Material change for a better environment

Final Report

Implementation of Quality, Environmental and Health & Safety Management Systems within the MRF Industry

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Executive summary

Materials Recovery Facilities (MRFs) have a key role to play in the creation of high-quality/high value recyclate streams that can be used as feedstock materials by a range of industries.

This report summarises a project funded by WRAP (Waste & Resources Action Programme) into the development of practical guidance documents and templates to assist with the implementation of quality, environmental and Health & Safety management systems in a MRF. The report also summarises the methods and advantages of implementing a Quality Management System (QMS) and includes time and cost savings associated with using defined templates and implementation methods. The templates developed are known to meet the requirements of the associated certification standards ISO 9001:2008 (Quality), ISO 14001:2004 (Environmental) and OHSAS 18001: 2007 (Health & Safety).

The primary aims, objectives and deliverables of this project included the following:

- The development of written guidance on the options for the implementation of quality, environmental and Health & Safety management systems within a MRF.
- The development of sample templates for ISO 9001 (quality), ISO 14001 (environmental) and OHSAS 18001 (Health & Safety) implementation at a UK MRF.
- The development of supporting evidence that demonstrates how the implementation of a QMS at a MRF has benefited operation.
- The development of a final report include the above along with associated recommendations and conclusions.

As part of the template and guidance development, two sets of target MRFs were identified – MRFs without current management systems (from which a minimum of three WRAP approved UK MRFs were selected) and MRFs with established management systems that appear operationally beneficial (from which five UK MRFs were selected).

Visits to the MRFs that did not have any form of QMS were conducted to understand their requirements for the implementation of a QMS and to establish what would be expected from a set of QMS templates and guidance documents. This led to the documentation of a high level of guidance on the implementation of a QMS at a MRF covering the quality, environmental and safety sectors. This guidance is documented in a detailed Guidance Report produced as part of this project and also includes indicative costs of implementation, certification (through a United Kingdom Accreditation Service (UKAS) approved body) and annual costs of operation.

The guidance is supported by sample templates for ISO 9001, ISO 14001 and OHSAS 18001 implementation and these have been generically completed as far as possible for MRF operations. The templates include manuals, procedures and record/forms that are known to meet the requirements of the ISO and OHSAS standards as well as align with the needs of the MRF industry. Key templates also include explanations within the text to assist the user in understanding what site-specific information may be required.

The final report associated with this project also indicates how the implementation of a QMS at a UK municipal MRF has benefited that operation. This includes a MRF that has recently implemented a successful quality and environmental management system.

The summary conclusions and recommendations associated with this project include:

- MRFs without current management systems would be more likely to implement a QMS meeting the requirements of ISO standards if templates such as those developed as part of this project were made available.
- Where a MRF has implemented and had certified a QMS, several advantages had been noted. These included:
  - perceived commercial advantage when tendering for new contracts;
  - an increased level of process awareness and the clearer identification of improvement opportunities leading to improved material output quality;
  - a more consistent / stable approach to key activities; and
  - reduced risk.

Contents

Glossary

WRAP	Waste & Resources Action Programme
MRF	Material Recovery Facility
QMS	Quality Management System (in context of this report this can be an integrated management system)
ISO	International Standards Organisation
OHSAS	Occupational Health & Safety Assessment Series
OH&S	Occupational Health & Safety
PAMs	Periodicals and Magazines
UKAS	United Kingdom Accreditation Services
OQC	Oxford Quality Centre
IWS	Integrated Waste System
KPI	Key Performance Indicators
PAS 105	Recovered paper sourcing and quality. Code of practice
BS EN 643	Paper and board. European list of standard grades of recovered paper and board

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1.0 Introduction

This project was commissioned by WRAP against project / tender reference MRF017-001.

The activities to be addressed and the deliverables to be achieved were agreed through tender response and subsequent meetings and included:

- Written guidance on the options for the implementation of a QMS within a MRF covering:

1 the quality, environmental and safety sectors;
2 both separate and integrated system approaches ensuring 'fit for purpose' approach;
3 implementation methodologies;
4 potential business benefits and certification options;
5 indicative implementation costs; and
6 indicative annual operating costs.

- Production of sample templates for ISO 9001, ISO 14001 and OHSAS 18001 implementation which relate to operation of a UK MRF. These templates were to:

1 meet the requirements of ISO and OHSAS standards;
2 be generically completed as far as possible;
3 be designed to meet the needs of the MRF industry;
4 have separate explanations for each item;
5 be developed sufficiently that the user fully understands the information to be provided;
6 indicating what site specific information is required;
7 be supported by a manual, procedures and record templates, each with supporting explanations; and
8 be fully compatible with the Environmental Services Association's 'Recycling Registration Scheme'.

In addition to the above (the majority of which is contained in the detailed guidance document and template sets), this report also includes documentary evidence of five practical examples that clearly demonstrate how the implementation of a QMS at a MRF has benefited the operation, and reports on three UK MRFs that do not currently have any form of QMS. These reports are based on MRF visits and Internet research.

This Final report has been produced to pull together the reports, templates and guidance documents developed during the project. The purpose of this report (and the project) is to provide appropriate information and guidance to assist with the implementation of quality, environmental and / or Health & Safety management systems at municipal Material Recovery Facilities. This includes the methods and advantages of meeting the requirements of the applicable ISO and OHSAS requirements standards.

Gap analysis tools and audit requirements for the ISO 9001, ISO 14001 and OHSAS 18001 standards are included in Appendices 1 to 3 of this report for reference.

2.0 Project methodology

The development of the management system templates and guidance documents was based on benchmarking against the successful implementation of stand alone and integrated management systems within a variety of organisations, including Material Recovery Facilities (MRFs).

Inputs from implementation consultants, certification bodies and MRFs with established and approved management systems were obtained and template structures developed accordingly. Feedback on the potential benefits from an MRF who had recently implemented a QMS was used and a trial was conducted with an established MRF (Greenstar) to establish what time saving advantages could be obtained from using the template and guidance document approach for a new QMS implementation.

Key activities carried out in relation to this project included:

- Identification of target MRFs – review of prospective MRFs both with and without management systems in place.
- Documentation of target MRF list for review and agreement by WRAP.
- Initial liaison with selected MRFs and arrangement of visits.
- MRF data gathering visits and obtaining input on QMS structure.
- Benchmarking visits to MRFs with established systems.
- Initial Quality, Environmental and Health & Safety template development.
- Review of initial templates with selected target MRFs.
- Finalisation of Quality, Environmental and Health & Safety templates including manuals, procedures and templates.
- Development of detailed guidance documents for the implementation and integration of management systems at a MRF.
- Review and documentation of perceived business benefits and certification options.
- Review/documentation of indicative implementation costs and annual operating costs.
- Documentation of final report to WRAP to include MRF feedback on the above and associated conclusions and recommendations.

The initial phase of the project included a review of sample MRFs that either did not have any management systems approvals or had ineffective (non-UKAS) / partial management systems.

Some of the MRFs selected were contacted directly as part of this project to establish current approval status. Others had been identified through previous WRAP related quality improvement projects.

Some of the MRFs involved in this project included:

- **Greenstar, Derby** – New MRF constructed on existing waste transfer site. A trial of the initial QMS templates and guidance documents was carried out and positive feedback received (see Conclusions and Recommendations).
- **Freedom Farm, Norfolk** – Quality Management System in place (implemented under previous WRAP funded project). Integrated environmental management system due for completion end-March 2009.
- **Greener World Ltd, Slough** – New MRF being constructed. Implementation of integrated quality and environmental management system using MRF017 style templates progressed.
- **Bryson Recycling Ltd, Belfast** – Established quality, environmental and Health & Safety management systems in place. Used as a benchmark MRF in relation to the advantages and benefits of integrated QMS approval.
- **Nordic, Tilbury Docks MRF** – Established Quality Management System and recently developed environmental management system. Used as a comparison MRF in relation to the advantages and benefits of integrated QMS approval.
- **Milton Keynes MRF, Community Waste** – Established Sustainability, Environmental and Diversity plan, found to mirror key elements of the template approach developed during this project.

A selection of other MRFs were also contacted or visited as part of this project, however these have not been included by name due to commercial sensitivities.

Information in relation to the MRFs visited / involved in this project (either named or unnamed) is included in section 3.0.

2.1 Implementation guidance

The associated project guidance document covers the potential fit for purpose implementation of a QMS into a municipal MRF including quality, environmental and safety sectors. Core sections 4, 5 and 6 of the detailed guide include step by step / clause-by-clause guidance on the implementation of ISO 9001, ISO 14001 and OHSAS 18001 standards and also includes indicative costs of implementation, certification (through a UKAS approved body) and annual costs of operation.

Links to the QMS templates and associated guidance documentation are included on the WRAP website under the following document links:

- Quick Start Flowchart.
- Detailed Guidance Document.
- ISO 9001.
- ISO 14001 and ISO 9001/ISO 14001.
- OHAS 18001 and ISO 9001/ISO 14001/OHAS18001.
- WRAP Report.

The sample templates referred to from the detailed guidance document have been generically completed as far as possible, however all templates will need some amendment to align with individual MRF processes and operations. The templates include manual, procedures and record templates that are known to meet the requirements of the ISO standards and have been aligned to meet the needs of the MRF industry where appropriate. All templates are supported by appropriate explanations so that users understand what information needs to be provided and what site-specific information may be required. In addition to this, gap analysis tables against ISO 9001 and ISO 14001, and an audit guide against OHSAS 18001 have been produced. These are included in Appendices 1 to 3 of this report.

As the main guidance report is a comprehensive document, a 'Quick Start Guide' is included in the initial sections of the guide and this is repeated below for reference. In addition to this, a separate pictorial guide on the key implementation stages has also been produced as a 'stand alone' document.

2.1.1 Quick start guide and implementation stages

The implementation of a QMS at an MRF can be approached in distinct stages and the following 'quick start guide' outlines this approach while cross-referencing (in bold) the guidance contained in the associated detailed guidance document.

- Detailed Gap Analysis – the review of the current status of key processes, the identification of any exclusions and gap identification against requirements of ISO 9001 – **Gap analysis templates covering the requirements of the standards are included in Appendix 1 (of this and the guidance document).**

- Key Process Review - the review of key business processes, the identification of process development requirements and the identification of processes required for certification, but not yet defined – **This should primarily be carried out for the Service Provision processes of Sales, Purchasing, MRF Operations, Storage and Equipment Control. The review should also include Resource Management (see also Section 4 of the guidance document).**

- Documentation of Quality / Business Manual – this high level document should be used to map activities and business processes against key standards requirements – **This is referenced in Clause 4.2.2 under Section 4 of the guide and is supported by Quality Manual Template 1.**

- Process Flowcharting – the mapping of key processes including process interactions, inputs, outputs and measures and process customers, suppliers and owners - **A guide to defining processes and flow charting is given in Section 3 of the guide document and sample flow charts are included in Procedure Templates QP01 to QP10.**

- Documentation of Procedures – documentation and introduction of documented processes / procedures that define process operation, control and verification – **Sample process document templates are included Procedure Templates QP01 to QP10.**

- Awareness Training – the communication of the structure, operation and value of the management system and the ongoing contribution required – **Guidance on the approach to training is given in Clause 6.2.2 under Section 4 of the guide, supported by Resource Management Procedure Template QP04.**

- Release of Documented ISO 9001 Management System – the initial verification that the defined system meets standards and company requirements – **Once the MRF processes and supporting manual(s) have been documented, they should be released and their effectiveness / alignment with operations monitored (see below).**

- Internal Process Auditing – process and procedure audits to be carried out by either internal trained resource or external consultant. This is to verify the satisfactory process operation through audit findings - **Guidance on the approach to auditing is given in Clause 8.2.2 under Section 4 of the guide, supported by Internal Audit Procedure Template QP09 and sample audit schedule and audit report templates.**

- Compliance Systems Audit – a systems audit against requirements of ISO 9001 not covered through above process auditing should also be conducted – **This will include elements of Clause 4 and majority of Clause 5 of the ISO 9001 standard.**

- Data Collection and Analysis – the collection, review and analysis of appropriate data through process monitoring and measurement, internal audit findings and customer / supplier feedback - **Guidance on measurable quality objectives is given in Clause 5.4.1 under Section 4 of the guide and a sample Quality Objectives sheet is included in Appendix 3 of Quality Manual Template 1. An additional overview of data analysis is included under Clause 8.4 in Section 4 of the guide, supported by Monitoring, Measurement and Improvement Procedure Template QP10.**

- Management Review – the Senior Management must review management system for efficiency and effectiveness and the identification of any further improvement opportunities - **Guidance on management review is given in Clause 5.6 under Section 4 of the guide and in section 5.6 of Quality Manual Template 1. A management review record template sample is also included in the Record / Form Templates folder.**

- Selection of Certification Body – the selection and engaging of a UKAS recognised certification body based should be based on best fit for the MRF / organisation – **An overview of Certification Options and Indicative Costs are included in Sections 10 and 11 of the guidance document.**

- Pre-Assessment Review – internal (or consultant) pre-assessment audit to ensure high level of compliance with ISO 9001 – **Note: a pre-assessment review can also be conducted by the selected certification body (at additional cost) as outlined in Section 11 of the guide.**

- External Certification – Certification audit using the selected 3rd party certification body – **Certification audits will generally be in 2 stages and will include documentation reviews and on-site audit activity. The likely number of audit days required is included in Section 11 of the guide.**

- Follow-up / Corrective Action Planning – initial certification activity often requires a corrective action plan to be submitted to the certification body so that the recommendation for certification can be progressed. The rapid submission of a corrective action plan will be required to ensure timely registration and receipt of certificate.

The above implementation stages refer to the introduction of an ISO 9001 Quality Management System. For the introduction of an ISO 14001 Environmental Management system or an OHSAS 18001 Occupational Health & Safety system, the above stages generally hold true and additional guidance can be found in Sections 5 and 6 of the detailed guidance document respectively.

Within the guide, if procedures are referred to as 'MPs' such as MP01 or MP02, then these are integrated 'Management Procedures'.

The manual and procedure templates referred to in this report and the main guidance document will be available from WRAP website (www.wrap.org.uk).

3.0 Site visit reports

As noted above, two sets of target MRFs were identified – MRFs without current management systems (from which a minimum of three WRAP approved UK MRFs were selected) and MRFs with established management systems that appear operationally beneficial (from which five UK MRFs were selected).

Visits to the three UK MRFs that did not currently have any form of QMS involved a review and analysis of operations to understand their requirements for the implementation of a QMS.

The reports in this section also indicate how the implementation of a QMS at a UK municipal MRF has benefited that operation. This includes a MRF where the Oxford Quality Centre (OQC) has recently implemented successful quality and environmental systems.

For some of the MRFs identified, multiple visits were carried out and feedback obtained on the draft templates. In one case this has progressed to the implementation of an integrated quality and environmental management system using the template system.

The development of documentary evidence of five practical examples which demonstrate how the implementation of a QMS at a MRF has benefited the operation is also included in this section.

3.1 MRFs without a current QMS

3.1.1 Sample MRF 1

Sample MRF 1 was an established MRF with a processing capacity of 60,000 tonnes per annum, servicing customers from throughout the UK. This MRF was selected for review as it had no approved management systems in place.

At the time of the OQC visit it was noted that several improvement opportunities existed in relation to reduction of contamination and preservation of material as indicated below.

Figure 1 MRF input stream

It was also noted that at the time of the visit, a plan was being progressed to redevelop this facility and it was noted by senior management from a sister site that the WRAP template / guidance document approach could assist with this.

In telephone interviews, the MRF owner was enthusiastic about the idea of QMS templates and did see the need for a Quality Management System at the above MRF. Feedback also indicated that the template approach would be a great help to implement without too much of his or other managers time.

The MRF supervisors view was that, as he did not have the time or experience to spend writing procedures etc, he would welcome sample templates and procedures when the new MRF is built. As little was known about ISO 9001 and less about ISO 14001, the template approach, with guidance documentation would be “a great asset” for him.

3.1.2 Greener World MRF – existing and new MRF, Slough

Greener World was identified as a MRF017 project MRF through a meeting with Thames Valley Chamber of Commerce. The current facilities were manual sorting and semi-automatic baling only with a capacity of 400 tonnes / month. This company was of interest as a new MRF was being planned for quarter 1 of 2009.

A 1acre site had been purchased and planning permission had been received in October 2008. The new MRF build was planned to commence in January 2009 for completion in April 2009.

At present Greener World collects from around 13,000 clients via their own fleet, have 38 staff and a turn over of £2.2m. A target has been set to double this turnover within 12months and the new MRF is an integral part of this plan.

The Managing Director at Greener World was very enthusiastic about the implementation of ISO 9001 (and ISO 14001) however he had had experience of a failed QMS implementation in the past. Further investigation noted that this was through a non-UKAS ‘certification body’ and the delivered system did not meet the business needs.

With the current difficult market conditions, Greener World also saw the implementation of a QMS as beneficial in relation to the increased efficiency required and in assisting the progress of larger contracts with organisations (e.g. councils) that include ISO approval in tender documentation.

The current manual sorting activity was observed and, due to the manual nature, little or no contamination noted in the bales produced. It was also noted that the mixed paper included a high level of white paper (>40%) that, in the future, could be separated into high value bales.

It was also noted that a new system (IWS – Integrated Waste System) had been recently introduced and it was noted by the MD that now would be a good time to implement a QMS – this would support process review and the identification of improvement / efficiency opportunities.

As a follow-on from these meetings with Greener World, WRAP have now provided some funding under a Business Development project for the implementation of ISO 9001 and ISO 14001 at this MRF and this has started to be implemented using the templates developed under this QMS project.

To date, this Business Development project is on track and the use of the templates has allowed the more rapid documentation of procedures and manual.

3.1.3 Freedom Farm – expanding MRF, Norfolk

Freedom Farm, Norfolk were first involved in a WRAP project in Q4 2007 a project to investigate the quality of materials produced by Materials Recovery Facilities. At the time of this previous project Freedom had no approved management systems in place.

Freedom Recycling Ltd was committed to establishing 'best' practice. A first step towards achieving this objective was through the implementation of an integrated management system that is compliant with the quality assurance standard ISO 9001 and environmental management system ISO 14001. The expectation from the project was that considerable time saving and efficiency gains will be achieved once 'common' agreed practices were established. The ultimate aim is to add value to all key processes that have a direct and indirect effect upon the service level and environmental impacts experienced by all stakeholders.

In relation to current project MRF017, Freedom Farm was re-reviewed against the general principles of ISO 9001 both from a pre-certification and post-certification status.

Freedom farm - pre-certification status

Customer focus

Freedom essentially had and still has one customer who is also the supplier of co-mingled product to the business. Management priorities weren't fully established and data information was not used to analyse performance of the business. There needed to be rather more data available to plot trends in customer satisfaction by way of a formal feedback mechanism and customer complaints. At the time written responses were only sent to the customer when a formal written complaint had been received from the customer or destination facility. There wasn't a mechanism in place to respond to formal complaints from the local community or other interested parties.

Leadership

Freedom had entered in agreement with the above customer but the contract required redrafting to reach agreement. There was not a full business plan available and there were very few visible 'hard' quality or environmental targets or objectives. There were rather too many 'soft' objectives that made it difficult for the organisation to maintain a focus on continual improvement. There was over-dependence on agencies such as the local Council and Environment Agency to dictate ad hoc policy and short-term targets and objectives.

Roles and reporting structures required defining and publishing. The Management Representative needed to be officially appointed with clearly defined responsibilities.

Involvement of people

The dissemination of information and general communications tended to begin and finish with the directors and little of this filtered down to the supervisors and shop-floor staff. The view was that staff were told information by management on a 'need to know basis'. Job roles were not clearly defined from the outset and were rather determined by the staff doing the job. There was an over-dependence on employing agency staff rather than building expertise through full time employment.

Process and system approach to management

Management responsibility had not been clearly defined as part of a management system. Tasks and duties were not linked to inputs and outputs associated with all management processes.

Continual improvement

In general there was little performance data published. Management targets were not communicated effectively to senior management team and staff. The 'fire fighting' approach to management was directed towards resolving daily the number of machine breakdowns and coping with the number of anticipated customer

deliveries and collections. Environmental aspects of the business had not been clearly defined and conformance to relevant legislation was determined by Environment Agency visits to site.

Factual approach to decision making
Decision making was based on the 'fire fighting' approach to management and responding to 'who shouts the loudest'. Capability of operations was based on 'gut feeling' rather than data gathering.

Mutually beneficial supplier relationships
The department could not demonstrate that suppliers and were being monitored and reviewed regarding performance to requirements. Records of orders were not consistently maintained.

Freedom farm - post-certification status
Freedom Recycling Ltd having implemented an integrated management system (IMS) complying with the requirements of ISO 9001 and ISO 14001 are now in a better position to achieve planned quality and environmental outcomes. The business is now able to plan the resources required to meet the business objectives. Decisions for capital expenditure are based on a cost benefit analysis rather than 'gut feeling'.

In general there is a better level of control over business outcomes and the business is better able to plan future growth to meet the needs of directors, its staff and other interested parties.

Customer focus
Communications have much improved and non-conformances including customer and interested party complaints are captured, investigated and responded to in a timely manner. Decision making is based on a sound understanding of the problem and how best to prevent recurrence of the same problem.

Leadership
Roles and responsibilities of key personnel are clearly defined within the IMS. Responsibility for improvement of the System and therefore business is understood and acted upon. Staff understand how they can contribute to the improvement of processes and management ensure communications are two-way between management and staff.

Involvement of people
Staff are positively encouraged to raise non-conformances and to contribute to the generation of ideas to improve the outcomes of the business processes. The management have increased the number of full time staff by 400% since the business inception and this has helped to significantly improve the quality and quantity of output from the operation.

Process and system approach to management
The IMS has enabled management to gain control of its processes and at the same time encouraging staff to be creative in problem solving and in providing suggestions for future development of the business.

Continual improvement
The IMS has helped the business define its SMART (Specific, Measurable, Achievable, Relevant and Time Bound) objectives and targets based on best practice and the relevant legal requirements. Process inputs and outputs are defined and measured and data is now available to demonstrate the continual improvement of the business.

Factual approach to decision making
Decision making is shared amongst the senior management team rather than concentrated with the MD only. Business decisions are linked to appropriate process data.

Mutually beneficial supplier relationships
Supplier performance is measured objectively taking into account their ability to meet clearly defined requirements. Supplier problems are recorded and supplier corrective action plans agreed. Suppliers are encouraged to improve service levels where possible rather than just being removed from the approved suppliers list.

3.2 Benchmark MRFs with established QMS

3.2.1 Bryson Recycling, Belfast

Bryson Recycling was visited in January 2009 as a benchmark MRF. Bryson has had approval to ISO 9001 and ISO 14001 since the end of 2004 (Bryson Recycling only) and had integrated the requirements of OHSAS 18001 as part of the ECT group. Bryson Recycling is now independent of ECT (from December 2008) and activity was underway to update the QMS to reflect this.

Bryson Recycling indicated that the advantages of an approved management system were many. Much of Bryson's' activities / contracts are with council organisations (Belfast City and Arc 21 councils) and third party certification to recognised management systems is a requirement of these tender documents. It was noted that in the past, this certification requirement was primarily ISO 9001 (quality) however, more recently, the other key management systems of environmental (ISO 14001) and Health & Safety (OHSAS 18001) have become more increasingly requested.

Other advantages of certification noted by Bryson included the value of the system when setting up / changing MRF facilities – the ISO process was started when the current MRF was still being developed (when tendering) and this allowed stable systems / processes to be in place before significant growth occurred.

Defined processes in relation to competency requirements and communications are in place with monthly MRF performance information fed to all applicable areas.

Figure 2 A tidy, well managed MRF environment

A good system of process measures and metrics were in place with quality of output material being monitored for News and PAMs (Periodicals and Magazines), Mixed Paper and Plastics.

It was noted that a total of 15 output paper loads were rejected (by one mill) in one month. However, because of the good records and metrics maintained at Bryson, information was available to clearly demonstrate that output material met agreed quality criteria (and reject was a commercial / market downturn reaction). Because of the good systems, records and relationships with clients, this issue had a positive outcome with a new contract being negotiated.

3.2.2 Nordic, Tilbury Docks MRF

The MRF at Tilbury Docks is owned by Nordic Recycling and has been in operation since July 2007. The plant has been developed for Holmen Recycle (Paper Mills) on a design, build, and operate contract by Nordic Recycling.

The plant is designed to take in around 100,000 metric tonnes of mixed dry recyclables each year. The owners / operators of the Tilbury MRF regard it as being one of the most technologically advanced MRF in the country.

The plant sorts around 25 tonnes per hour of mixed dry recyclables into the various individual product groups of paper, cardboard, plastic bottles, drinks cans and glass bottles.

Holmen expect to gain around 50,000 tonnes of used newspapers, periodicals and magazines (PAMs) each year from the sorting plant; destined to be recycled into fresh newsprint at one of Holmen's four paper mills. All other sorted materials is sent to approved re-processors in UK and Europe for recycling into new and recycled products.

An effective quality inspection system was noted as being in place to monitor paper quality against a defined target of 98%.

Previously noted improvement opportunities at this MRF in relation to improved plastics sorting and environmental management systems have been progressed. Operation under a defined QMS has led to the implementation / improvement of areas / activities such as:

- improved plastics segregation;
- mixed paper line quality improvements;
- throughput and conversion rate monitoring;
- ISO 14001 certification status progression;
- monitoring and review against re-processed paper standards including PAS 105 and BS EN 643; and
- site specific ISO 9001:2000 good practice processes / procedures.

While owners Nordic Recycling have their own QMS approvals, Tilbury MRF has progressed a local ISO 14001 environmental management system, certified by a UKAS recognised certification body. This had led to further process improvements and the identification of appropriate environmental performance measures.

3.2.3 Greenstar MRF, Skegness

The Greenstar MRF at Skegness is an established operation with ISO 9001 approval and was found to have a good system of process monitoring / KPI.

The Skegness MRF is located on an 11-acre site and accepts segregated, mixed and co-mingled materials from regional local authorities and commercial/industrial suppliers. The MRF includes:

- An automated MRF which sorts and bales materials from local authorities and commercial suppliers.
- A plastic bottle auto-sort plant, which sorts and separates plastic bottles for further processing at their Hong Kong facility.

Greenstar noted the following examples of how systems implementation at the Skegness site has helped operations / quality:

- Identifying processes by flow diagrams - this assisted Skegness site management to identify:
  - areas that needed closer scrutiny, focusing attention on what needed to be done rather than on what was thought needed to be done;
  - resources needed (Manpower and Equipment) to carry out the process; and
  - training requirements for the workforce.

- Pictures of baled material - picture of all the different grades of bailed material taken and displayed in weighbridge office and also on all fork / clamp trucks. This has stopped the wrong grades of plastics being loaded, thus stopping the rejected loads / lowering of prices.

- Terms of reference (TORS) and work instructions (WI) for employees - introducing TORS and WIs has allowed all employees to know exactly what they are responsible for, so now everyone knows what they are supposed to do and how to do it, this has prevented items being missed (because operators thought someone else would do it) and has increased production (throughput of material) by approximately 15% (WIs use a lot of pictures and flow diagrams, to assist in understanding, and are also translated into Polish).

- Environmental – While Greenstar were still implementing ISO 14001 at the time of this report, environmental systems / controls have already paid off at Skegness and include:

- identifying leaking water outlet on outside wall - fixing this has saved approx 3 cubic metres of water a year;
- landlord now providing MRF with a site drainage plan; and
- environmental aspects, impacts and targets identified.

Throughout this project, MRF feedback, including additional inputs from Community Waste Milton Keynes MRF, continued to indicate that the availability of management system templates and associated guidance would have provided MRFs with a QMS with a more rapid implementation and would encourage MRFs without any current management systems approvals to consider a QMS implementation that meets the requirements of international / national standards such as ISO 9001, ISO 14001 and OHSAS 18001.

An overview of the templates that are required for the implementation of a QMS is given in the following section.

4.0 Management system templates

A Quality Management System needs to be documented and the ISO 9001 standard states “The QMS documentation shall include” documented statements of Quality Policy and Quality Objectives:

- a Quality Manual;
- documented procedures required by this International Standard;
- documents needed by the organisation to ensure the effective planning, operation and control of its processes; and
- records required by this International Standard.

The documented procedures required by the ISO 9001 International Standard are 6 mandatory procedures as follows:

- Control of Documents – how the documentation that makes up the QMS is approved, distributed, controlled and changed and how the use of obsolete documents is prevented.
- Control of Records – how key operational and quality records are identified, stored, protected, retrieved and disposed of and what their retention time is.
- Internal Audit – how internal audits (that check how the QMS is operating) are planned, carried out and how any resulting actions are addressed.
- Control of Nonconformity – how nonconforming product (e.g. output material containing excessive contraries or contamination) is controlled to prevent its unintended use or delivery.
- Corrective Action – how corrective action in relation to nonconformities, customer complaints and internal issues are identified, recorded and reviewed and how action is verified as effective.
- Preventive Action – how actions to prevent nonconformity are identified and implemented and how these actions are reviewed for effectiveness.

In addition to the above mandatory procedures, the documents needed by the organisation for the effective planning, operation and control of the MRF may include procedures such as:

- Management Review – the process for reviewing the effectiveness of the QMS.
- Sales – the process for identifying and responding to customer requirements, the review of contractual arrangements and for customer communication processes.
- Purchasing – the process for the evaluation and selection of suppliers and subcontractors, the definition of purchasing requirements and the verification of purchased products and services.
- Production and Service Provision / Operations – the process in relation to the operational activity including the methods and controls required.

- Control of Equipment / Maintenance – the process for ensuring that calibrated equipment (e.g. weigh-bridge) is managed and how other equipment that has an effect on the quality of output is maintained.

In relation to the environmental standard ISO 14001, additional mandatory procedures are required for the following requirements:

- Environmental Aspects – The identification of the environmental aspect of the MRF activity and the impact of these on the environment.
- Legal and Other Requirements – How applicable legislation (and other related requirements) are identified, made accessible and maintained and how these apply to the environmental aspects.
- Competence, Training and Awareness – How persons carrying out activities that could have an environmental impact are competent and how records supporting this are maintained.
- Operational Control – The identification, planning and control of operations that could have a significant environmental impact.
- Emergency Preparedness and Response – The identification of potential emergency situations that could have an impact on the environment and how these will be responded to.
- Monitoring and Measurement – The monitoring and measurement of operations that could have an environmental impact and the alignment of this with environmental objectives and targets.
- Evaluation of Compliance – The periodic evaluation of compliance with applicable legislation.

Where appropriate, templates for the above are cross-referenced from the supporting implementation guidance: From experience (and as ISO 9001 quality management is often the first management system standard implemented), the integration of ISO 14001 and OHSAS 18001 requirements into a management system orientated around the requirements of ISO 9001 is often the most effective approach.

Depending on the MRF organisational arrangements, it is also sometimes appropriate to only integrate ISO 9001 and ISO 14001 requirements, leaving specific Health & Safety management system requirements separate – this is often because of different system ownership / responsibilities within the organisation.

As noted above, the implementation of a QMS requires the development of a series of manuals and procedures and these can either be 'stand alone' for single management system implementations or integrated to cover more than one management system standard. The document templates referred to below indicate where one, two or three management system requirements have been integrated. Further information in relation to this is contained in the detailed guidance documents.

The document templates in the table below indicate where one, two or three management system requirements have been integrated. Links to the QMS templates below and the associated guidance documentation are included on the WRAP website under the document links shown on page 5 of this report.

Table 1 Document templates

Template type / number	Description
Manual Template 1	Stand-alone ISO 9001 Quality Manual
Manual Template 2	Integrated ISO 9001 and ISO 14001 Manual
Manual Template 3	Integrated ISO 9001, ISO 14001 and OHSAS 18001 Manual
Manual Template 4	Stand-alone Health & Safety Manual
Procedure Templates QP01 to QP10	Stand-alone quality procedures

Procedure Templates MP01 to MP12	Integrated ISO 9001 and ISO 14001 management procedures
Procedure Templates HSP01 to HSP07	Stand alone Health & Safety procedures
Record / Form Templates QF01 to QFnn	ISO 9001 Quality Management System record / form templates
Record / Form Templates MF01 to MFnn	ISO 9001 / ISO 14001 Integrated Management System record / form templates
Record / Form Templates HSF01 to HSFnn	Health & Safety / OHSAS 18001 record / form templates

As noted earlier in this report, the actual use of some of the templates developed under project MRF017 have been tested by a controlled sample of MRFs. Initial feedback in relation to this has been positive. Further information is provided in the following conclusions and recommendations section.

5.0 Conclusions and recommendations

The primary conclusions reached as an out come of this project include:

- MRFs without current management systems would be more likely to implement a QMS meeting the requirements of ISO standards if templates such as those developed as part of this project were made available.
- Where a QMS has been implemented and certified, several advantages had been noted. These included:
  - perceived commercial advantage when tendering for new contracts;
  - an increased level of process awareness and the clearer identification of improvement opportunities leading to improved material output quality;
  - a more consistent / stable approach to key activities; and
  - reduced risk.

Inputs from MRFs that have seen the draft QMS templates indicate positive feedback. Other inputs during initial MRF visits also indicate that a template approach (with guidance) would encourage MRFs without any current management systems / approvals to consider the implementation of a QMS.

Some MRF Quality and Environmental Managers had stated (as part of the initial project investigations / site visits) that they would benefit from access to the following templates:

1 ISO 9001:2008 Manual or Integrated system.
2 ISO 14001 Manual.
3 ISO 18001 Manual.
4 Appendix to cross reference these standards and any other industry guidelines (e.g. RRS/HSE).
5 Mandatory Procedures common to all the standards.
6 Samples of typical flow charts for main MRF processes.
7 Samples of Risk Assessment in HSE Best Practice format.
8 Introduction - Why and what is the need for a management system.
9 Procedure for Accident Reporting to include "near miss".
10 Job Descriptions for all Managers and Supervisors.
11 Work Instructions with photos and checklists in other languages for pickers.

With the templates developed under this project, it was concluded that the majority of these needs have been addressed.

Some feedback also indicated that at some MRFs, there was a lack of clarity in relation to quality responsibilities - this resulted in, for example reduced price of bales to allow for reprocessing. The implementation of a QMS was seen as beneficial in the definition of job roles and responsibilities.

Other MRF feedback indicated 15% improvement in quality of News and PAMs when appropriate instructions were in place (in Polish and English).

Feedback from some established MRFs indicated that the templates developed under this project would be 'preferable' to their current documented systems in some cases.

The new Greenstar MRF at Derby had also requested permission to fully trial the templates and guidance documents in the implementation of an integrated management system at this new site. Greenstar are also about to purchase / take over another MRF in High Wycombe area have stated that they would like to use the templates and supporting services at this site.

Comments from some of the MRF operators, managers and supervisors that have seen and tried out the templates produced as an output form this project are reproduced below:

- "It is easy and straight forward to understand, the layout is easy to follow, and having the management forms in a separate section is uncomplicated simplicity."
- "Converting the 'draft' into a site specific document was relatively easy and not all that time consuming."
- "I have had a good look through the Quality and Environmental Systems manual and I think it is well thought out, practical, pertinent and user friendly."

Recommendations from this project include the ongoing trial of the templates and guidance information at Greenstar and the use of the templates at the integrated ISO 9001 and ISO 14001 management system being implemented under a WRAP project at Greener World – this will further prove the applicability of the generic templates in the MRF industry. The use of the templates in an actual QMS implementation will also identify any template improvements that may be beneficial before full release.

Appendix 1: ISO 9001 gap analysis and compliance table

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
4.1	Has organisation established, documented, implemented and maintained a QMS and has it **continually improved** its effectiveness (4.2.1, 4.5.1, Note: Improve 4.1.2.1)?		
	Have processes needed for the QMS been identified and applied throughout organisation? Have outsourced processes been identified?		
	Is their sequence and interaction determined?		
4.2.1	Does extent of QMS documentation consider: Competence of personnel?		
4.2.2	Does the Quality Manual include scope of the Quality Management System?		
	Does the manual include justifications for any exclusions from Clause 7?		
	Can the exclusions be justified due to the nature of the organisation/product?		
	Are exclusions limited to Clause 7?		
	Does the manual include or reference documented procedures?		
	Does the manual include a description of the interaction between the Quality Management System processes?		
	Is the description adequate for its purpose?		
4.2.3	Is there a documented procedure for control of documents covering the requirements – especially **'point of use'**?		
4.2.4	Is there a documented procedure for control of records covering the requirements?		
5.1	Is there evidence of top management's commitment to the development, implementation and improvement of the QMS?		
	Have senior management: ... communicated the importance of meeting customer and statutory/ regulatory requirements?		
	... established the quality policy?		
	... ensured quality objectives are established?		
	... conducted management reviews?		
	... ensured availability of resources?		

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
5.2	Have senior management ensured that customer requirements are determined and fulfilled with the aim of enhancing customer satisfaction?		
5.3	Does the quality policy include a commitment to comply with requirements and continually improve the Quality Management System?		
	Does the policy provide a framework for establishing and reviewing quality objectives?		
	Is it reviewed for continuing suitability?		
5.4.1	Are quality objectives established at relevant functions within the organisation?		
	Do objectives include those needed to meet requirements for service?		
	Are quality objectives measurable and consistent with the quality policy?		
5.4.2	Has senior management ensured that; the QMS is planned in order to meet the quality objectives of the organisation?		
	The QMS is planned to meet the requirements of 4.1.		
	The integrity of the QMS is maintained when changes to the QMS are planned and implemented.		
5.5.1	Have responsibilities and authorities been communicated?		
	Are they well understood in the organisation?		
5.5.2	Has senior management appointed a member of management with the authority to ensure that processes of the QMS are established, implemented and maintained?		
	Does he/she report to senior management on the performance of the system and the need for improvement?		
	Does he/she promote awareness of customer requirements throughout the organisation?		
5.5.3	Has senior management ensured processes for internal communication are established?		
	Does communication take place regarding the effectiveness of the Quality Management System?		
5.6	Does senior management review the Quality Management System at planned intervals? Does it assess improvement opportunities and need for change?		
5.6.2	Do the review inputs include customer feedback, process performance and product conformity, status of preventative and corrective actions and previous review actions?		
	Do review outputs include decisions/actions relating to improvement of; QMS and its processes, product related to customer requirements and resources?		

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
6.1	Have resources been determined and provided in order to; implement and maintain the QMS, continually improve its effectiveness and enhance customer satisfaction?		
6.2.2	Has necessary competencies been determined for those affecting service quality?		
	Has training or other actions been taken to satisfy resource needs and has the effectiveness of action taken been evaluated?		
	Have personnel been made aware of their contribution to meeting quality objectives? (relevance and importance)		
	Are records of education, training, skills and experience maintained?		
6.3	Has management determined the infrastructure needed to achieve conformity to product requirements including (where necessary): buildings/workspace/utilities, process equipment and supporting services?		
6.4	Has the work environment (needed to achieve conformity to product requirements) been determined and is it managed?		
7.1	Has the organisation planned processes for product realisation? Are quality objectives determined for the product? Are the needs for processes, documents and resources determined? Are verification, validation, monitoring and product / service acceptance criteria determined?		
7.2.1	Have requirements relating to product / service been determined? Does this include delivery and post delivery activities? Has the organisation considered requirements not stated by the customer but necessary, related to statutory/regulatory requirements and any others?		
7.2.2	Are requirements confirmed when the customer provides no documented statement of requirements? Is a record of 'contract review' maintained?		
7.2.3	Are arrangements in place for customer communication in relation to: - product/service information? - enquiries, orders, amendments etc? - customer feedback and complaints?		
	Is the effectiveness of these arrangements measured?		
7.3.2	Design and development inputs Are requirements for product function and performance defined and documented? Have applicable statutory and regulatory requirements been defined?		Note: Requirement 7.3 Design and Development can normally be excluded at an MRF
7.3.3	Design and development outputs Are outputs in a form that allows design input verification? Do outputs provide appropriate information for purchasing/production/service?		
7.3.4	Are systematic reviews of the design/development conducted at suitable stages and do they identify issues and actions?		

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
7.3.5	Is verification / validation undertaken to verify product is capable of meeting requirements?		
7.3.6	Is validation undertaken prior to the delivery or implementation of product? Are results of verification / validation and any follow-up actions recorded?		
7.3.7	Are design/development changes evaluated, verified and validated before implementation and the results of the review and actions recorded?		
7.4	Have criteria for selection, evaluation and re-evaluation of suppliers been established? Is PO information adequate and is approval method defined?		
7.5.1	Control of production and service provision Do controlled conditions include: - Availability of information describing product / service? - Availability of work instructions? - Use of suitable equipment? - Availability and use of monitoring and measuring devices? - Implementation of monitoring and measurement? - Release, delivery and post-delivery activities?		
7.5.2	Where appropriate, has validation of processes been addressed?		
7.5.4	Customer property Are there processes in place for control of any IP?		
7.5.5	Preservation of product During internal processing and delivery is there: - identification, handling, packaging, storage and protection? - preservation of constituent parts?		
7.6	Control of monitoring and measuring devices		
8.2.1	Monitoring of information on customer perception re: requirement fulfilment: - Are methods for obtaining and using information determined? - Has the customer satisfaction data needed been determined?		
8.2.2	Do audits check that QMS complies with planned arrangements, QMS requirements and requirements of the standard?		
	Do audits have a clear scope and take into account previous findings when setting frequency and method?		
	Has the competence of Internal Auditors been considered/ documented?		
8.2.3	Have methods been applied for monitoring and measuring of the Quality Management System processes?		
8.2.4	Monitoring and measurement of services Are service characteristics monitored / measured at appropriate stages? Is evidence of conformity with acceptance criteria maintained? Is concession system un-necessary (ref: 8.3 also)?		

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
8.3	When NC product is detected after delivery, is appropriate action taken regarding actual or potential consequences of the non-conformity?		
	Is reporting of NC rectification clear re: customer, end user, regulatory body?		
8.4	Analysis of data Is customer satisfaction analysed?		
	Is conformance to service requirements analysed?		
	Are characteristics and trends of processes and services monitored? Does this including identifying opportunities for preventive action?		
8.5.1	Is continual improvement demonstrated by the organisation?		
	Is it conducted through use of quality policy, quality objectives, audit results, data analysis, corrective and preventive action and management review?		
8.5.2	Do the procedures for corrective action address the causes of non-conformities in order to prevent recurrence?		
	Do the procedures for corrective action include the review of the effectiveness of corrective action taken?		
8.5.3	Do the procedures for preventive action address the elimination of the causes of potential non-conformities in order to prevent their occurrence?		
	Do the procedures for preventive action include the review of the effectiveness of preventive action taken?		

The above table can be used to identify compliance with the requirements of ISO 9001 and / or identify areas where further implementation activity is required.

Appendix 2: ISO 14001 gap analysis and compliance table

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
4.1	Has org established, documented, implemented and maintained an EMS and has it **continually improved** its effectiveness (4.2.1, 4.5.1, Note: Improve 4.1.2.1)?		
	Has the organisation defined and documented the scope of its EMS?		
4.2	Has senior management defined the organisations environmental policy and ensured that (within the scope of the system) it: a) is appropriate to the nature, scale and impact of its activities? b) includes a commitment to continued improvement and pollution prevention? c) includes a commitment to comply with applicable legal regulations and other requirements that relate to environmental aspects? d) provides a framework for setting and reviewing environmental objectives and targets? e) is documented, implemented and maintained? f) is communicated to all persons working for/on behalf of the organisation? g) is available to the public?		
4.3.1	Has the organisation established, implemented and maintained procedure(s): a) to identify environmental aspects of its activities, products ... that it can control / influence etc? b) to determine aspects can have a significant environmental impact? Has the organisation documented / maintained this information? Has the organisation ensured that significant environmental aspects are taken into account in establishing, implementing and maintaining its EMS?		
4.3.2	Has the organisation established, implemented and maintained procedure(s): a) to identify / have access to applicable legal requirements to which the organisation subscribes related to environmental aspects? b) to determine how these requirements apply to environmental aspects?		
	Has the organisation ensured that applicable legal requirements to which it subscribes are taken into account in establishing, implementing and maintaining its EMS?		
4.3.3	Has the organisation established, implemented and maintained environmental objectives and targets at relevant functions and levels within the organisation? Are these objectives and targets measurable (where practicable) and consistent with environmental policy (inc. prevention of pollution, compliance to legal requirements and continual improvement)?		

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
4.3.3 (cont.)	Does the organisation take into account applicable legal requirements and its significant environmental aspects when establishing and reviewing its objectives and targets?		
	Has the organisation established, implemented and maintained a programme for achieving its objectives and targets, including: a) designation of responsibility for achieving objectives and targets? b) means and time frame by which they are to be achieved?		
4.4.1	Has management ensured the availability of resources to establish, implement, maintain and improve the EMS? Do resources include HR and specialised skills, infrastructure, technology and financial resources? Are roles, responsibilities and authorities defined, documented and communicated? Does this facilitate effective environmental management? Has senior management appointed a specific management rep who, irrespective of other responsibilities, has defined roles, responsibilities and authorities for: a) ensuring EMS is established, implemented and maintained in accordance with requirements of ISO 14001:2004? b) reporting to senior management on the performance of the EMS, including recommendations for improvement?		
4.4.2	Has the organisation ensured that persons performing tasks that could potentially cause significant environmental impact are competent on basis of appropriate education, training or experience? Are associated records maintained?		
	Are training needs associated with its environmental aspects and EMS identified by the organisation? Is training, or other action, provided to meet these needs and are records maintained? Has the organisation established, implemented and maintained a procedure to make persons aware of: a) importance of conformity with environmental policy and EMS procedures? b) significant environmental aspects and related actual/potential impacts associated with their work and environmental benefits of improved personnel performance? c) their roles and responsibilities in achieving conformity with requirements of the EMS? d) potential consequences of departure from specified procedures?		

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
4.4.3	With regard to environmental aspects / EMS, has the organisation established, implemented and maintained procedure for: a) internal communication at various levels in the organisation? b) receipt, documentation and response to relevant external communications? Has the organisation decided whether to communicate externally its significant environmental aspects and is this decision documented? If the decision is to communicate, has a method for this external communication been established and implemented?		
4.4.4	Does the EMS documentation include: a) environmental policy, objectives and targets? b) description of the scope of the EMS? c) description of the main elements of the EMS, their interaction and reference to related documents? d) documents, including reports, required by the standard? e) documents, including reports, determined to be necessary to ensure effective planning, operation and control of EA related processes?		
4.4.5	Are documents required by the EMS / standard controlled? Has the organisation established, implemented and maintained a procedure to: a) approve documents for adequacy prior to issue? b) review, update and re-approve? c) ensure changes / issue status are identified? d) ensure relevant documents are available at point of use? e) ensure documents remain legible and readily identifiable? f) ensure relevant external documents are identified/distribution controlled? g) prevent unintended use of obsolete documents?		
4.4.6	Has the organisation identified and planned operations which impact environmental requirements to ensure they are carried out under specified conditions, by: a) establishing, implementing and maintaining documented procedures to control situations where their absence could lead to deviation from EMS requirements? b) stipulating operating criteria in the procedures? c) establishing, implementing and maintaining procedures related to any identified significant environmental aspects of the goods and services used by the organisation and communicating applicable procedures to suppliers / subcontractors?		
4.4.7	Has the organisation established, implemented and maintained a procedure to identify potential emergency situations / potential accidents that could have an impact on the environment, and how it would respond to them?		

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
4.4.7 (cont.)	Has the organisation responded to actual emergency situations and accidents and prevented / mitigated associated adverse environmental impacts? Has the organisation periodically reviewed and (where necessary) revised its emergency preparedness and response procedures, in particular after the occurrence of accidents or emergency situations? Has the organisation tested such procedures where practicable?		
4.5.1	Has the organisation established, implemented and maintained a procedure to monitor and measure (on a regular basis), the key characteristics of its operations that can have a significant environmental impact? Does the procedure include documenting of information to monitor performance, applicable operational controls and conformity with environmental objectives and targets? Does the organisation ensure that calibrated or verified monitoring and measurement equipment is used / maintained and associated records retained?		
4.5.2.1	Has the organisation established, implemented and maintained a procedure for periodically evaluating compliance with applicable legal requirements? Are records kept of the periodic evaluations?		
4.5.2.2	Does the organisation evaluate compliance with other requirements to which it subscribes (this can be combined with 4.5.2.1 above)? Are records kept of the periodic evaluations?		
4.5.3	Has the organisation established, implemented and maintained a procedure for dealing with actual and potential nonconformities and for taking corrective and preventive action? Does the procedure define requirements for: a) identifying and correcting potential NCs and taking actions to mitigate their environmental impact? b) investigating NCs, determining cause and action to prevent recurrence? c) evaluating the need for action to prevent NC and implementing appropriate actions designed to avoid their occurrence? d) recording results of corrective and preventive actions taken? e) reviewing effectiveness of corrective and preventive actions taken?		
4.5.4	Has the organisation established and maintained records as necessary to demonstrate conformity to requirements of its EMS and the ISO 14001 standard, and the results achieved?		

ISO sect	Standard requirement	Findings/ compliance	Status/comments / reference
4.5.4 (Cont.)	Has the organisation established, implemented and maintained a procedure for the identification, storage, protection, retrieval, retention and disposal of records? Are records, and do they remain, legible, identifiable and traceable?		
4.5.5	Are internal audits of the EMS conducted at planned intervals? Do they: a) determine whether the EMS; 1) conforms to planned arrangements for EM including requirements of the standard? 2) has been properly implemented and maintained? b) provide information on results of audits to management? Are audit programmes planned, established, implemented and maintained, taking into account importance of the operations concerned and previous audit results? Has an audit procedure been established, implemented and maintained that includes: - responsibilities and requirements for planning and conducting of audits, reporting results and retaining associated records? - determination of audit criteria, scope, frequency and methods? Does the selection of auditors ensure objectivity and impartiality?		
4.6	Does senior management review the EMS at planned intervals to ensure continued suitability, adequacy and effectiveness? Does the review include assessing opportunities for improvement and the need for any changes (including policy, objectives and targets)? Are records of management review retained? Does input to management review include: a) results of internal audits and evaluation of legal compliance? b) communications from interested external parties, including complaints? c) environmental performance of the organisation? d) extent to which objectives and targets have been met? e) status of corrective and preventive actions? f) follow-up actions from previous management reviews? g) changing circumstances, including legal requirement developments? h) recommendations for improvement? Do outputs from the review include actions/decisions related to possible changes to policy, objectives, targets and other elements of the EMS, consistent with continuous improvement?		

The above table can be used to identify compliance with the requirements of ISO 14001 and / or identify areas where further implementation activity is required.

Appendix 3: OHSAS 18001 audit checklist

Audit checklist	Clause
Policy Is there a documented H&S policy and is this displayed in appropriate areas?	**4.2**
Organisation and responsibility Is there a management OH&S representative and is this person a senior executive?	**4.4.1**
Training, awareness and competence Is there a H&S based training programme? Does this reflect in actual training levels and are records current and appropriate? Are the H&S requirements of all tasks clearly stated within procedures or work instructions and are these available to all personnel?	**4.4.2**
System requirements Does the OH&S policy manual address fully the requirements of the OH&S management system? Are the procedures listed and do these address fully the requirements of the H&S system? *Where procedures accommodate both ISO 9001:2008 and OH&S requirements you must check that original ISO 9001 procedures have been properly extended to envelope OH&S requirements.* The systems "plan" will invariably be the actual operating system itself. You should check that the system or plan does address: • Hazard identification. • Risk assessment. • Control measures and their implementation. • Legal requirements. • Objectives. • Management programme. Within the system, i.e. procedures, work instructions, and records; there should be sufficient information to describe the requirements of the operation without any ambiguity. Have you checked that this is the case?	**4.1**
Document control Are controlled documents fully listed? Is there a procedure covering the recording and communication of changes/amendments and is there evidence that this is done? Has the organisation listed all HSE regulations/legislation relating to its activities and how do they know this? Is the legislation clearly understood? Is there provision within the system for determining regulation changes and are these current?	**4.4.5**

Audit check list	Clause
Hazard identification, risk assessment and control Is there evidence of a pro-active approach to risk assessment? Are you satisfied that all risks for the organisations scope have been listed and considered? Have risk assessments been carried out on all the listed known hazards? Is there clear understanding of tolerable risk? Is there evidence of conscious effort to reduce all risks, tolerable or not? Are the assessed risk levels clear between "likelihood" and "severity" and does the system clearly separate the two? Can satisfactory progress on improvements required to reduce risk be demonstrated and are these properly targeted and followed up? Is there a system for periodic risk review and re-assessment and is this actually carried out? NB. Detailed checklists for typical risks encountered are included later in this document for workplace audit assistance if required.	**4.3.1**
Operational control *NB The requirement for the system to envelope details of all H&S needs impacting upon operational activity is covered under training. Since it is also referenced under Operational, this is a belt and braces opportunity to ensure compliance.* Is there a list of purchased goods and services? In the case of *goods* you will be looking for COSHH data sheets which should as a matter of procedure be requested from suppliers. Purchased services may have an OH&S impact through sub-contract personnel, their PPE, equipment used by them etc. Are the associated risks understood, assessed, and incorporated into the organisation's regularised controls?	**4.4.6**
Emergency preparedness and response Is the potential for incidents and emergencies clearly stated, ideally through risk assessment, and are measures in place for their prevention? Is there an emergency response plan and is this unambiguous, clearly displayed, and available to all personnel? NB This should extend beyond fire to other potential emergency situations. Is there evidence of emergency procedure review? Are emergency procedures periodically tested with due record? Does the test frequency seem appropriate? Is there provision EITHER within emergency procedures OR arrangements with emergency services (especially fire service), for disclosing the hazards associated with stored materials AND the premises construction materials, in both their normal and burning state?	**4.4.7**

Audit check list	Clause
Consultation and communication *In a small organisation of up to 6 persons you should look for a culture of continual and natural communication of all matters including OH&S.* Is this apparent? *Otherwise, and certainly in larger organisations, you should be looking for an OH&S workforce representative*. Is there one? *The purpose of a workforce representative is to ensure workforce views may be presented to management in an unrestricted manner. The communication of OH&S requirements and change MUST be carried out through the management/supervisory chain and certainly not via the representative if management control is to be protected.* Is this in fact the case?	**4.4.3**
Checking and corrective action Is there evidence of accident/incident investigation? Are OH&S performance monitors in place? Is the recorded data sufficiently meaningful to enable beneficial corrective and preventive action implementation and is there evidence of this?	**4.5.3**
Do the monitors cover at least the following: • accidents; • ill health; • incidents or near-misses; • achievement of objectives; and • legislation and regulatory compliance? Is there evidence of procedure revision to reflect corrective and preventive actions as outlined above? Are workplace inspections carried out? Is there an OH&S systems audit process and is there evidence of its use at a frequency appropriate to reasonable systems control?	**4.5**
Management review Is there a management review procedure? Are the intervals between reviews appropriate? Are review meetings led by a senior person and is there representation at the meetings from key parties and/or groups? Where review additionally encompasses other controls such as ISO 9000 and 14000 for instance, is due importance given to H&S within the meeting? Has the meeting addressed all key aspects of the OH&S system including: • accidents; • ill health; • incidents including near-misses; • risk assessment; • COSHH assessment; • changes in legislation; and • key objectives?	**4.6**

The above table can be used to identify compliance with the requirements of OHSAS 18001 and / or identify areas where further implementation activity is required.

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