

35. AUDIT OF CURRENT AND POSSIBLE FUTURE COUNCIL ACTIVITY AND DEVELOPMENT IN LIQUID AND SOLID WASTE

RR 10588

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Corporate Plan Output: Waste Management Unit – Solid and Liquid Waste	

The purpose of this report is to respond to the Annual Plan Working Party's request to the City Manager for an audit of the Council's current and possible future activity and development in Liquid and Solid Waste and to give assurance that:

- (a) Proposed developments do not preclude the adoption of reliable new technology in the future.
- (b) Capital is not invested in systems that may become obsolescent in a short period, and also that comparisons be made with recent developments in Europe and USA.

AUDIT METHODOLOGY

The Council's current and known proposed future activities and developments are outlined in the Waste Management Unit Corporate Plan.

For each current activity or development, the implementation date is listed on the attached schedule together with likely life before obsolescence and whether the activity or development can be updated. Additional explanatory comments are added in the last column. In addition, possible future developments are listed together with explanatory comments. Issues of obsolescence for major projects and alignment with overseas technology and development are commented on in later sections of this report.

The audit has been undertaken by Mike Stockwell, (Waste Manager) with input from Jonathan Fletcher (Director of Policy), Mike Bourke (Wastewater Manager), Walter Lewthwaite (Wastewater Engineer), Simon Collin (Solid Waste Manager), and Eric Park (Solid Waste Engineer).

WASTE MANAGEMENT PLANS

Liquid Waste

It is intended that all current and future activities and developments in the liquid waste area will fall under the umbrella of a new comprehensive Liquid Waste Management Plan (LWMP). This plan, shown as item 1 in the attached schedule, will be developed in 1999/2000 in a similar manner to the process that the Council followed for its Solid and Hazardous Waste Management Plan. This process will include consultation with all sectors of the community, both private and commercial. It is to be noted that item 2 in the Schedule, i.e., the Liquid Waste Asset Management Plan which the Council adopted in September 1997 (and which will be reviewed as part of the Outputs and Standards Review) will form a major element of the LWMP. Most other elements of the proposed new LWMP plan are covered by the other items in the Schedule, though some additional items will of course emerge during the development stage of the plan.

Development of the LWMP is expected to be a relatively straight forward task and it will pull together existing activities and developments into an all embracing, co-ordinated format that will provide strategic focus for current and future Liquid Waste activities. The LWMP will of course be a living document that will be under constant review to take into account new technology, developments and opportunities including the changing requirements of the community who are our customers. It is anticipated that the first version of this plan will be published in late 2000 with updates five yearly.

Solid Waste

The Council's Solid Waste activities are guided by its Solid and Hazardous Waste Management Plan (SHWMP). This plan was produced in accordance with Local Government Amendment Act No 4 which requires the following of Territorial Local Authorities:

- Establishment of a Waste Management Plan in line with the internationally accepted waste minimisation hierarchy, i.e, reduction at source, reuse, recycling, reclaim and residuals safe disposal.
- Inclusion of polluter pays principles.
- Use of incentives and disincentives to facilitate the objectives and goals of the plan.

The SHWMP was developed by the Council in full consultation with both public and commercial sectors of the community. It was first published in 1994 and has been subsequently updated, reaffirmed by the Council and republished in 1998. The Council's Solid and Hazardous Waste **vision** as enshrined in the Plan is to **minimise the impact of solid waste on the environment**. To achieve this, the Plan incorporates significant waste minimisation goals as follows:

- 14% reduction to landfill by 2000
- 30% reduction to landfill by 2005
- 100% reduction to landfill by 2020
i.e. zero waste to landfill by 2020

The SHWMP is shown as item 1 on the schedule of current and future Solid Waste activities and developments. All other items listed fall under the umbrella of the Plan and can be regarded as steps along the way towards achievement of the Plan's waste minimisation goals.

It has been said that the goal of zero waste to landfill by 2020 is at best idealistic and at worst impossible to achieve. Movement towards this goal depends upon how much effort and money the community, both public and commercial, is prepared to invest. It also depends upon what methods of waste disposal the community decides are socially acceptable. For example, close to zero waste to landfill could be achieved right now by dramatic changes in our approach to product design and packaging, and recycling of virtually all waste products, but this would require significant additional financial investment. Alternatively all waste could be incinerated again at huge additional cost, whilst still leaving the problems of toxic ash to be dealt with together with problems of community acceptability of exhaust gas emissions.

It should be noted that the next significant step the Council takes in waste reduction is likely to be to increase the capability of our compost operation to process putrescibles, more green waste, some paper and biosolids. (Note that putrescibles, green waste and paper are the three biggest contributors of waste to the landfill and the former two cause the biggest nuisance in terms of gas and leachate production).

As with the LWMP, the SHWMP is under constant review to take into account new technology developments and opportunities including changing requirements of the community. The SHWMP Plan will be formally reviewed and republished by the Council each five years (next time in 2003).

It should be noted that whatever path the Council takes in its path to reduce waste to landfill, very significant additional effort and financial investment will be required if its SHWMP goals are to be achieved.

ISSUES OF OBSOLESCENCE

The Annual Plan Working Party has requested assurance that capital is not invested in systems that may become obsolescent. This issue is addressed in the attached schedule of current and possible future activities and developments. It is pertinent also to expand this comment for various major projects below.

Liquid Waste:

(a) Christchurch Wastewater Treatment Plant Capacity Upgrade

Development of the upgrade options for the Christchurch Wastewater Treatment Plant has involved the USA based partners of the lead consultants (lead consultant Beca's, international partners CH2 M Hill). This international input has been used in the design of trickling filter/solid contact process chosen for the capacity upgrade. Furthermore the treatment process finally selected has been peer reviewed by another New Zealand company with strong international links (NZ company Woodward Clyde, international partner URS Greiner). The final design was chosen as being the most cost effective that was available for the required additional processing capacity, whilst at the same time allowing for addition of other processes in the future if they become necessary, for example UV disinfection, biological nutrient removal and so on.

(b) CWTP New Discharge to Air and Effluent Resource Consent

The Council has been engaged in an extensive process for the past two years to select a favoured option to develop for resource consent application renewal. This has involved many consultants with international connections and linkages, for example Woodward Clyde, Beca, NIWA, Cawthron, UniSearch and many others.

Once the favoured option is selected and approved for resource consent application a Request for Proposal process will be implemented to select a lead design consultant in a similar fashion to that used for (a) above.

Similar peer reviews will then be carried out for each step of the way during the design phase to ensure alignment with latest technology and ensure that early obsolescence is avoided.

It should be noted that a Consent will be sought that defines an environmental outcome, but leaves open the precise details of the technical solutions to get to that outcome. By that means, the desired outcome which could be some years away, will be able to include the best technology available at the time.

(c) *New Trade Waste Bylaw*

It is proposed to introduce a new Trade Wastes Bylaw this year that is modeled on the New Zealand Standard model bylaw and fits the spirit of the Resource Management and Local Government Acts. The new Bylaw has been developed in consultation with industry and a Councillor led working party. The significant changes with the new Bylaw are that the volume charge will now be on the basis of total volume rather than peak flow rate which will encourage users to reduce water consumption and discharge to the sewer system. The other significant change is that the new Bylaw will give the Council the opportunity to charge industry for the mass of contaminants they discharge, for example to charge directly for heavy metals. The target date for introduction of the new Bylaw is during the 1999/2000 year. New user charges for volume, BOD, suspended solids will come into effect on that date. Heavy metals charges will also be introduced on that date and be progressively increased over a six year period. This will give industrial users a period of grace to reduce their heavy metal contaminants by improvements within their own businesses.

(d) *Liquid Waste Minimisation*

The new Trade Wastes Bylaw is expected to have the effect over time of reducing strength and volume of industrial effluent to the Treatment Plant. At most this will affect the timing for further expansions in treatment capacity and will not render currently planned improvements and capacity expansion in any way redundant.

Similarly, it is possible that technology changes and pressure on our water supply resources will lead to a dramatic change in approach to residential wastewater disposal. For example, the community could make major investments in on site processes designed to enable 'grey water' (i.e. water used for clothes washing, baths and showers etc) to be re-used for toilet flushing and garden watering. This has the potential to significantly reduce the volume of wastewater discharged to sewer and again would only affect the timing of future upgrades. Currently such initiatives are not considered cost effective by most people.

A discharge consent that specifies an environmental outcome, as referred to in (b) above will enable the Council to take advantage of any reduction in the strength or quantity of the wastewater.

However for the foreseeable future there will still be a need for a sewerage system, a centralised treatment plant at the downstream end of the system and a discharge of treated effluent to the environment. In other words, a zero waste to sewer by 2020 (or even 2050) target is not considered to be at all realistic.

(e) *Other Developments*

These are commented on in the attached schedule. Alignment with latest technology and avoidance of early obsolescence is/will be handled as in (a) and (b) above.

Solid Waste

The process for avoiding obsolescence for Solid Waste projects is similar to that described above for Liquid Waste projects (ie use of international input and peer reviews). It is considered relevant to comment on the new Regional Landfill project which is by far the largest of the Council's Solid Waste projects on hand - for others refer to the attached schedule.

(a) *Canterbury Regional Landfill*

In 1996 Canterbury Regional Territorial Local Authorities went to the market place seeking joint venture proposals for a new Canterbury Regional Landfill to replace fast filling up old fashioned dumps. Six companies with international partners submitted proposals including offering alternative methods of final waste disposal, for example by incineration. A rigorous evaluation process occurred to select joint venture partner(s) including evaluation of alternative technologies. Disposal by landfill was finally chosen as being technically safe, environmentally safe, operationally and capitally affordable and able to be modified at a later date to take advantage of advancement in new technologies. It is relevant to note that the Council has a major overriding solid waste goal of zero waste to landfill by 2020. Achievement of this goal will inevitably require use of new or improved technologies to get there – for example increased recycling of used materials into new products, automated used materials sorting, tyre pyrolysis to name a few.

ALIGNMENT OF COUNCIL ACTIVITY AND DEVELOPMENT WITH OVERSEAS

The professional staff of the Waste Management Unit keep abreast of overseas activity and development by studying the literature, discussion with colleagues working in the same disciplines in other parts of New Zealand and overseas, the World Wide Web, and attendance at conferences, technical seminars, site visits and technical exchanges both in New Zealand and overseas. In addition, as outlined in the section above, all of the Council's major projects have substantial input from professional consulting firms who have extensive connections overseas, often with satellite consulting offices which are part of their own company. These are all the usual methods by which professionals keep themselves abreast of their field. It is in this way that the Councils current and known future developments are aligned with best (affordable) overseas practice within the limits of what the residents of Christchurch are likely to be prepared to pay. i.e. put another way the Council's capital is indeed currently being invested wisely. In addition all existing and proposed developments can be seamlessly modified or upgraded in the future as new technology becomes available and affordable.

NATIONAL WASTE MINIMISATION LEGISLATION

This Council has made huge strides in the past three years in its waste minimisation efforts. These are all summarised one way or another in this report. It is clear that in spite of continuing efforts that in order to achieve our long term waste minimisation goals the introduction of national waste minimisation legislation will be necessary, for example minimum recycled content of drink containers and newspaper, deposits on drink cans, waste reduction targets, packaging legislation.

To facilitate such legislation, in July 1999 this Council put a remit to the Local Government New Zealand meeting as follows:

“That the LGNZ approaches central government proposing that LGNZ establishes a working party involving a community representative involved in waste minimisation from each of the metropolitan, provincial and rural sector areas and appropriate representatives from local government, central government, and industry and commerce with a brief to investigate and advise government on what legislative and other national initiatives are needed to ensure that waste minimisation is achieved in New Zealand. The Working Party to report on the outcome of their investigation to the 2000 annual general meeting.”

Currently John Hutchings at LGNZ Wellington has been tasked to get this moving and the Waste Management Unit has recently offered some assistance. We will be following up.

SUMMARY

This audit of the Council's activity and development in Liquid and Solid Waste has been carried out by a team lead by Mike Stockwell (Waste Manager) and colleagues including the Director of Policy, Wastewater Manager, Wastewater Engineer, Solid Waste Manager and Solid Waste Engineer. The Waste Manager and colleagues have concluded that the Council is indeed investing capital wisely in existing and proposed future developments which can all be seamlessly modified or upgraded in the future as new technology becomes available and affordable.

- Recommendation:**
1. That the information be received.
 2. That the Waste Manager ensures that the unit keeps an overview of new developments in the waste management area including by providing for relevant colleagues attendance at seminars, conferences, site visits, and studying the literature, and through the use of consultants with international linkages.

Chairman's

- Recommendation:**
1. That the above recommendation be adopted.
 2. That Councillors be encouraged to attend the regular City Services Committee seminars on waste issues to be better aware of current and future initiatives.