

Decision No. 381

Determination pursuant to the Commerce Act 1986 in the matter of an application for clearance of a business acquisition involving:

Medical Waste Group Limited

and

San-I-Pak (NZ) Limited

The Commission: E C A Harrison
M N Berry
K M Brown

Summary of Proposed Acquisition: The acquisition by Medical Waste Group Limited of the business of San-I-Pak (NZ) Limited.

Determination: Pursuant to section 66(3)(b) of the Commerce Act 1986, the Commission determines to decline clearance for the proposed acquisition.

Date of Determination: 19 January 2000

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CONTENTS

THE PROPOSAL	4
THE PROCEDURES	4
THE PARTIES	4
Medical Waste Group Limited.....	4
OTHER MAJOR PARTIES.....	5
Waste Resources AIAL	5
Onyx Group Limited (Onyx)	5
The Daniels Corporation (NZ) Limited (Daniels).....	6
Medi-Chem Waste Services Limited (Medi-Chem).....	6
HiTech Security Disposal Services Limited (HiTech).....	6
Dental & Medical Equipment Limited (Dental & Medical Equipment)	6
BACKGROUND	6
Overview	6
Regulatory Requirements	7
Resource Management Act 1991.....	7
Biosecurity Act 1993	8
Health Care Waste Management	8
Other Statutory Requirements	9
Industry Background	9
The Collection, Treatment and Disposal of Medical and Quarantine Waste.....	9
Industry Participants	11
Users of Medical and Quarantine Waste Services.....	12
Contracting Arrangements	12
THE RELEVANT MARKETS	13
Introduction.....	13
Product Market.....	14
Functional Markets	16
Geographic Markets	16
Conclusion on the Relevant Markets	19

ASSESSMENT OF DOMINANCE	19
Dominance Analysis Overview.....	19
The Market for the Collection and Treatment of Medical and Quarantine Waste in the South Island.....	20
Collection.....	20
Market Shares.....	20
Constraint from Existing Competitors	22
Pricing Behaviour.....	23
Conclusion on Constraint from Existing Competitors	23
Constraint by Potential Competitors	24
Conditions of Entry.....	24
Assessment of Constraint from Potential Competitors.....	29
Likelihood of Entry.....	30
Extent of Entry	30
Timeliness of Entry.....	31
Sustainability of Entry	32
Conclusion on Constraints from Potential Competitors	32
Constraint by Producers of Waste	32
Conclusion on Constraint by Producers of Waste.....	33
Conclusion on Actual and Potential Constraint	33
Conclusion on Dominance in the Market for the Collection and Treatment of Medical and Quarantine Waste in the South Island	33
The Market for the Collection and Treatment of Medical and Quarantine Waste in the North Island.....	33
Market Shares.....	33
Constraint by Existing Competitors.....	34
Constraint by Potential Competitors.....	36
Conclusion on Dominance in the Market for the Collection and Treatment of Medical and Quarantine Waste in the North Island.....	36
OVERALL CONCLUSION	37
DETERMINATION ON NOTICE OF CLEARANCE.....	37

THE PROPOSAL

1. On 3 December 1999, the Commission registered a notice pursuant to section 66(1) of the Commerce Act 1986 (the Act), in which clearance was sought by Medical Waste Group Limited (Medical Waste) to acquire the business of San-I-Pak (NZ) Limited (San-I-Pak). The Commission has found the application difficult to determine due to the complexity of the industry and difficulties in getting accurate information within a reasonable timeframe.

THE PROCEDURES

2. Section 66(3) of the Act requires the Commission either to clear, or to decline to clear, a notice given under section 66(1) within 10 working days, unless the Commission and the person who gave the notice agree to a longer period. By agreement between the Commission and the applicant, the date for the Commission's determination on the application was extended on four occasions: to 23 December 1999, 24 December 1999, 17 January 2000, and finally to 19 January 2000.
3. Medical Waste sought confidentiality for certain information contained in the application, and a confidentiality order was made in respect of that information for a period of 20 working days from the Commission's determination of the application. When the confidentiality order expires, the provisions of the Official Information Act 1982 will apply to the information.
4. The Commission's determination is based on an investigation conducted by its staff and their subsequent advice to the Commission. When investigating the proposal the Commission encountered difficulties in obtaining detailed information, and in some instances the information received from various industry participants was inconsistent, incomplete or inaccurate. Reasons for the informational difficulties included a lack of detailed information in the application, and the unavailability of key personnel, especially in the major public hospitals, during the post-Christmas period.
5. In the course of their investigation of the proposed acquisition, Commission staff have discussed the application with a number of parties. These parties included companies involved in the collection, treatment and disposal of medical and quarantine waste as well as the users of those services.

THE PARTIES

Medical Waste Group Limited

6. Medical Waste is engaged in the collection and treatment of quarantine and medical wastes, and the destruction of confidential documents. The company, either itself or through its subsidiaries, currently operates incineration plants in Auckland, Wellington (50%-owned), Christchurch and Dunedin. Medical Waste also operates a transfer station in Hamilton which is used to collect waste material.

7. Medical Waste is a wholly-owned subsidiary of Nuplex Industries Limited (Nuplex), a company which is listed on the New Zealand Stock Exchange. Nuplex is also a 50% shareholder in Medical Waste (Wellington) Limited, which operates a waste treatment plant in Wellington. The other shareholder in that company is Port of Wellington Limited.

San-I-Pak (NZ) Limited

8. San-I-Pak, which was established in 1992, is also involved in the collection and treatment of quarantine and medical waste. The company has two autoclave (steam sterilisation) plants, one each in Auckland and Lyttelton (Christchurch). The Auckland plant commenced operations in 1994, while the Lyttelton plant opened in 1997.
9. San-I-Pak is owned as to 50% by Wastecare Limited (which in turn is 100% owned by Waste Management (NZ) Limited (Waste Management)), and as to 50% by Zenith Technologies Limited (Zenith).
10. Waste Management and its subsidiaries operate in the waste industry, providing a range of waste collection, recycling, treatment and disposal services in a variety of localities around New Zealand. One of its divisions, Medisafe, is involved in the collection of medical and quarantine waste, and then arranges for the treatment of that waste.
11. Zenith, a privately-owned company based in Dunedin, is engaged primarily in biotechnology activities.

OTHER MAJOR PARTIES

Waste Resources AIAL

12. Waste Resources AIAL, a division of Auckland International Airport Limited (AIAL), is involved primarily in the treatment of quarantine waste. The company operates an incineration plant at Auckland Airport.
13. Apart from treating quarantine waste, Waste Resources AIAL handles the treatment of medical waste for companies involved in the collection of medical waste (see below).

Onyx Group Limited (Onyx)

14. Onyx operates in the general waste industry, providing waste collection and recycling services throughout New Zealand. Onyx is ultimately owned by the French company, Compagnie Generale des Eaux.
15. Onyx began operating in New Zealand in 1995. Currently, Onyx is engaged in the collection and recycling of general waste in Whangarei, Auckland, New Plymouth, Wellington, Christchurch, and Dunedin. The company has no current involvement in

the collection and treatment of medical and quarantine waste in New Zealand, []

The Daniels Corporation (NZ) Limited (Daniels)

16. Daniels, an Australian-based company, entered the New Zealand market in 1996. The company was involved in the collection of medical waste from some hospitals in the North Island, and arranged for the incineration of the material at Waste Resources AIAL's facility. In 1998, Daniels withdrew from those activities to concentrate on the supply of re-usable bins ('sharps' bins) used in the containment and transportation of needles, syringes and related material.

Medi-Chem Waste Services Limited (Medi-Chem)

17. Medi-Chem, a privately owned company, provides waste collection and related services in the North Island. The company primarily services customers in the chemical industry, but also carries out the collection of medical waste and arranges for its treatment through Waste Resources AIAL's incinerator.

HiTech Security Disposal Services Limited (HiTech)

18. HiTech is a privately owned company based in Auckland. It is involved in the collection and disposal of medical and veterinary waste and pharmaceuticals, and arranges for the treatment of that material at Waste Resources AIAL's incinerator. The company also has a small incineration plant which it uses for document destruction.

Dental & Medical Equipment Limited (Dental & Medical Equipment)

19. Dental & Medical Equipment is engaged in the collection of medical waste from doctors' and dental surgeries in the Otago and Southland regions, and arranges for the treatment of the material at Medical Waste's incinerator in Dunedin.

BACKGROUND

Overview

20. Waste materials fall broadly into two categories: non-hazardous and hazardous. Medical and quarantine wastes, which are the subject of the proposed acquisition, are classified as hazardous waste material. As such, they are subject to strict regulatory and other requirements governing their containment, transportation, storage, treatment and disposal (see paras 23-33).
21. Medical waste includes a wide range of clinical and related waste generated by public and private hospitals, rest homes, private medical laboratories, universities, GP surgeries and other medical practitioners. Typically, it includes anatomical waste, ie body parts, blood, and infected animal carcasses etc; disposables, ie hypodermic needles and syringes etc ('sharps'); soiled dressings; laboratory waste; pharmaceutical and chemical waste, and other assorted infectious waste material.

22. Quarantine waste comprises the refuse originating from overseas flights landing at New Zealand airports, or from ships arriving in this country from overseas ports. This includes food, food wrappings, and related material. Such waste must be handled and disposed of in accordance with standards specified by the Ministry of Agriculture and Forestry (MAF) (see paras 29 and 30).

Regulatory Requirements

23. As noted above, medical and quarantine waste is subject to various regulatory requirements and standards which govern the collection, containment, transportation and disposal of such material. The main requirements are outlined below.

Resource Management Act 1991

24. A facility established to treat medical and quarantine waste, either by incineration or by autoclaving, would require resource consents in terms of the Resource Management Act 1991 (the RMA). The specific requirements will vary depending on the location in which it is proposed to install the plant, and on the stance of the territorial authority covering that location.
25. For an incineration plant, there are two major types of consent required under the RMA: a land use consent, and an air discharge consent.
26. The procedure for obtaining resource consents involves lodging an application with the appropriate consent authority, which may be a regional council, a territorial or municipal authority, or in some instances a combination of those agencies. The RMA provides for the public notification of some types of application, and for the lodging of objections to any proposed developments, including changes to or extensions of existing consents. Proposals to install an incinerator are likely to involve public notification, and to be contentious given increased sensitivity of environmental matters.
27. Resource consents for incinerators, or the renewal of expiring consents, are becoming increasingly difficult and more costly to obtain because of the imposition of more stringent emission standards. (Such plants involve the air discharge of contaminants such as dioxins.) As a consequence, Medical Waste is proposing to close its incinerator in Auckland, and to replace it with a rotary autoclave unit, when its present air discharge consent expires later this year. The company advises that the cost associated with upgrading the plant to comply with emission standards is likely to make its continued operation no longer viable. Several incinerators have been closed in recent years at various locations because they failed to comply with the stringent air emission standards (eg Christchurch Hospital, Port of Lyttelton and Port Gisborne), and other plants will be forced to close in future as they reach the end of their economic life.
28. The RMA requirements applying to autoclaves are much less stringent than those applying to incinerators. It would be necessary to obtain a consent to operate a boiler, and a consent to discharge liquid waste into the nearest trade sewer. In addition, although it is not mandatory, San-I-Pak has received an air discharge permit for its

Lyttelton site. There is no requirement for public notification for such a permit, and the requisite approvals are likely to be obtained relatively quickly.

Biosecurity Act 1993

29. The provisions of the Biosecurity Act 1993 govern the treatment and disposal of quarantine waste. Section 22 of this Act empowers the Director General of the Ministry of Agriculture and Forestry (MAF) to issue health standards specifying the requirements to be met for the management of 'risk goods'. In accordance with this power, MAF has produced a standard covering the requirements for incineration and sterilisation facilities. Such facilities must be approved by MAF, and are subject to periodic inspection by MAF officers. In addition, there are standards (presently in draft form) which specify the quarantine requirements which must be met by aircraft and vessels entering New Zealand.
30. The bio-security standards impose strict requirements covering the carriage, storage and disposal of quarantine waste. The standards provide for the treatment of quarantine waste either by incineration or by sterilisation. Further, they specify that when incinerated, quarantine waste must be reduced to ash, while for steam sterilisation the material must be subjected to a core temperature of 100° Celsius for 30 minutes. All quarantine waste must be incinerated/sterilised within 48 hours of arrival at a facility.

Health Care Waste Management

31. The management of medical waste, including the containment, transporting, treatment and disposal of the material, is governed by the procedures outlined in the Standards New Zealand document: "Health Care Waste Management" (NZS 4304:1990). This is a voluntary code, but the health sector recognises it as providing "best practice" for the safe handling, containment and disposal of such waste. The Ministry of Health recommends that public health services use NZS 4304:1990, even though a new joint Australian/New Zealand Standard AS/NZS 3816:1998 has been drafted to supersede it.
32. NZS 4304 states that autoclaving or steam sterilisation of special medical waste must be carried out in accordance with the *Code of practice for steam sterilization* issued by the National Health Institute. Once such waste has been rendered completely innocuous, it may be disposed of in a landfill. This is generally achieved by subjecting the waste to a temperature of 138-140° Celsius for a 30-minute period. The standard also sets out the requirements for incineration of medical wastes, including site facilities, storage, operation of the facility and the disposal of the residue. For example, NZS 4304 specifies that a contingency procedure should be established for disposal at other sites, or by other means, in the event of the incinerator being closed for two or more days. The standard specifies that the incinerator must be capable of incinerating the wastes at a temperature in the final combustion chamber of not less than 1000° Celsius for a minimum time of one second.

Other Statutory Requirements

33. In addition to the requirements detailed above, it is necessary to satisfy various dangerous goods requirements as well as occupational health and safety legislation. The former include requirements covering the safe transport of dangerous goods on land, which are contained in the *Land Transport Rules: Dangerous Goods 1999*, with NZS 5433 (“Code of Practice for the Transportation of Hazardous Substances on Land”), providing the means of compliance for those rules. In addition, the vehicles and drivers must comply with the requirements of the Transport Amendment Act 1989, No 77 for the transportation of hazardous substances. This includes ensuring drivers are properly trained, and are provided with protective clothing and other safety equipment.

Industry Background

The Collection, Treatment and Disposal of Medical and Quarantine Waste

34. The processes used in the collection, treatment and disposal of medical and quarantine waste are broadly similar (see Appendix A). There are three stages:
- Collection and delivery: this involves the collection of waste material in bins, plastic bags and other containers from the point of production and its delivery by specialised vehicles to a treatment facility. Since medical and quarantine waste is light and bulky, and has to be appropriately contained, it is expensive to freight;
 - Treatment: this involves the processing of the waste into a form suitable for disposal. Two methods are currently employed in New Zealand: incineration, which reduces the waste material to ash; and autoclave treatment by a steam sterilisation process, which can also involve shredding and/or compaction of the waste; and
 - Disposal: this involves the disposal of the treated solid waste in a landfill. Liquid waste which has been treated by an autoclave is disposed of into the sewers, while some by-products of the incineration process may require further treatment before they can be disposed of (eg acids arising from the incineration of plastics).
35. The applicant has stated in the notice that sanitary and incontinent wastes are commonly disposed of in landfills in an untreated form. However, Medical Waste’s view is that the present uncertainty surrounding the rules on the disposal of such waste will be resolved, and that in the future the wastes are likely to require treatment prior to disposal. The applicant claims that this will provide scope for waste collection and treatment companies to develop additional business.
36. The overall size of the medical and quarantine waste industry is relatively small and geographically dispersed. There are seven incinerators in the North Island and five in the South Island, and currently only two autoclave plants, one in each Island. All of the major plants are mainly city- or port-based. Attached as Appendix B is a map of New Zealand showing the location of plants currently treating medical and/or quarantine waste.

37. A feature of the quarantine and medical waste industry is the presence of substantial excess capacity, both in percentage and in tonnage terms, in the operations of many suppliers. Some estimates of capacity utilisation for suppliers in both markets are shown in Table 1. "Full" capacity is assumed to involve continuous operation at 24 hours per day, 7 days per week and 365 days per year, which may slightly exaggerate the estimate as some down-time will be needed for maintenance. In addition, older incinerators cannot treat waste continuously, but go through processing cycles which involve cooling periods between firings.

TABLE 1
Estimates of Unused Capacity at Different Treatment Sites

Site	Unused Capacity	
	Tonnage	(%)
North Island		
Medical Waste	[]	[]
San-I-Pak	[]	[]
Waste Resources AIAL	[]	[]
South Island		
Medical Waste	[]	[]
San-I-Pak	[]	[]
Wairau Public Hospital	[]	[]
Coast Health Care Limited	[]	[]

38. Historically, all major port companies and public hospitals operated their own incineration plants. However, many of those facilities have been forced to close, due largely to the increasing costs of meeting air discharge standards, and the services have been outsourced. Others are likely to be closed in the near- to medium-terms for the same reasons. Medical Waste has already announced that it will close its incinerator in Auckland, and replace it with an autoclave. It is expected that the trend in future will be towards the establishment of autoclaves. This is consistent with overseas experience, especially in the USA and Australia, where environmental concerns have forced the closure of incinerators.
39. The collection of medical and quarantine waste is widespread and the treatment is centralised. The pattern of the flows of such waste in the North and South Islands are as follows:
- medical and quarantine waste generated in the Wellington, Manawatu, Wanganui and Wairarapa regions is treated in Wellington;
 - aside from quarantine waste generated at the ports of Tauranga and Napier, all other waste in the North Island is treated in Auckland;

- apart from waste generated at Wairau Public Hospital and Coast Health Care Limited (Coast Health), medical and quarantine waste generated in the upper South Island is transported to Christchurch for disposal; and
 - with the exception of Medlab South Limited, which has its pathology waste treated in Christchurch by San-I-Pak, and quarantine waste generated by the Port of Bluff, all waste generated in the lower South Island is transported to Dunedin for disposal.
40. Medical Waste has stated that waste generated in the Hawkes Bay and Nelson/Marlborough areas is transported to Auckland and Christchurch respectively rather than to Wellington. This is because the incinerator in Wellington is operated as a joint venture between Medical Waste and Port Wellington Limited, and Medical Waste prefers to receive the full benefit of treating that waste at its other, wholly-owned plants.

Industry Participants

41. Medical Waste operates an integrated collection and treatment operation. That is, it collects the waste material using its own fleet of trucks or contractors, and delivers the waste to its treatment facilities. San-I-Pak handles the collection of quarantine waste from vessels at the Port of Lyttelton and transports the waste to its treatment plant at the Port. San-I-Pak also employs an independent contractor to transport medical waste from its sole Auckland customer, South Auckland Health Limited, to San-I-Pak's plant in Auckland, and medical waste from Medlab South in Invercargill to San-I-Pak's plant in Lyttelton. San-I-Pak uses its own drivers, or those from Wastecare, to collect medical waste from Medlab South and other smaller customers in the Christchurch area, and to deliver the material to its plant in Lyttelton.
42. The following parties are also involved in the collection and/or treatment of medical and/or quarantine waste:
- Waste Resources AIAL operates an incineration plant at Auckland Airport, processing predominantly the airport's quarantine waste;
 - Port of Tauranga Limited, Port Napier Limited and Southport Limited (Bluff) operate incineration plants to treat quarantine waste at their respective ports;
 - Coast Health, the operator of public hospitals on the West Coast, and the Wairau Public Hospital (Blenheim), which is run by Nelson Marlborough Health Services Limited, both have incinerators which treat medical waste generated at their respective sites;
 - the airforce bases at Whenuapai and Ohakea operate incinerators, which are approved by MAF to dispose of quarantine waste; and
 - Medisafe, Medi-Chem and HiTech are engaged in the collection of medical waste material from customers in the upper North Island, and arrange for the treatment of the material at Waste Resources AIAL's incinerator. Dental & Medical Equipment operates a similar business in the Otago/Southland region, using Medical Waste's incinerator at Dunedin to treat the waste.

Users of Medical and Quarantine Waste Services

43. Those hospitals, port companies and airport companies that do not treat their own waste are the major users of medical and quarantine waste treatment services. They generate large volumes of waste from their major sites, supplemented in the case of hospitals by smaller volumes from secondary sites. Various smaller entities, including GPs and dental surgeries, community laboratories, and universities, generate the balance of medical or quarantine waste. The quantities of waste produced by these parties is generally very small. In the case of doctors' and dental surgeries, very small quantities of waste are generated from multiple sites. All establishments, such as hospitals, surgeries or laboratories, which generate or handle medical waste are responsible for ensuring that the waste is safely disposed of.
44. Some users of waste treatment services spoken to by the Commission expressed a preference for incineration over autoclaving. Incineration is considered to provide the most comprehensive and thorough method of disposal of medical waste, largely because all material is reduced to ash. However, South Auckland Health (San-I-Pak's Auckland customer) has told the Commission that it switched to autoclaving treatment because it was less expensive and more environmentally friendly than incineration. Other parties have stated that they have no specific preference for either method as long as the waste is disposed of in accordance with practices which render the material sufficiently sterilised, and safe for disposal in a landfill.

Contracting Arrangements

45. The collection and treatment of medical and quarantine waste for most customers, both major, such as Hospital and Health Service (HHS) providers and port companies, and smaller, such as Dental & Medical Equipment and Medlab South, are governed by term contracts. The length of these contracts is generally for periods of between one and five years, and some contracts are rolled over rather than being re-tendered. The standard length for most public and major private hospital contracts is three years (See Appendix C for details). These contracts are generally awarded in accordance with a public or selective tendering process.
46. HHS contracts are awarded on the basis of a combination of factors, including price, the bidder's track record and experience, ability to comply with regulatory requirements, and the methodology of disposal (including contingency plans). Price is not necessarily the most important factor, as quality, compliance with all relevant regulatory requirements and standards, reputation and an established track record carry considerable weight in the awarding of tenders. [
-]. Several HHSs appear very price insensitive in relation to medical waste tenders. Also, the Commission has been told that some hospitals are reluctant to switch suppliers because of the disruption caused by changes to practices and processes in introducing the new arrangements.
47. At present, Medical Waste holds the HHS contracts to collect and treat all hospital medical waste, with the exceptions of South Auckland Health (which is contracted to

San-I-Pak), and of Coast Health and the Wairau Public Hospital at Blenheim (both of which incinerate their own waste).

48. Medical Waste holds the contracts for the collection and treatment of quarantine waste at all port and airport companies with the exception of AIAL, which treats its own waste through Waste Resources AIAL, and Lyttelton Port Company Limited, which contracts San-I-Pak to treat its waste. In addition, three port companies (Port of Tauranga, Port Napier and Southport) undertake the incineration of quarantine waste at their own (on-port) facilities.
49. A number of medium-sized producers of medical waste have entered into long-term contracts for the collection and treatment of waste (eg []) Also, the Commission is aware that [] has a contract for the treatment of such waste. Typically, larger and medium-sized contracts are for terms of three to five years and do not enable either party to terminate the contract early without cause.

THE RELEVANT MARKETS

Introduction

50. The purpose of defining a market is to provide a framework within which the competition implications of a business acquisition can be analysed. The relevant markets are those in which competition may be affected by the acquisition being considered. Identification of the relevant markets enables the Commission to examine whether the acquisition would result, or would be likely to result, in the acquisition or strengthening of a dominant position in any market in terms of section 47(1) of the Act.
51. Section 3(1A) of the Act provides that:
- “the term ‘market’ is a reference to a market in New Zealand for goods and services as well as other goods and services that, as a matter of fact and commercial common sense, are substitutable for them.”
52. Relevant principles relating to market definition are set out in *Telecom Corporation of New Zealand Ltd v Commerce Commission*,¹ and in the Commission’s *Business Acquisition Guidelines* (“the Guidelines”).² A brief outline of these principles follow.
53. Markets are defined in relation to three dimensions, namely product type, geographical extent, and functional level. A market encompasses products which are close substitutes in the eyes of buyers, and excludes all other products. The boundaries of the product and geographical markets are identified by considering the extent to which buyers are able to substitute other products, or the same product across geographical regions, when they are given the incentive to do so by a change in the relative prices of the products concerned. A market is the smallest area of product and geographic space in which all such substitution possibilities are encompassed. It

¹(1991)4 TCLR 473.

²Commerce Commission, *Business Acquisition Guidelines*, 1999, pp. 11-16.

is in this space that a hypothetical, profit-maximising, monopoly supplier of the defined product could exert market power, because buyers, facing a rise in price, would have no close substitutes to which to turn.

54. A properly defined market thus includes products which are regarded by buyers as being not too different ('product' dimension), and not too far away ('geographical' dimension), and are therefore products over which the hypothetical monopolist would need to exercise control in order for it to be able to exert market power. A market defined in these terms is one within which a hypothetical monopolist would be in a position to impose, at the least, a "small yet significant and non-transitory increase in price" (a "*ssnip*"), other terms of sale remaining unchanged. It will also include those suppliers currently in production who are likely, in the event of such a *ssnip*, to shift promptly to offer a suitable alternative product even though they do not do so currently. These have been referred to by the Commission as "near entrants".
55. Markets are also defined in relation to functional level. Typically, the production, distribution, and sale of products takes place through a series of stages, which may be conceived of as being arranged vertically, with markets intervening between suppliers at one vertical stage and buyers at the next. Hence, the functional market level affected by the application has to be determined as part of the market definition. For example, that between manufacturers and wholesalers might be called the "manufacturing market", while that between wholesalers and retailers is usually known as the "wholesaling market".
56. The applicant has claimed that the relevant market is that for the treatment of medical and quarantine waste in New Zealand, and the transport of quarantine waste in Lyttelton, on the basis, broadly speaking, that medical and quarantine wastes are treated by similar processes and are often transported substantial distances from the production sites to the processing sites.
57. The Commission has found it difficult to define precise boundaries for the relevant markets in this case for a number of reasons, including:
 - the difficulty of obtaining comprehensive information in what is a relatively small and fragmented industry;
 - the current trend to a change in technology used from incineration to steam sterilisation (ie autoclave);
 - the specialisation of some facilities in quarantine waste treatment only; and
 - the long distances that some waste is transported despite exceptionally high transport costs.
58. Hence, the intention is to adopt a pragmatic approach using the information available (collected from several industry participants), and largely restricting the analysis to those markets where the proposed acquisition would lead to an aggregation of market share.

Product Market

59. The proposed acquisition involves two categories of hazardous waste: medical waste and quarantine waste. Both types of waste must be disposed of under tightly

controlled and regulated conditions. Historically, medical and quarantine waste has been incinerated, and indeed, today the bulk of the processing plant is incineration plant, and the great bulk of the waste is still incinerated. However, the increasing cost of obtaining resource consents for incinerator plants has resulted in the two most recently built plants being autoclaves, because they raise much less of an environmental issue, and so consents pose fewer difficulties and involve lower costs. The expectation in the industry is that as older incinerators are not replaced, and resource consents on existing incinerators must be renewed if the plant is to continue to operate, there will be a gradual switch to the use of autoclaves.

60. The Commission understands that incinerators and autoclaves are largely interchangeable from a technical perspective, in the sense that either can, for the most part, process both quarantine and medical waste. There are limited exceptions to this, in that one or two port incinerators (such as the one at Bluff), being old and designed solely for treating quarantine waste, are not able to reach the temperatures required in the tertiary combustion chamber to be acceptable for medical waste. Also, the incinerator operated by Waste Resources AIAL at Auckland airport [

], this does not restrict its potential ability to treat medical waste.

Internationally, the choice between the two appears to be influenced partly by landfill availability, with a preference being expressed for incinerators where landfill capacity is limited. Environmental factors are also important, with more rigorous standards being introduced in respect of the air discharge of contaminants by incinerators.

61. From a demand-side perspective, some hospitals, as waste producers, have expressed a preference for medical waste to be incinerated, rather than autoclaved. Incineration is seen by some as the more thorough and comprehensive method of treating medical waste, as the waste is reduced to no more than unrecognisable ash. With autoclaving the waste is sterilised, but otherwise remains in its original form (although it is possible to add an additional shredding stage, albeit at additional cost). Also, incineration represents a more practical method to dispose of body parts and related material, but the quantities involved are very small (less than 1% according to the applicant), and with autoclaving, these can be disposed of by arrangement with crematoria. On the other hand, South Auckland Health has expressed a strong preference for autoclaving on cost and environmental grounds. Hence, while there may be some resistance by some users to having their medical waste disposed of by autoclave, it seems likely that eventually the autoclave method will be the only one available.
62. The preceding discussion with respect to demand-side and supply-side considerations suggests broadly that producers in general do not have strong preferences as to the treatment process, and that intending suppliers can generally employ either process to treat quarantine or medical waste. Any doubts on the demand-side with respect to some users are largely allayed over the medium-term perspective used by the Commission.
63. The Commission concludes for the purpose of assessing the competition implications of the proposed acquisition that the relevant product market is that for quarantine and medical wastes.

Functional Markets

64. As discussed earlier, medical and quarantine waste passes through various stages, or functional levels, from the point of production at a hospital, port, health or similar centre to the point of final disposal at a landfill. The functional levels of the market are collection, treatment, transport to a landfill, and disposal.
65. Medical Waste is vertically integrated across the collection and treatment functional levels. Except for San-I-Pak, other operators are not vertically integrated across all functional levels. For example, some smaller parties (eg., HiTech, Waste Management's Medisafe division and Medi-Chem) are engaged in the collection of waste materials, and then arrange for the treatment at an incinerator owned by a third party. Daniels, when it was involved in the collection of medical waste, operated in this fashion, and sub-contracted treatment to Waste Resources AIAL. The latter's incinerator at Auckland Airport both processes the Airport's quarantine waste, and is available for the contract processing of medical and other waste delivered by other operators and producers []. San-I-Pak is involved primarily in medical and quarantine waste treatment. It is also involved in the collection of quarantine waste at the Port of Lyttelton, and the delivery of that waste to its autoclave plant at the Port. It treats medical waste collected either by San-I-Pak's own drivers or by Wastecare drivers from Medlab South in Christchurch, and from some independent surgeries in Christchurch. An independent contractor of San-I-Pak collects waste from South Auckland Health and delivers it to San-I-Pak's Auckland plant. Similarly, waste from Medlab South in Invercargill is also collected by an independent contractor and delivered to San-I-Pak's Lyttelton plant.
66. Operators like Waste Resources AIAL, and some of the port companies, are involved in the treatment of quarantine waste generated from vessels or aircraft using the nearby port or airport.
67. In view of the degree of vertical integration among the two major participants in the industry, collection and treatment will be treated as one functional market in the discussion that follows.

Geographic Markets

68. The applicant has put forward a number of arguments in support of its view that the geographic market extends to the whole of the country. It submits that medical waste can be, and is, transported long distances across the country, from the point of production to potentially any plant in the country.
69. During its investigations, the Commission has come across a number of instances where medical waste is commonly transported long distances, including from Invercargill to Christchurch, from Nelson to Christchurch, and from Napier to Auckland. This seems especially surprising given the unusually high costs (in relation to the treatment costs) of transporting such waste. For example, the parties to the acquisition have provided the Commission with transport and containment costs of [] for Invercargill-Christchurch, [] for Nelson-Christchurch, [] for Buller-Christchurch, and [] for Picton-Christchurch. This compares with

treatment costs in the range of []. The high per unit transport costs of medical and quarantine waste stems partly from its various characteristics: its very light and bulky nature makes it expensive to transport relative to its processing “value”. Its hazardous nature often precludes a cost-offsetting back-haul cargo. The waste has to be adequately “contained” during transport, which often requires the use of special containers, the cost of which is built into the price. Finally, because of regulatory and other requirements, the waste cannot be stored for a period exceeding 48 hours, which means that small waste generators may suffer especially high per unit costs because of uneconomically small loads.

70. Relatively high per unit transport costs of the sort described above would normally tend to narrow the extent of the geographic markets, because a supplier in one area could not, by virtue of the transport costs, compete in price with a supplier in an adjacent area. However, there are substantial throughput and scale economies associated with the waste treatment process (see below). Hence, there is a trade-off between securing sufficient volumes of waste to build a plant of optimal size, and the transport costs of assembling those volumes at a centralised site. Although the Commission has not seen any calculations on the balance of this trade-off, the actual plant locations and waste flows in the industry suggest the balance favours building treatment plants in the main centres where most waste is generated, and transporting in waste from outlying centres where volumes are insufficient to sustain a waste treatment operation of an economic size. For example, in the North Island, the main treatment plants are in Auckland and Wellington, with waste generated in other provincial centres being transported north or south, generally according to transport cost and plant ownership considerations. In the South Island the main processing centres are in Christchurch/Lyttelton and Dunedin. As indicated, it is common for waste to be transported from both ends of the South Island to Christchurch.
71. The applicant has argued that the market is a nationwide one, supporting its view by providing costing details to show that it is economic to transport medical waste to Auckland from both Dunedin and Christchurch. For example, the applicant has received quotes for shipping/transporting containers of medical waste of [] from Dunedin to Auckland, and around [] from Christchurch to Auckland. This compares with treatment costs in the range of []. These quotations, however, are based on the compaction of the waste and the container holding 6.5 tonnes of waste. The Commission has not found any hospital that generates anywhere near that volume of medical waste over a 48-hour period. Hospitals lack both the storage capacity, and generally are not permitted to store such waste for a period exceeding two days. For these reasons, the Commission considers that the applicant’s argument is not sustainable.
72. The applicant has also cited the case of the transporting of its waste from Wellington to its Christchurch plant at times when its Wellington plant has been temporarily out of action. However, the company would obviously undertake such movements of waste only when it is forced to do so, as it would be very costly. Another party spoken to ([]) contended that the cost of transporting waste between the North and South Islands is prohibitive for companies without access to their own treatment plants. The Commission has found no evidence that medical waste is transported across the Cook Strait on a regular basis. This suggests that, at the least, the geographic market is divided into North Island and South Island markets.

73. In the light of the preceding discussion, the Commission has also considered the possibility that the North Island might be divided further into “upper” and “lower” geographic markets. The issue could be put in the following way: could a treatment plant located in Wellington compete for business in Auckland with a plant based in Auckland, given the high transport costs that would be incurred in transporting the waste from Auckland to Wellington? And likewise for an Auckland plant competing for business in Wellington with a Wellington plant? The Commission has not found it necessary to resolve the issue, because the aggregation occurs only in Auckland, and there are no competing plants in Wellington. The possible sub-division of the South Island is less likely because the major centres of production (and hence the location of treatment plants) are all in the mid- to lower South Island, so that medical and quarantine waste is transported from Nelson to Christchurch, and medical waste is transported from Invercargill to Christchurch.
74. A further argument put forward by the applicant is that (according to information it had received) when Canterbury Health recently tendered for its medical waste treatment contract, the HHS received bids from two North Island companies which did not have plants in the South Island. Canterbury Health has told Commission staff that it received only one bid from a company in that category during its last tender round. That bid was from [
-]
75. The applicant has also contended in respect of quarantine waste at the ports, and excepting long-haul aircraft flights where weight and storage would present a problem, that those needing to use a treatment service can choose any place that the ship or aircraft visits. The Commission has raised this issue with the relevant authorities. For aircraft, MAF standards require all refuse be removed at the first approved airport unless the aircraft is intending to depart from New Zealand within three hours of arrival, or is travelling on within three hours to a second New Zealand airport. While MAF quarantine regulations do not oblige vessels to have their waste treated at the first port of entry, several port companies have told the Commission that some waste is usually discharged at the first port of call. Whether or not a vessel discharges waste at a port is dependent largely on MAF as well as other factors, such as the length of stay of the vessel at the port and the availability of an onboard incinerator. MAF regulations also specify that quarantine waste be treated within 48 hours of arrival at the facility.
76. Having regard to the above factors, and for the purposes of this decision, the Commission has determined to treat the North Island and South Islands as separate geographic markets. It is possible that the geographic markets could be broken down further, for example, into upper and lower North Island markets. However, the conclusions in respect of the current application would remain the same regardless of whether the geographic markets were further narrowed, since the proposed merger does not involve or have any effect on any activities in the lower North Island.

Conclusion on the Relevant Markets

77. The Commission concludes that, for the purpose of analysing this application, the relevant markets are as follows:

- the market for the collection and treatment of medical and quarantine waste in the South Island; and
- the market for the collection and treatment of medical and quarantine waste in the North Island.

ASSESSMENT OF DOMINANCE

Dominance Analysis Overview

78. Section 66(3) of the Act, when read in conjunction with section 47(1) of the Act, requires the Commission to give clearance for a proposed acquisition if it is satisfied that the proposed acquisition would not result, and would not be likely to result, in a person acquiring or strengthening a dominant position in a market. If the Commission is not so satisfied, clearance must be declined.

79. Section 3(9) of the Act states that a person is in a “dominant position” if:

“... a person as a supplier or an acquirer of goods or services either alone or together with an interconnected or associated person is in a position to exercise a dominant influence over the production, acquisition, supply, or price of goods or services in that market . . .”

80. That section also states that a determination of dominance shall have regard to:

- market share, technical knowledge and access to materials or capital;
- the constraint exercised by competitors or potential competitors; and
- the constraint exercised by suppliers or acquirers.

81. In *Port Nelson Ltd v Commerce Commission*, the Court of Appeal approved the following dominance standard, adopted by McGechan J in the High Court:³

“... dominance involves more than ‘high’ market power; more than mere ability to behave ‘largely’ independently of competitors; and more than power to effect ‘appreciable’ changes in terms of trading. It involves a high degree of market control.”

82. In its *Business Acquisition Guidelines*, the Commission has expressed the view that a dominant position in a market is generally unlikely to be created or strengthened where, after the proposed acquisition, either of the following situations exist:

- the merged entity (including any interconnected or associated persons) has less than in the order of a 40% share of the relevant market; or
- the merged entity (including any interconnected or associated persons) has less than in the order of a 60% share of the relevant market and faces competition

³ [] 3 NZLR 554.

from at least one other market participant having no less than in the order of a 15% market share.⁴

83. However, as Tipping J stated in the High Court decision of *New Zealand Magic Millions*:⁵

“(M)arket share is not the sole determinant of the presence or absence of dominance or market power. The most that can be said is that dominance is frequently attended by substantial market share but all the other relevant factors must be brought to account. For example, a substantial market share without barriers to entry will seldom, if ever, be indicative of dominance.”

84. Accordingly, before a conclusion on dominance is reached, it is necessary to consider all factors listed in section 3(9) and any other relevant factors.

85. Where there is existing dominance, the Commission must also have regard to whether such dominance might be strengthened by a business acquisition. A “strengthening” must be more than merely *de minimis*.

86. In *Waikato Valley* the High Court (Wylie J. and Blunt) stated:⁶

“If by *de minimis* is meant a change so slight and insignificant as not to justify the intervention of the law we agree with that concept . . . As an ordinary word in common use ‘strengthening’ does not need elaboration. The degree of strengthening of dominance once there is a strengthening worthy of the Commission’s (or the Court’s) attention, will be reflected in the extent of the detriment, if any, which will, or will be likely to, result therefrom.”

The Market for the Collection and Treatment of Medical and Quarantine Waste in the South Island

Collection

87. While the acquisition would result in some very minor aggregation in waste collection activities, it is in the waste treatment area that competition issues arise. Accordingly, the Commission has focussed on matters relating to waste treatment in its analysis of the market.

Market Shares

88. The applicant has provided estimates of market shares in the treatment of medical and quarantine wastes in each of the major regions. The Commission has also received market share information from each of the incinerator operators. However, the Commission has found it difficult to estimate overall market shares. One difficulty lay in obtaining precise information on the market shares of individual operators, particularly the smaller ones who either dispose of the waste themselves or who arrange for third party disposal.

⁴ *Supra*, note 2, p 17.

⁵ *New Zealand Magic Millions Limited & Anor v Wrightson Bloodstock Limited* (1990) 3 NZBLC 99-175.

⁶ *NZ Co-operative Dairy Co v Commerce Commission* (1992) 1 NZLR 620.

89. A second problem was that, according to the applicant, some medical waste which it believes should be treated under current regulations and standards, is actually conveyed directly to landfills without being treated. The Commission understands that such anomalies are in the process of being reviewed. In the meantime, the Commission has no option but to treat that waste as not constituting part of the defined product markets. These informational problems made it difficult to determine the overall size of the market, and hence the shares of individual operators.
90. On the basis of the information provided, the Commission has made the estimates shown in Table 2 of the market shares for the treatment of medical and quarantine waste in the South Island.

TABLE 2
Estimated Market Shares for the Treatment of Medical and Quarantine Waste in the South Island

Operator	South Island	
	Tonnes	%
Medical Waste	[]	[]
San-I-Pak	[]	[]
Sub-total	[]	[]
Southport	[]	[]
Wairau Public Hospital	[]	[]
Coast Health	[]	[]
Total	[]	[]

Note: As noted above, there are some operators in both Islands that are engaged in collection of medical waste, but subcontract out the treatment of such waste to the major companies such as Medical Waste and San-I-Pak. Accordingly, such waste has been included in the market shares for these major companies.

91. A previous analysis of a different part of the waste industry by the Commission (Decision No 355: *Waste Management NZ Limited/Waste Care Limited*) found that waste treatment operators considered it important for strategic reasons to gain control of waste flows, which could then be directed to their own landfills. A market share could thus be a misleading indicator of market power to the extent that part of the waste flow, being controlled by other parties, could be switched to other treatment operators. However, in the present case it is estimated that only about [] percentage points of Medical Waste's market share falls in that category.
92. The market share estimates in Table 2 indicate that currently Medical Waste has a share of about [], San-I-Pak has a share of about [], and that there are no other substantial operators. These figures place Medical Waste well outside of the Commission's "safe harbours" even before the acquisition, raising the possibility that the company might already be dominant.
93. The proposed business acquisition would increase Medical Wastes' market share from about [] to around []. This significant increase to a very large market share tends to

indicate that the acquisition could lead to Medical Waste becoming dominant, or—if Medical Waste were already dominant—to Medical Waste strengthening an already dominant position. However, the Commission reiterates that market share is only the starting point for dominance analysis, and that other relevant factors, including entry barriers and the potential for competition, have also to be considered.

Constraint from Existing Competitors

94. As indicated in Table 2, apart from the parties to the acquisition, there are only three other entities currently participating in waste treatment activities in the relevant market. These are the following:
- Southport, which has an incinerator at the Port of Bluff to treat its own quarantine waste;
 - Coast Health, which operates an incinerator to treat its own hospital waste on the West Coast; and
 - Wairau Public Hospital, which likewise operates an incinerator at Blenheim to treat its own hospital waste.
95. Although Southport’s facility operates with considerable excess capacity, it has advised the Commission that the incinerator’s operating temperature is probably not high enough to meet regulatory standards for the treatment of medical waste. In any case, the facility has a short remaining consent life and is operated purely for the purpose of treating the quarantine waste generated at the port. The company has also expressed an intention not to become involved with treating waste for outside parties, such as a hospital.
96. The two hospital-based incinerators at Blenheim and on the West Coast appear to be remnants from the time when each hospital had its own medical waste treatment facility. Other hospitals in the South Island have since contracted-out this function. The two remaining incinerators are understood to be relatively old and inefficient, have very small throughputs relative to capacity, and are located in relatively remote provincial areas to which the cost of trucking waste for treatment would be high. Further, these hospitals are not seeking outside business, and [
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97. In addition to these three, medical waste is collected and aggregated by Dental & Medical Equipment. This company’s primary focus is the supply of consumables and equipment to doctors’ and dental surgeries. During the course of delivering these supplies, it collects the small amounts of medical waste generated by those surgeries, and assumes responsibility for its treatment and disposal. The company appears to be taking advantage of a transport economy of scope. However, the company is not directly involved in the treatment of medical waste.
98. The applicant has stated that there are two incinerators sited at the Invermay Agricultural Centre near Dunedin, one of which has recently been leased to a private pet cremation company. The Invermay facility has the necessary air discharge consents. While this facility is not treating any medical or quarantine waste at present, Invermay has told Commission staff that its resource consent permits it to

incinerate around 40–50 tonnes of waste per year. It appears that it could not cope with the waste generated by a hospital of even moderate size (eg Invercargill which generates approximately []).

99. Southland Incineration Services Limited (SIS) has installed a second-hand incineration plant (purchased from Christchurch Hospital) near Invercargill. The two incinerators, formerly used by Canterbury Health to process its medical waste, have a large capacity. Its resource consent application has been declined by the Southland Regional Council, but SIS is in the process of appealing the decision. It is unclear at this stage if and when this facility may receive resource consent.

Pricing Behaviour

100. The Commission has collected the prices per kilogram for a range of contracts for the collection and treatment of medical waste in both Islands (see Appendix C). These indicate that prices vary enormously between contracts, with a tendency for those involving small volumes and long transport distances for delivery to be the most expensive, although there are some significant anomalies. Another feature is that prices appear to exhibit a greater dispersion in the South Island than in the North Island, with San-I-Pak's prices for its two main contracts in the former being amongst the lowest. Despite such competitive pricing, San-I-Pak has not greatly expanded its range of business beyond its initial contract with Lyttelton Port Company. The company appears not to have been able to provide a competitive pricing constraint on Medical Waste over a substantial range of contracts. This suggests that Medical Waste has been able to price flexibly, keeping prices low where it meets competition from San-I-Pak, and otherwise exploiting its market power by raising prices to those customers having few if any other options. This apparent ability of Medical Waste to price discriminate is an indicator of possible dominance. However, the role of potential entry has to be considered before a conclusion can be reached.

Conclusion on Constraint from Existing Competitors

101. As already noted, Medical Waste has a market share of about [] which, together with that of its nearest rival, San-I-Pak about [], puts it outside the Commission's "safe harbours". The bulk of San-I-Pak's market share is made up of its contract with Lyttelton Port Company to treat the port's quarantine waste. The company has managed to acquire only one other substantial customer (Medlab South) since entering the South Island market in 1997. It is understood that San-I-Pak has not been very active in seeking out additional contracts. The Commission has been told this is due largely to [

]. Its expansion may have been hindered by resistance amongst some buyers to the unfamiliar autoclave technology used only by San-I-Pak. While its presence does seem to have had a moderating influence on the prices for at least one of the larger contracts [] this does not seem to have been the case for the medium or smaller contracts. The Commission takes the view that Medical Waste has faced some limited constraint from San-I-Pak, in respect of at least one of the larger contracts, and if the merger did not proceed could face limited constraint as current contracts expire in the South Island.

102. San-I-Pak is currently the only company (other than Medical Waste) with significant excess capacity at its South Island plant. Post-acquisition, only Invermay will be in a position to provide a competing facility for the treatment of medical waste, but its capacity is limited. The entry of SIS remains uncertain because of resource consent problems. Further, the Commission believes that although Medical Waste currently faces no real effective constraint from existing competitors, the effect of the removal of San-I-Pak as an independent competitor from the market would weaken any limited constraint which currently exists.

Constraint by Potential Competitors

Conditions of Entry

103. Entry conditions, including the nature and height of any entry barriers, must be determined before the threat of new entry can be properly evaluated.
104. An assessment of the relevant entry conditions is provided below.

Access to Waste

105. The market is characterised as being relatively small and geographically dispersed. Most business is gained by bidding successfully for treatment contracts tendered by waste producers. All of the substantial contracts are from three to five years' duration. The numbers of contracts of substantial size are relatively few. The Commission notes that few of the larger contracts in the South Island are due for re-tendering within the next two years (see Appendix C). Although competitive tendering is not uncommon, some contracts are rolled over rather than being re-tendered, and others involve direct negotiations with a chosen supplier. Occasionally, a waste producer may sponsor a new entrant (eg., Lyttelton Port Company in the case of San-I-Pak). Some waste producers see no alternative to contracting with Medical Waste, and had not heard of San-I-Pak.
106. To compete effectively, any prospective entrant would have to secure the business of larger hospitals or port companies in order to gain the volume of waste needed to operate efficiently (see below). The Commission believes that for entry to succeed, the prospective entrant would need either to win one of the three "large" contracts available (those of Canterbury Health, Lyttelton Port Company and Otago Health), or three or more medium-sized contracts. Indeed, [
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- Some parties have expressed the view that because the enlarged Medical Waste would hold all of the major hospital and port company contracts it would be very difficult to bid successfully for those contracts.
107. It has been put to the Commission that a change of supplier leads to the incurring of "switching costs". Firstly, there are the costs incurred in checking the credibility of the potential entrant, and of ensuring that it is capable of providing a satisfactory and reliable service. This is important given that the waste material producer carries the responsibility for the appropriate disposal of its waste. Consequently, contracts

appear to be awarded on the basis of service quality as well as price. Secondly, the actual change to a new contractor can cause some limited disruption to the smooth running of the producer's business, particularly if the change is from incinerator- to autoclave-based treatment, necessitating a possible change in the method of waste storage and collection, which might incur extra staff costs. For example, it might be necessary to begin to separate autoclavable waste from waste that cannot be autoclaved. A change to a new waste treatment supplier would probably also require an initial period of more intensive monitoring to ensure compliance with pledged quality standards. Hence, there may be a tendency for buyers to stay with their existing contractor as long as a reasonable standard of price and service is maintained.

108. In economic terms, the resistance of customers to incurring switching costs in changing to an autoclave-based waste treatment supplier may pose both a limited entry barrier, and a mobility barrier for firms wishing to gain additional business after they have succeeded in entering the market.
109. The incumbent has a good track record, presumably stemming from being a first mover in the market, and also from providing a quality service (it is ISO 9002 accredited), which has allowed it to win contracts even when tendering at higher prices. Entrants, necessarily lacking a track record, appear to find themselves at a disadvantage in gaining contracts against the incumbent. Nevertheless, San-I-Pak was able to secure two sizeable customers in Lyttelton Port Company and Medlab South, []
110. The Commission concludes on balance that gaining access to contracts over the longer term is not a significant entry barrier, although the position is likely to be different in the shorter term.

Regulatory Requirements

111. As noted above under 'Background', the transport, treatment and disposal of medical and quarantine waste is heavily regulated. A facility established to treat such waste, either by incinerator or by autoclave, would have to comply with various regulatory requirements. In particular, resource consents would be necessary in terms of the Resource Management Act 1991 (the RMA). The specific requirements will vary depending on the location in which it is proposed to install the plant, and on the stance of the territorial authority covering that location.
112. The Commission considers that the RMA requirements in relation to the air discharge of contaminants will make it increasingly difficult for existing operators to continue to use, and new entrants to establish, incinerator units, especially in the major metropolitan areas. However, resource consents for autoclaves are more straightforward, and may not involve any major delays or expenditure in terms of the consent procedures, although in one case RMA consultants estimated that the delay could take up to six months or longer. Delay will add to the cost of building new plants and of upgrading existing plants. This provides an incentive for existing operators to raise objections to new developments, and has been a characteristic of the waste industry generally.

113. As the regulatory requirements apply to both incumbents and entrants alike, it is doubtful whether they can be construed as an entry barrier. During a period when standards required of incinerators were being tightened, operators having consents with some time to run would be at an advantage over newcomers who would need to satisfy the more stringent new standards for incinerators, but entrants could avoid that difficulty by installing autoclaves, which involve lesser regulatory costs.

Capital Cost of Plant

114. The capital cost of a facility to treat medical or quarantine waste would vary depending on the nature and capacity of the plant. For example, the capital cost of a smaller-scale incineration unit is likely to involve an outlay of around \$0.5 million. A larger-scale unit is likely to cost up to \$5 million, with a large component of that cost being for equipment to ensure compliance with air emission standards.
115. The cost of establishing an autoclave plant would vary depending on the nature and level of sophistication of the plant. The Commission has received information from industry sources which show that the cost of a standard unit imported from the USA would range from about \$100,000 to \$300,000. However, [] advises that the capital cost could be lower if the equipment were purchased second-hand, or sourced from a manufacturer of stainless steel products in New Zealand, although it is understood that autoclaves are not currently manufactured domestically. It is understood that San-I-Pak operates two autoclaves at its Lyttelton site, and two at its Auckland site, the second primarily to ensure continuity of service in the event that the first should be shut down.
116. The capital cost of a rotary autoclave is substantially higher. For instance, []]. The applicant advises that the capital cost of the autoclave unit that it is intending to install in Auckland is []. A claimed advantage of a rotary autoclave is that the waste is broken down into smaller fragments, thereby allowing the steam to permeate the material more completely. Some parties have claimed that this process is more thorough than the standard process.
117. While the level of sophistication required by an autoclave (and hence the cost) to meet regulatory standards is not clear, the size of the capital costs of equipment quoted above are not large. Once regulatory consents are obtained, such equipment can be installed quickly. In one case a plant was installed in four months. This opens the possibility, particularly for autoclaves for which consents are easier to obtain, that a potential entrant could bid for tendered contracts and only build a facility in the event that a contract is actually won. However, the absence of a plant, and the lack of a resource consent, may count against a firm attempting to enter in this way.
118. Also, the cost of meeting the regulatory requirements would be largely (if not completely) sunk, along with a substantial proportion of the investment costs, given the specialised nature of the equipment and the small size of the market likely to be accessible to an entrant. As contract lengths for major customers are typically for three to five years, this could expose the entrant to two risks: that it would not recoup its investment should it not be successful in the re-tender of the contract (although some contracts are rolled over without a re-tender); and that it would be vulnerable to

strategic behaviour by the incumbent designed to harm its profitability, particularly at the end of the first term of the contract. Nonetheless, the funds put at risk would be relatively small, even allowing for the small size of the market.

119. The establishment costs for a large-scale incineration plant would represent a significant cost for a prospective entrant in the relatively small market. The total costs would be greater, and a larger proportion of them would be sunk. It would be less likely that an intending entrant could delay building until a contract was won. Entry using an incinerator therefore appears to be unlikely, whereas entry using an autoclave may be feasible.
120. Medical Waste has the advantage of being a multi-plant operator in that it currently operates two plants in the North Island (in Auckland and Wellington) and two in the South Island (Christchurch and Dunedin). This advantage stems from it being able to assure a client of continued service in the event of a plant failure. For example, it has sent waste from Wellington to Christchurch when its Wellington plant has failed, and would use the Dunedin plant if its Christchurch plant had to be shut temporarily. Medical and quarantine waste cannot be stored for long. MAF requirements are for quarantine waste to be treated within 48 hours of arriving at the facility. For medical waste, the requirement is that it be treated within 48 hours, or sent to another plant for treatment.
121. A single-plant entrant may not be able to provide the same assurance for such contingencies, unless it can come to a “mutual backup” arrangement with another facility provider. That might be difficult given the limited number of facilities in operation that are able to treat medical waste as well as quarantine waste. It is understood that San-I-Pak incurs the cost of a second autoclave at both its Auckland and Lyttelton sites to provide its own back-up facilities. Incurring the costs of setting up a back-up facility could be reasonably substantial.
122. The Commission concludes that the sunk nature of a substantial proportion of the investment required to enter the market is likely to constitute a limited entry barrier.

Economic Volumes

123. Incinerators and autoclaves appear to share two similar cost characteristics: both types of equipment benefit from economies of scale as the size of the unit is scaled up, and both experience substantial throughput economies with a given size of unit. The first means that at full-capacity working, the costs in cents per kilogram of treated waste falls sharply as the size of the unit is scaled up. For example, Medical Waste states that its Auckland facility is more than twice the size and throughput of the other plants, “giving considerable savings in running costs.” This scale argument is also supported by Health South Canterbury Limited (the HHS which operates the public hospitals at Timaru and Oamaru), which regards itself as being too small to be able to run its own waste disposal facility.
124. The throughput economies arise because of the large proportion of the operating costs that are fixed. Fixed costs are cost elements for which the total does not change as the throughput of waste is increased or decreased. As throughput is increased, the fixed

cost is spread progressively more thinly, resulting in average cost falling. The fall in average cost will be particularly steep over smaller throughputs.

125. These two cost characteristics are likely to impose an entry barrier for the would-be entrant. To be competitive, it must gain sufficient volumes of waste to allow it both to build a plant of an economic size, and to operate it with a high throughput. This would require it to gain contracts against the competition of an incumbent which, through its large market share, is able to benefit from economies of scale and of high throughput. Moreover, no opportunity appears to be provided by market growth, but in any case, any growth would be likely to find expression in an expansion of the sizes of existing contracts, rather than in new contracts coming to the market.
126. The minimum economic volume to sustain a new treatment facility depends in part upon the nature of entry. For a large incineration plant, with the associated cost of complying with air discharge standards, it would be necessary to secure the business of several large customers, such as HHSs and port companies. Given that almost all the contracts of HHSs and port companies are currently tied up with Medical Waste, and the staggered nature of contract tenders over time, it is unlikely that the entrant using an incinerator would be able to win sufficient business within a time frame that would make entry in that manner feasible.
127. Similar considerations would apply to entry by autoclave, except that the costs, and therefore the economic volumes required, would be less. San-I-Pak has shown that it is possible to enter the market on the basis of a “cornerstone” major customer (South Auckland Health for its Auckland plant, and Lyttelton Port Company for its Lyttelton plant), subsequently augmented by some much smaller customers. [

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128. The Commission considers that economies of scale and of throughput for the treatment of medical and quarantine waste are such that an entrant using an autoclave would require access to a substantial volume of waste to make entry viable. It is difficult to determine precisely what the minimum economic volume might be, but various estimates provided by different parties suggest that it is likely to fall within the range of 150-300 tonnes per annum. A figure of 200 tonnes equates to almost [] of the market. Only three contracts in the South Island market fall roughly within the range specified, and those are, in descending order: Canterbury Health, Lyttelton Port Company and Healthcare Otago. Alternatively, a similar volume might be accumulated by combining three or more medium-sized contracts, although that would involve the likely low probabilities of winning sufficient volume over a reasonable timeframe as discussed above.
129. An alternative entry strategy might be for two or more lesser waste generators to join forces to build their own treatment facility, or to contract an entrant to do so. [

] A major HHS has also told the Commission that it [

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130. The Commission concludes that the size of the relevant market combined with the economies of scale and of throughput, together with the fact that the great bulk of the market is currently in the hands of the main incumbent who is therefore able to gain such economies, constitutes a barrier to entry.

Incumbent Response

131. It is likely that any new player entering the market for the treatment of medical and quarantine waste would expect to face the prospect of strategic behaviour by the incumbent operator. This seems particularly likely where the entrant would need to gain one of the few major waste contracts available to make entry viable, and where it would need to retain that contract in order to supply over a sufficiently long period to recoup its investment in the sunk costs of entry. Knowing that the entrant is likely to focus its efforts on winning one of the few, larger contracts, the incumbent could respond by bidding competitively for those contracts, while offering higher prices for the smaller contracts of less interest to the entrant. The prospect of incumbent response in this situation may have a deterring effect on entry.
132. The incumbent response could also take the form of appeals under the RMA designed to delay the granting of resource consents and to increase the cost of achieving compliance. However, such a response would be less significant when the new entrant was establishing an autoclave.
133. The Commission considers that the prospect of strategic behaviour by the incumbent may constitute an entry barrier.

Conclusions on Conditions of Entry

134. The foregoing discussion of entry conditions into the market for the collection and treatment of medical and quarantine waste in the South Island has brought to light the following entry barriers: access to waste treatment and contracts over the shorter term; the difficulty of accessing sufficient volumes of waste to make an economic operation feasible in the context of a small market; the sunk costs of entry; and the susceptibility of an entrant to strategic behaviour designed to increase its costs or reduce its profits.

Assessment of Constraint from Potential Competitors

135. The Commission recognises that potential competition can act as a constraint on the exercise of market power. Hence, the assessment of the nature and extent of that constraint represents an important element in the evaluation of whether, in a business acquisition, the combined entity will acquire or strengthen a dominant position.⁷
136. In the present application, the issue is whether Medical Waste would acquire or strengthen a dominant position in the market for the collection and treatment of medical and quarantine waste in the South Island through its acquisition of San-I-Pak. This depends upon whether the merged entity would be constrained by the likelihood

⁷ Commerce Commission, *Business Acquisitions Guidelines*, 1999, Wellington, p. 19.

of entry such that, combined with other relevant considerations, dominance is not likely to be acquired or strengthened.

137. The Commission’s approach to the evaluation of the potential threat of market entry as a constraint on the exercise of market power is based on the “lets” test, in conjunction with the preceding assessment of entry conditions. Under this test, to constitute a sufficient constraint such that the acquisition or strengthening of dominance would be unlikely, entry must satisfy all four of the following criteria: it must be *likely*, sufficient in *extent*, *timely* and *sustainable*.⁸ Each of these criteria is now assessed in turn.

Likelihood of Entry

138. In order to be a constraint on the exercise of market power, entry must be likely in commercial terms. In other words, there has to be a “reasonable prospect of achieving a satisfactory return on ... investment.”⁹
139. The Commission considers that entry through the establishment of an incineration plant is unlikely to be feasible in commercial terms. The costs of installing a modern incinerator which meets the environmental standards and the cost associated with obtaining approvals are high, and a new entrant seems unlikely to be able to secure sufficient large contracts within a time-frame that would justify this level of investment.
140. Entry based on the autoclave technology would appear more feasible at first sight. While such entry may not involve a large investment in equipment (possibly up to \$300,000, and more for a rotary autoclave), a substantial portion of that, together with the costs of market survey, contract tendering and meeting regulatory requirements, are likely to be sunk. However, entry should be feasible if a prospective entrant could gain a sufficient volume, either a single large contract, or three or more medium-sized contracts, so as to make entry on a viable scale possible. However, there are only three large contracts available in the South Island market, and only one of those has been won by an entrant (Lyttelton Port Company, by San-I-Pak). The alternative of entry by gaining three or more medium-sized contracts seems less likely, because of difficulties in securing multiple contracts within a reasonable timeframe, and doubts as to whether they would provide a sufficient volume on a continued basis.
141. The Commission concludes that entry is likely to be delayed by the infrequency with which the large and medium-sized contracts are tendered, and by the fact that the probability of an entrant being successful on its first bid is likely to be low. However, it is considered that entry is likely in the longer term, especially in the situation where either Medical Waste or the merged entity were to attempt to raise prices. Hence, the “likelihood” criterion for entry in the “lets” test is satisfied over the longer term.

Extent of Entry

142. If it is to constrain market participants, then the threat of entry must be at a level and spread of sales that it is likely to cause market participants to react in a significant manner.

⁸ *Ibid.*, pp. 19-20.

⁹ *Ibid.*, p. 19.

143. The Commission has found that entry, if it is to occur at all, is only possible on a relatively large scale through the gaining of a large contract, or several medium-sized contracts. Entry would not be financially viable for small quantities only. Such entry, once it had occurred, might satisfy the “extent” criterion in that it could be sufficient to provide an effective constraint on the combined entity. Once a firm has entered the market, its credibility would be enhanced, and it would be likely to have excess capacity available at a relatively low incremental cost on which to base its bids for other contracts. The decision to undertake the associated sunk investments would have been taken. The Commission considers that the extent criterion is satisfied.

Timeliness of Entry

144. To constrain effectively the exercise of market power to the extent necessary to alleviate concerns about market dominance, entry must be likely to occur before consumers or users in the relevant market are detrimentally affected to a significant extent.¹⁰ The Commission has said that the relevant time period has to be considered on a case-by-case basis, but that “for most markets, entry which cannot be achieved within two years from initial planning is unlikely to be sufficiently timely to alleviate concerns about market dominance.”

145. The Commission considers timeliness on a case by case basis. In *Carter Holt Harvey Limited* (1990) 2 NZBLC 104,549 the Commission said, at p 104,555:

“An assessment of the likelihood of the acquisition or strengthening of dominance necessarily involves a forecasting of the future. This is quite appropriate, since competition is a dynamic process. However, it also necessarily places some limit on the future period which it is sensible to consider. That limit is not found by reference to specific time frames, but rather by considering on a case by case basis, the period during which there can be a tendency or real probability (ref *Howard Smith Industries* (1977) ATPR 40-1023) of a particular state of competition occurring.”

146. In the present case, the Commission considers that the most likely entry strategy is for the prospective entrant to bid for and win one of the three large contracts in the South Island. The dates for the next tenders of these contracts are as follows:

- Canterbury Health [];
- Healthcare Otago []; and
- Lyttelton Port Company [].

147. As can be seen, the first of these contracts does not become available for two years and three-and-a-half months. This means that the earliest possible time of entry for a newcomer would be slightly outside the Commission’s normal timeframe for the satisfaction of timeliness. More importantly, the probability of the intending entrant winning the first, and even the second, of those contracts is assessed as being relatively low. Moreover, should that firm be unsuccessful in this first round of tenders in the period 2002-03, its entry would be delayed for a significant additional

¹⁰ *Ibid.*, p. 20.

period (from 15/2/03 to 1/5/05), given that the three larger contracts are for three years, or longer.

148. The Commission concludes on balance that the “timeliness” criterion of the “lets” test is not met.

Sustainability of Entry

149. Entry has to be sustainable in the sense that it is likely to be profitable in the long-term, for otherwise there will not be a lasting economic incentive to enter the market.

150. As noted previously, the supply of medical and quarantine waste services is awarded on a competitive tendering basis. However, for entry to be sustainable, it is necessary for the new entrant to continue to secure a return on its original investment, which may take several years. The entrant may also be vulnerable to anti-competitive strategic behaviour by the incumbent.

151. There has been a history of limited entry into the South Island market. San-I-Pak has secured the large contract for quarantine waste from Lyttelton Port Company (1997) and smaller contracts for medical waste. [

] Further, the Commission has been told [

152. The Commission considers that the “sustainability” criterion of the “lets” test is satisfied.

Conclusion on Constraints from Potential Competitors

153. The Commission concludes that entry into the market in question would satisfy the “likelihood”, “extent” and “sustainability” criteria, but not the “timeliness” criterion. This means that the threat of potential competition from new entry is considered not to significantly constrain an otherwise dominant firm or combined entity.

Constraint by Producers of Waste

154. The majority of medical waste is produced by public and private hospitals, while quarantine waste is produced at ports of entry. The large HHSs may have countervailing power by virtue of their position as large-scale users of medical waste treatment services. These would appear to produce volumes of waste sufficient to support either a new entrant into the market, or the installation of their own autoclave to treat their own waste, although no large waste producer has moved in this direction (apart from Waste Resources AIAL in 1991). Many hospitals in the USA and some hospitals in Australia have switched from out-sourcing to own-supply in recent years. Sometimes this involved contracting with an outside operator to build and operate their plant. It might also be possible for smaller waste producers to pool their waste, and so collectively to act in this way. The Commission is aware of one instance where this possibility was evaluated, but did not proceed.

155. However, an incumbent would recognise the ability of certain buyers to build their own facility, and thus would offer lower prices to those producers to retain their business whilst charging higher prices to the others whose options are more limited.

There is some evidence of such behaviour in Medical Waste's bid for the Canterbury Health contract.

156. Similar arguments apply to the port companies, of which only Lyttelton Port Company would appear likely to have any degree of countervailing power. However, all of the large waste producers who contract with Medical Waste and most of the medium-sized ones are locked into three to five year contracts with Medical Waste.

Conclusion on Constraint by Producers of Waste

157. The Commission concludes that the countervailing power of the few major hospitals and Lyttelton Port Company in the South Island would provide some constraint on the combined entity in the medium to longer term, although not in the next two to three years. However, most other producers would have no countervailing power in the foreseeable future.

Conclusion on Actual and Potential Constraint

158. While San-I-Pak has not aggressively marketed its services, it possesses the only significant excess treatment capacity in the South Island other than Medical Waste. The competitive analysis suggests that it currently has the potential to provide a limited constraint on the applicant for small waste flows not bound by long term contracts and for any contracts that become contestable in the immediate term. Removal of this potential would amount to removal of any constraint that the applicant would otherwise have faced.
159. The Commission concludes that the merged entity would not be effectively constrained by any existing competitors, nor by any countervailing power exercised by its customers. While an entry similar to that of San-I-Pak is considered likely at some point in the future, such an entrant may constrain the merged entity to an extent sufficient to render it no longer dominant, such entry is not likely within a two to three year time frame. In the intervening period the combined entity would have a dominant position in the market in the Commission's view.

Conclusion on Dominance in the Market for the Collection and Treatment of Medical and Quarantine Waste in the South Island

160. For these reasons, the Commission is not satisfied that the acquisition would not result, or would not be likely to result, in the applicant acquiring or strengthening a dominant position in the market for the collection and treatment of medical and quarantine waste in the South Island.

The Market for the Collection and Treatment of Medical and Quarantine Waste in the North Island

Market Shares

161. On the basis of information provided to the Commission, estimates of market shares for the collection and treatment of medical and quarantine waste in the North Island are shown in Table 3.

TABLE 3
Estimated Market Shares for the Collection and Treatment of Medical and Quarantine Waste in the North Island

	North Island	
	Tonnage	%
Medical Waste	[]	[]
San-I-Pak	[]	[]
Sub-Total	[]	[]
Waste Resources AIAL	[]	[]
Port of Tauranga	[]	[]
Port Napier	[]	[]
Total	[]	[]

Note: Some collectors of medical waste subcontract Waste Resources AIAL to treat such waste. This waste has been included in the Waste Resources AIAL's share in the above table.

162. The market share estimates contained in Table 3 indicate that in the North Island, Medical Waste currently has a market share of around [] and San-I-Pak has a share of about []. Waste Resources AIAL, with a market share of around [], Port of Tauranga about [] and Port Napier about [] account for the balance. In addition, the airforce bases at Ohakea and Whenuapai treat quarantine waste, but the quantities are believed to be very small (less than 1% of the total market).
163. Following implementation of the proposed acquisition, Medical Waste would increase its market share from around [] to about []. Those figures fall within the Commission's "safe harbours" set out in the *Business Acquisition Guidelines*.
164. However, the Commission's view is that the estimated market share for the combined entity may understate the actual competitive position, as the market share of the largest individual participant (Waste Resources AIAL) is derived largely from "captive" quarantine waste which is generated by aircraft landing at Auckland International Airport. Waste Resources AIAL has told the Commission that [

]. In light of these factors, the Commission considers that the combined entity is likely to have a much larger market share in actual competition terms than is indicated by the figures outlined above. The competitive impact of Waste Resources AIAL appears to be in its ability to reduce the barriers facing entrants, who can enter without having to build a new treatment facility.

Constraint by Existing Competitors

165. Apart from the parties to the acquisition, there are only three other participants of any significance currently operating in the North Island market (Waste Resources AIAL,

Port of Tauranga and Port Napier), and two of lesser significance (Ohakea and Whenuapai airforce bases). In addition, there are three other companies (Medi-Chem, HiTech and Medisafe) involved in the collection of medical waste, which arrange for its treatment at Waste Resources AIAL's incinerator.

166. Waste Resources AIAL is the largest individual company involved in the treatment of quarantine waste in the North Island. It is engaged predominantly in the destruction of waste on behalf of AIAL, of which it is a division.

167. [

]

168. Waste Resources AIAL is currently operating its incineration plant []. It has substantial spare capacity of around [] (currently operating at [] of total capacity), which is a very large amount in relation to the size of the market, and the resource consents applying to its incinerator are valid for another 10 years. The Commission's view is that while Waste Resources AIAL is not actively seeking outside business, the current spare capacity of its plant provides scope for existing parties without their own facilities, or possibly Waste Resources AIAL itself, to seek additional business should the market opportunity arise (if, for example, the combined entity were to increase prices substantially).

169. Port of Tauranga and Port Napier operate incineration plants at their respective ports, but the Commission has been told that these facilities are currently employed solely to treat the quarantine waste generated by vessels visiting those ports. The plants are also relatively old, and are not capable of meeting the operating temperature for the incineration of medical waste. Consequently, the Commission considers that Port of Tauranga and Port Napier would provide only a limited constraint on the combined entity.

170. The only other incineration plants operating in the North Island are located at the airforce bases at Whenuapai and Ohakea. Both of these plants are MAF-approved. The Commission has been advised that Ohakea has spare capacity, and that its plant can incinerate medical and quarantine waste for outside parties. The Commission considers that those plants may provide a potential limited constraint on the merged entity, albeit on a much smaller-scale.

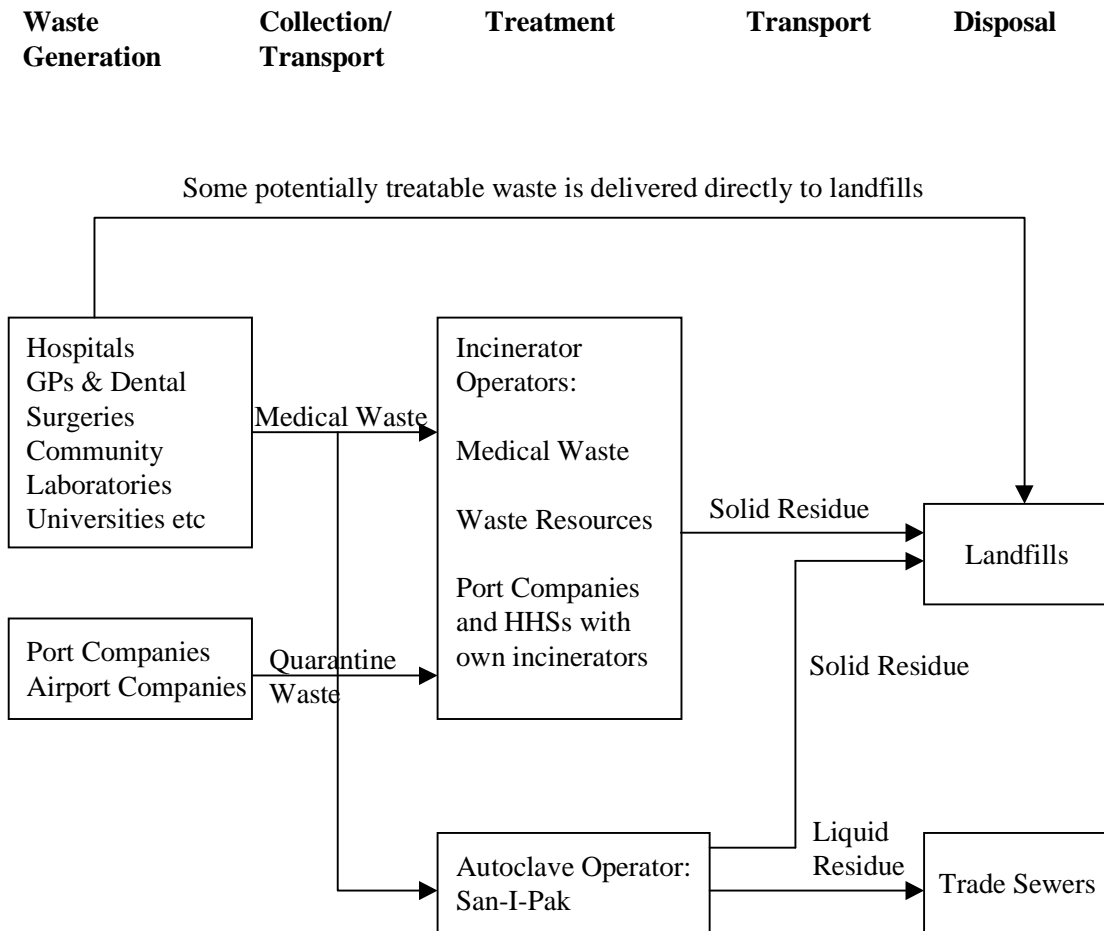
Constraint by Potential Competitors

171. The review of entry conditions contained in paras 103-134 is relevant to the consideration of the market for the treatment of medical and quarantine waste in the North Island. That analysis is not repeated here.
172. Entry into, or expansion in, the North Island is likely to be facilitated in the following ways. First, and as explained above, a prospective entrant might achieve entry into this market through the use of Waste Resources AIAL's incinerator, or possibly by one of the airforce incinerators. Information provided to the Commission indicates that the prices charged by Waste Resources AIAL to treat waste for outside parties are competitive. However, transport costs would also have to be taken into consideration. Also, as treatment costs are subject to negotiation, there might be some scope for those parties without their own waste treatment facilities to benefit from the countervailing power facilitated by the presence of Waste Resources AIAL. Indeed, Daniels entered the North Island market using Waste Resources AIAL to incinerate the waste it collected.
173. Entry in the form described above would rely on securing contracts for waste flows, probably from a hospital or port company. Nevertheless, given the availability of Waste Resources AIAL's facility, and its substantial excess capacity, the Commission considers that entry or expansion could be facilitated in this manner. By this indirect means potential new entry could act as a constraint on the combined entity.
174. Second, new entry might be achieved through the establishment of an autoclave. This in turn could be through installation of an on-site facility, say at a major hospital or port, or by an off-site facility, which could service several generators of waste. Such entry would depend on the same considerations as outlined in paras 103-134. For these reasons, the Commission considers that the "lets" test is satisfied in full on the North Island.

Conclusion on Dominance in the Market for the Collection and Treatment of Medical and Quarantine Waste in the North Island

175. Implementation of the acquisition would result in some aggregation of market share in the market for the collection and treatment of medical and quarantine waste in the North Island. Those market shares fall within the Commission's "safe harbours" for the acquisition of dominance, although the Commission considers that the figures used provide a somewhat distorted view of the actual state of competition in this market.
176. While San-I-Pak has a relatively small presence in this market, the acquisition would result in the removal of the third largest competitor in the market. The Commission notes that Waste Resources AIAL, the only other operator of a significant treatment facility in this market, is predominantly engaged in the destruction of quarantine waste for AIAL. However, Waste Resources AIAL's incinerator has substantial spare capacity and satisfies all the relevant resource consents. Given the appropriate market incentives, Waste Resources AIAL is likely to increase its market share. Alternatively, it could provide a facility for other potential new entrants without their own treatment facilities (eg HiTech, Medi-Chem, Medisafe and others) to compete

**THE PROCESS FOR THE
COLLECTION, TREATMENT AND
DISPOSAL OF MEDICAL AND QUARANTINE WASTE**



**LOCATION OF MEDICAL AND QUARANTINE
WASTE TREATMENT PLANTS
IN NEW ZEALAND**

