertaking of activities which, without management support, would have significantly impacted delivery and achievement of certification.
- **Active understanding and involvement of all management stakeholders.**
- **Availability of key, unsubstitutable stakeholders**. The availability of key stakeholders can constrain audit dates especially during a Covid pandemic situation. Advanced planning was critical to achieving a suitable audit window, along with commitment of stakeholders to keeping the assigned audit window free from other appointments. External auditor availability resulting in ISO 55001 certification audits may need to be booked well in advance.

5. KEY BENEFITS

There are a number of benefits to implementing an ISO standard certified Asset Management System.

Some of the major benefits identified include:
- **Business Sustainability** – Having systems and records in place with more thorough documentation, the impact of staff asset management and environmental awareness has been a learning process and resulted in improvement in business continuity.
- **Improved Asset management** – With efficient monitoring as well as better risk and opportunity management, the asset management processes became more streamlined and continuously improved.
- **Business Standardisation** – After the review of the business process as part of Papakura Asset Management Standard development, the processes and procedures were streamlined and improved.
- **Improved Business Systems Alignment** – As Asset Management interfaces with other management processes such as ISO 9001 (Quality Management System), ISO 14001 (Environmental Management System) and ISO 45001 (Health and Safety Management System), the development

of an Asset Management System included review of other systems and makes it more compatible.

- **Service Delivery Efficiency and Effectiveness Improvement** – results in optimization of asset renewals, maintenance and ultimately cost expenditure due to ongoing performance monitoring and having improvement processes in place.
- **Customer Assurance** - Having systems in place, certified by a recognised international authority, provides better assurance to our customers on our business continuity.

6.   CONCLUSIONS

An Asset Management System based on ISO 55001 standard provides a framework for efficient and effective service delivery and assists in maximising the value of the assets. Significant effort and resources are required for the effective implementation of an asset management system. Subsequently, leadership commitment is paramount.

ISO 55001 defines the requirements for an integrated, effective management system for assets, in much the same way as ISO 9001 specifies the essential features of a quality management system. Veolia Papakura found implementation of the ISO 55001 Asset Management Standard relatively straightforward but however it was found that gaps were to be closed to ensure that we could demonstrate that we understand the environment in which Veolia New Zealand operates including what customers and stakeholders require from us. Ultimately showing how we deliver on our stakeholder requirements and ensure risk management and documented efficiency throughout the process.

Developing a people culture of regularly monitoring of performance and taking initiative to utilise opportunities to improve the process will ensure that the system provides real value. Implementing an Asset Management System provides the base framework for ongoing improvement in asset management practices to improve efficiency in service delivery. An ISO certification, with requirements of re-certification and surveillance audits, provides assurance to customers that the system in place is live, ongoing and continuously improving. In addition, it provides the business incentive to be more vigilant in implementing and monitoring the system to keep the certification up-to-date.

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