



The golden rule when implementing the results of a waste audit is to involve everybody, from shop floor to corner office.

Step by step: waste audit

In October, Waste Audit and Consultancy Services outlined the key steps in planning and conducting a waste audit. Here, they show how to interpret and implement the findings.

Identifying the real costs of waste and how to reduce them involves a structured and methodical process, typically a waste audit. The most important step in the process is to scope the audit before beginning the process, because knowing exactly what you want to achieve will dictate the audit methodology.

If this is done correctly, the scope of the audit will also serve as a framework for the implementation plan.

The key steps in planning and conducting a waste audit are:

STEP 1 – SCOPE THE AUDIT

- What do you want to achieve?
- What do you already know and importantly, what don't you know?
- Is compliance with legislation, codes or policy an issue?

STEP 2 – GATHERING THE DATA OR FILLING IN THE GAPS

- What's actually in the bin?
- What is going into the treatment plant?
- How much waste do you generate?
- How much product is going out the back door as waste?
- Why is it being generated?

STEP 3 – DEVELOPING THE ACTION PLAN AND IMPLEMENTATION

- What do you do with the data?
- What should be addressed first, how and by whom?
- How do you ensure ongoing cost savings?

In October we explained Steps 1 and 2. Here we will work through Step 3. Having completed the waste analysis and site analysis you may be overwhelmed with information and data. Drawing out meaningful conclusions and results can be a difficult task.

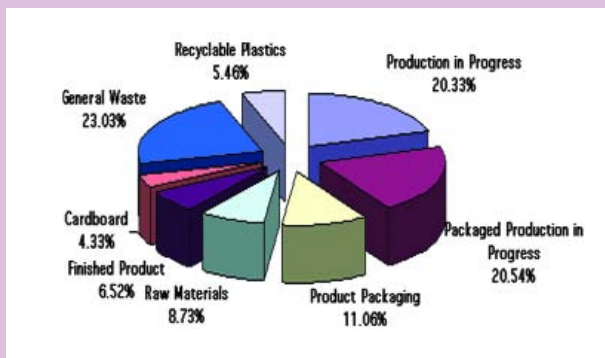
We often find that good information and data captured during an audit is not fully utilised; there's a lack of confidence to undertake further detailed analysis or a misinterpretation of what the data indicates. The first step in implementation, therefore, is to determine what it all means.

Step 1: Data validation

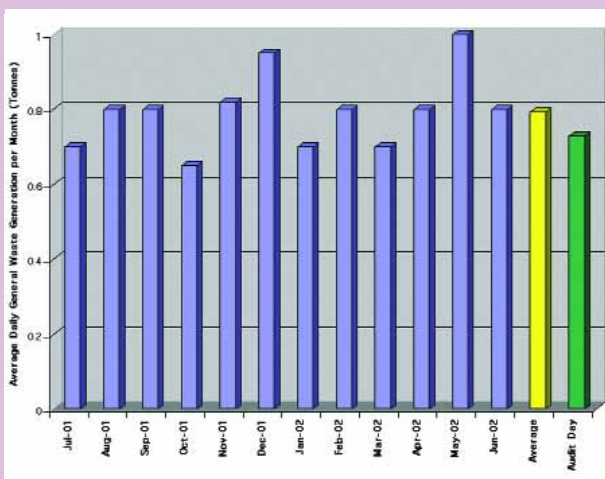
The first step in the data analysis is to validate the audit data. It is pointless and dangerous to use the audit data as a basis for action unless it has been validated. Is the audit sample representative? How does it relate to annualised activity?

Providing you have selected your sample correctly, the composition should be representative, at least of the activities covered. For example, you may have audited a normal processing period, but not covered the monthly shut down and maintenance activities. If an audit of normal processing waste was your objective, this is perfectly valid, but your results must state this, defining the scope of the data and exclusions, such as shut down waste.

Having done this you should be able to compare your audit findings to historical data. You may need to allow for increased or decreased activity during the audit period. Be sure to state all your assumptions and findings.



Begin analysis of the audit data by creating clear tables and graphs, such as the composition of the general waste stream (above) and how well the audit day results match average figures (below).



Step 2: Data analysis

Following sample validation you can begin your analysis. Firstly summarise your audit data into tables and graphs to allow the information to be reviewed. At this stage summarise departments or areas, but try to keep as much detail on the actual types of waste found as possible as you do not know what may or may not be important.

During the analysis you will need to review all information to ensure your interpretations are accurate, which includes, as well as the data from the audit, the information gained during the site review and comments from personnel. For example, the audit data may show a large percentage of cardboard in the general waste stream from Department A. Given that you have cardboard recycling in place, you may interpret this as lack of awareness of the part of operators and instigate an education campaign. However, looking at your site analysis information you note that there are no cardboard recycling cages located in Department A's area. The solution therefore is not one of education and awareness, but a systems issue.

Remember also to review the staff survey results you have received. These will indicate the level of training and understanding by staff of waste issues. This information will inform the training requirements of site staff.

As an overall guide you should refer back to the scope of the audit and why it was conducted. Your analysis, as a minimum, must address this issue, ensuring your stakeholders are satisfied and implementation can proceed with full support.

Step 3: Implementation

The implementation plan is actually the same for all organisations. It consists of one action: involve site personnel.

It would be very easy to develop a waste reduction action plan based on the findings of the waste audit and data analysis. As discussed in October, the waste audit, if undertaken correctly, identifies the key actions that are necessary for waste reduction. However, to be sustainable, it is critical that personnel who have an impact on the level of waste have ownership of the implementation.

Results of the waste audit are presented to senior management. We always recommend that a site waste team is formed and that all staff are presented with the results of the waste audit. This forms an important first step in the education program. The site waste team may need some

Step 4: Monitor and review

As with any plan, it is essential that the actions are monitored and outcomes reviewed to ensure the objectives are met. In the example above, the expected increase in diversion may not occur for a number of reasons:

- the cages are not placed where the cardboard is generated;
- workers may not know what the cages are for; or
- cleaners may not have been informed, and are emptying the cages into the general waste.

And so on. Implementation plans must be reviewed to ensure that they address all those impacted by the change. Implementing new systems will not in itself result in change.

The waste team should include in its protocols regular review of changes that have been implemented and reporting of outcomes. The action plan then becomes an ongoing process, with new actions being developed as changes in the workplace present new challenges and as the level of sophistication and experience of the team grows.

Waste minimisation is an on-going journey of learning, trialling, implementation and partnerships. If the process is supported by senior management and has on-floor ownership and enthusiasm, it can lead to beneficial environmental and business outcomes.

More information from Pam Keating or Robyn Pearson of Waste Audit and Consultancy Services at pam@wasteaudit.com.au or robynp@wasteaudit.com.au



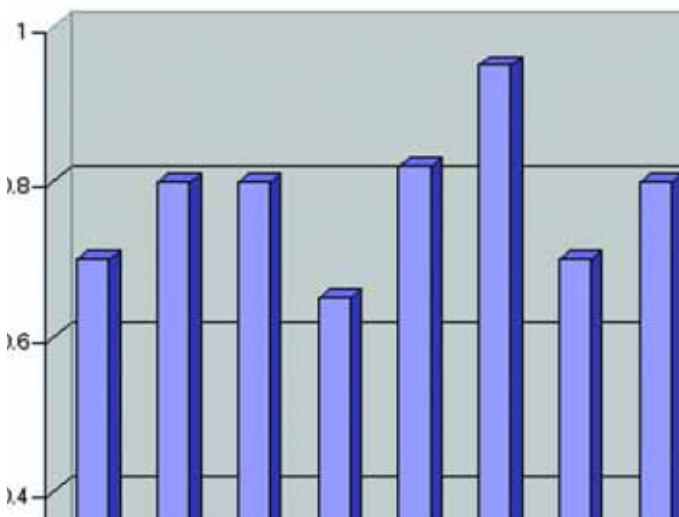
Form a site waste team to take ownership and steering of the audit recommendations.

facilitating, however the final outcome - the waste reduction action plan - should be seen by all as a joint outcome.

As with all business plans, your waste reduction action plan should consist of the following elements:

- 1) an issue, clearly stated – eg cardboard in general waste stream;
- 2) agreed action to address the issue – eg cardboard recycling cages to be put in area A;
- 3) assignment of responsibility – eg Tom from maintenance will source additional cages;
- 4) deadline – eg cages will be in place by December 15;
- 5) measurement of success – eg cardboard recycling system in place in Area A.

An action may be simple and straightforward – put recycling cages in the area to allow cardboard to be diverted for recycling. However, simply installing the cages may not lead to increased diversion.



Implement the recommendations on the ground - install cardboard cages - and review performance.

CLIENT PROFILE

Medium sized food manufacturing company with sites in NSW, Queensland and Victoria, with a total of 800 employees.

Project Scope

Compliance with waste legislation, specifically reduction of waste to landfill, and a review of the cost effectiveness of waste management systems.

Process

- 1) Detailed waste audit of total waste and recycling stream.
- 2) Process and site review.
- 3) Development of recommendations and action plan.
- 4) Education of all site personnel.
- 5) Facilitation of waste reduction teams.

Findings

- 62 per cent of material generated being diverted from landfill.
- An additional 30 per cent of waste was identified as potentially recyclable.
- Savings identified through process improvements amounted to \$132,000 annually.
- Value of product being discarded totalled \$700,000.

Outcomes

Within six months of the inauguration of the waste reduction teams the company had realised annual savings of \$413,000, with an ROI of 477 per cent.

CLIENT PROFILE

Medium sized printing company with two sites in NSW and a total of 300 employees.

Project Scope

Identification of a waste reduction action plan and implementation of National Packaging Covenant (NPC) action plan.

Process

- 1) General awareness campaign.
- 2) Waste systems review.
- 3) Focus groups.
- 4) Development of Waste Reduction Action Plan.
- 5) Facilitate implementation through site waste teams.

Findings

- Employees initially displayed a negative attitude to new initiatives (as a result of recent changes in ownership).
- Waste teams had plenty of good ideas.
- Senior management was totally supportive of all initiatives and departmental waste teams.

Outcomes

- Waste reduction teams formed in all departments.
- Employees were enthusiastic and proactive in suggesting new waste reduction and diversion opportunities.
- A 30 per cent increase in the diversion of materials to recycling within the first three months.
- Implementation of waste avoidance practices has led to savings in waste disposal fees of \$81,000 per annum and an additional saving of \$55,000 per annum in reduced purchasing costs.
- Working with supply chain to reduce waste impacts.

Waste audit flowchart

1 PLANNING

- Management commitment to proceed.
- Initial site meeting:
 - Confirm objectives;
 - Confirm scope of audit - type & outcomes;
 - Prioritise objectives;
 - Agree audit date and point of contact for the audit
 - Discuss responsibilities and actions.

Confirmation letter with all details sent including draft staff survey

2 ORGANISATION

- Second detailed site visit:
 - Identify waste systems/types;
 - Logistical issues confirmed ie site of audit, amenities, access;
 - Confirm waste collection period/process.
- Collect preliminary data / information.
- Organise waste contractors.
- Verify audit sample size.
- Conduct OH&S risk assessment.
- Select audit team/resources required.

Audit and OH&S plan

3 WASTE ANALYSIS

- Set up audit site.
- Collect waste sample: verify all waste has been brought to audit site.
- Staff survey to be circulated.
- Conduct waste characterisation.
- Decontaminate – site and auditors.
- Dispose of waste appropriately.

4 SITE ANALYSIS

- Investigate issues found during waste analysis.
- Discussion with relevant staff.

5 DATA ANALYSIS

- Enter and verify data.
- Analyse and validate data.
- Review all information/data.
- Collate staff surveys and interpret.
- Identify potential opportunities for improvement.
- Conduct feasibility reviews of options.
- Investigate new options.

Waste audit report

6 IMPLEMENTATION

- Education program.
- Waste reduction action plan.
- Monitoring plan.
- Re-audit schedule.

Review



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