Report of the Auditor-General

on

medical waste management as well as infrastructure conditions in selected hospitals at the Western Cape Department of Health

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REPORT OF THE AUDITOR-GENERAL ON MEDICAL WASTE MANAGEMENT AS WELL AS INFRASTRUCTURE CONDITIONS IN SELECTED HOSPITALS AT THE WESTERN CAPE DEPARTMENT OF HEALTH

1. INTRODUCTION

1.1 The Auditor-General has a constitutional mandate and, as the Supreme Audit Institution of South Africa, it exists to strengthen our country's democracy by enabling oversight, accountability and governance in the public sector, thereby building public confidence.

2. PURPOSE AND CONTENT OF THE REPORT

2.1 The purpose of this report is to facilitate public accountability by bringing key findings regarding medical waste management as well as infrastructure conditions in selected hospitals at the Western Cape Department of Health (department) to the attention of the provincial legislature.

2.2 The content of the report is based mainly on the requirements in terms of section 188(4) of the Constitution of the Republic of South Africa, 1996, read in conjunction with sections 5(3) and 20(3) of the Public Audit Act, 2004 (Act No. 25 of 2004).

2.3 Sufficient audit work was performed to provide substantiating evidence for the findings set out herein. The findings documented in this report include certain examples of the consequences of deficient management measures and should not be regarded as comprehensive.

2.4 It is anticipated that this report would give rise to corrective steps which should contribute constructively to the establishment and implementation of appropriate management measures and controls and consequently to improved value for money.

3. AUDITING CONCEPTS AND APPROACH

3.1 BACKGROUND

3.1.1 The auditing of government institutions is based on the premise that it is the responsibility of the accounting officer to institute measures to ensure that resources are procured economically and utilised efficiently and effectively.

3.1.2 The responsibility for instituting these management measures rests with management. The primary objective of performance auditing is to confirm independently that these measures do exist and are effective, and where applicable, to provide management, Parliament and other legislative bodies with information on shortcomings in management measures and examples of the effects thereof by means of a structured reporting process.

3.1.3 The Auditor-General's function is not to question policy. It is, however, his responsibility to audit the effect of policy and the management measures that lead to policy decisions.

3.2 MODUS OPERANDI

3.2.1 Performance audits are conducted in accordance with the internal guidelines for the planning, execution, reporting and follow-up of performance audits conducted in the public sector.

3.2.2 After consensus on the factual correctness of the findings in the management report was reached during a steering committee meeting, these were brought to the attention of the accounting officer on 17 May 2006. Comments of the accounting officer were received during July 2006 and, after being analysed, were incorporated in the report.

4. OVERVIEW

4.1 Environmental law consists of a vast group of legal norms and forms an integral part of the management process. Any legal principle, which relates to environmental management, whether directly or indirectly, or which has an actual or potential impact on the environment, should fall within the purview of

environmental law. The most appropriate legislation relating to the aspects and impacts identified during the planning and execution phases of the audit was considered, and included the following:

(a) Constitution of South Africa, 1996

(b) National Environmental Management Act, 1998 (Act No. 107 of 1998)

(c) Environmental Conservation Act, 1989 (Act No. 73 of 1989)

(d) Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

(e) Medicines and Related Substances Control Amendment Act, 1997 (Act No. 90 of 1997)

(f) Hazardous Substances Act, 1973 (Act No. 15 of 1973)

(g) Health Act, 1977 (Act No. 63 of 1977)

(h) Machinery and Occupational Safety Act, 1983 (Act No. 6 of 1983)

(i) Compensation for Occupational Injuries and Diseases Act, 1993 (Act No. 130 of 1993)

4.2 Section 24 of the Constitution of South Africa, 1996 (Act No. 107 of 1996) determines that, amongst others, everyone has the right -

to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-

(a) prevent pollution and ecological degradation;

(b) promote conservation; and

(c) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

4.3 Chapter 4 of the King Report on Corporate Governance for South Africa (March 2002) addresses safety, health and environmental issues and, *inter alia*, states that good governance practices should reflect a commitment to:

(a) prevent workplace accidents and fatalities;

(b) prevent occupational diseases;

(c) take reasonable measures to prevent significant pollution or degradation of the environment from occurring, continuing or recurring, and to minimise and rectify pollution or degradation that has already been caused; and

(d) ensure, as far as is reasonably practicable, that persons other than those in their employ who may be directly affected by their activities are not exposed to health and safety hazards.

4.4 In terms of SABS ISO 14001, environmental management system audit means a systematic and documented process of objectively obtaining and evaluating evidence to determine whether an organisation's environmental management system conforms to the environmental management system and audit criteria set by the organisation, and for communication of the results of this process to management. These systems and processes are used to determine best practice together with compliance with the various legislation and related requirements.

4.5 The minimum requirements series developed by DWAF under the title *Minimum Requirements for Waste Disposal by Landfill, Minimum Requirements for the Handling and Disposal of Hazardous Waste and Minimum Requirements for Monitoring at Waste Management Facilities although not legally binding,* should be used as an administrative guideline document.

4.6 The best practices guide for the audit of medical waste, November 2002, specifically adopted for this audit, was also extensively used during all phases of the audit.

5. SCOPE

5.1 The audit carried out at the department mainly focused on management and system controls as well as processes to establish whether reasonable measures regarding medical waste management (handling, storage, disposal and transportation of medical waste) were implemented (refer to section 28 of the National Environmental Management Act, 1998 (Act No. 107 of 1998). Infrastructure conditions of selected hospitals were also assessed.

5.2 Selected hospitals

The department is divided into the following four regions, namely the Metro region, Boland region, Southern Cape region and the West Coast region. Within these regions there are:

- Three academic hospitals
- Two hundred and thirty clinics
- Forty-seven satellite clinics
- One hundred and eighteen mobile services
- Fifty-eight community health centres
- Twenty-one district hospitals
- Thirteen provincial aided
- Three TB hospitals
- Twelve midwife obstetrics units
- Four psychiatric hospitals
- Five regional hospitals
- Ten reproductive health services
- Two specialised hospitals
- Twenty-nine correctional services facilities
- One psychiatric TB

To ensure that our scope was representative of the Western Cape Province, hospitals in each region were selected (randomly and based on experience and knowledge) and visited, whilst others were included in the preliminary audit phase. It should, however, be mentioned that only pre-selected areas within hospitals were visited and reported on as identified during the planning

phase of the audit. Other areas of concern raised by hospital management during visits to the respective hospitals were included in the audit at their request. A detailed schedule of areas selected for audit is attached as **annexure A**. The hospitals visited for aesthetic walk-through and photo sessions of pre-selected areas included:

(a) Academic hospitals

- Tygerberg Hospital
- Groote Schuur Hospital

(b) Metro region

- Mowbray Maternity Hospital
- Wesfleur Hospital
- GF Jooste Hospital
- Somerset Hospital
- Victoria Hospital
- Hottentots Holland Hospital
- False Bay Hospital

(c) Boland region

- Ceres Hospital
- Robertson Hospital
- Brewelskloof TB Hospital
- Caledon Hospital
- Swellendam Hospital
- Malmesbury Hospital

(d) Southern Cape/Karoo region

- Oudtshoorn Hospital
- Mossel Bay Hospital
- George Hospital
- Ladismith Hospital

(e) West Coast region

- Vredenburg Hospital
- Citrusdal Hospital
- Vredendal Hospital

6. KEY FINDINGS, SUGGESTED CORRECTIVE MEASURES AS WELL AS COMMENTS OF THE ACCOUNTING OFFICER

6.1 MEDICAL WASTE

In most instances, the hospitals visited during this audit were found to be well managed and maintained. The department should be commended for all their efforts to ensure proper health care facilities and related services to the general public. Hospitals that deserve special mention for immaculate neatness and hygiene include:

- Groote Schuur Hospital
- Vredendal Hospital
- Swellendam Hospital
- Ladismith Hospital
- Citrusdal Hospital
- Wesfleur Hospital
- Hottentots Holland Hospital

It is imperative, however, that the department ensure that their environmental policy (which was the driver for implementing and improving the organisation's environmental management system so that it could maintain and potentially improve its environmental performance) includes proper management of issues such as medical waste control. Section 28 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) requires an Environmental Management System based on the principles of ISO 14001.

During all aesthetic visits performed, the main focus was on medical waste management (from generation to ultimate disposal) as well as other occupational health and safety concerns noted during walk-throughs.

The department should consider the following findings (discrepancies and non-compliance issues) to ensure that their mission and vision statements regarding proper health care facilities and services can be attained. The findings listed below as well as the details of where they occurred, in addition to the minor findings not detailed in this report, in are attached as **annexure B**.

6.1.1 GENERATOR OF WASTE

The health care facilities must dispose of all waste according to national, provincial, regional and municipal legislation and regulations. The control of waste management is described in section 20 of the Environmental Conservation Act, 1989 (Act No. 73 of 1989).

The handling, storage, disposal and transportation of waste are mainly governed by the Hazardous Substance Act, 1973 (Act No. 15 of 1973). The governing principles for the management of hazardous waste are "duty of care", where the individual or the institution/organisation that generates the waste, incurs a duty of care owed to society. This implies that the generator of waste retains the ultimate responsibility for ensuring that the waste is handled, stored, transported and disposed of in an environmentally sound and responsible manner. The ultimate responsibility therefore rests with the department, as the generator of waste, to ensure adherence to the applicable legislation, regulations and procedures.

During aesthetic visits performed at the selected hospitals it was found that no register or proof (for control purposes) existed for the collection of medical waste containers and boxes by the waste removal companies concerned. It could therefore not be established whether the waste collected was disposed of as required by a suitable permitted facility.

Root cause

(a) Non-compliance with departmental policies regarding waste management and related legislation.

(b) Hospital personnel were not aware of their responsibility to ensure that all medical waste collected was disposed of as required by legislation and related requirements.

(c) There were no guidelines from the department to ensure proper record-keeping and monitoring of the waste process from collection to actual disposal thereof.

Risks

This, *inter alia*, increased the risk that:

(a) the movement and required disposal of medical and related waste could not be confirmed or monitored;

(b) medical and related waste could be disposed of on general (municipal) landfill sites, with health, safety and injury risks to all those exposed; and

(c) liability claims emanating from injuries and/or other negative health impacts.

Suggested corrective measures

(a) The department should consider and implement management measures to ensure that medical waste is transported and disposed of according to the applicable legislation, regulations and procedures.

(b) Regular inspections should be conducted to ascertain compliance with the applicable legislation, regulations and procedures.

(c) The number of medical waste boxes and containers to be removed by the contractor from the collection area/storage sites at the hospitals should be recorded (manifest system) each time removal takes place.

(d) The waste manifest system regarding the transportation of medical waste from the hospitals should be properly controlled, documented and stored for reference and auditing purposes.

(e) Disposal certificates should be issued by the contractor to verify and ensure that the waste collected is actually disposed of as required.

6.1.2 MEDICAL WASTE STREAM

Section 24 of the Constitution of South Africa, 1996, states that everyone has the right to an environment that is not harmful to their health or well-being. Section 8 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) states: *The employer should provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of the employees*. Section 9 of the aforementioned act states that every employer shall conduct his undertaking in such a manner as to ensure, as far as reasonably practicable, that persons other than those in his employment, who may be directly affected by his activities, are not exposed to hazards to their health or safety. The governing principle for the management of hazardous waste is "duty of care", where the individual or the institution/organisation that generates the waste, incurs a duty of care owed to society. This implies that the generator of waste retains the ultimate responsibility for ensuring that the waste is handled, stored, transported and disposed of in an environmentally sound and responsible manner.

Visits to the selected hospitals revealed that health risks regarding the handling, storage, disposal and transportation of medical waste were present in the system that was in use at the said hospitals. The handling of medical waste without the necessary knowledge of and training regarding the risk involved in not using the prescribed protective clothing could, furthermore, lead to health injuries and liability claims by the staff and the general public against the department. The following shortcomings/deficiencies identified could give rise to various risks:

(a) Medical and municipal waste was mixed together with no or limited distinction between hazardous and other (general) waste. The following photographs serve as examples:

Somerset Hospital municipal waste collection site: Municipal waste bags included medical waste and needles

Swartland Hospital: Medical waste disposed of in municipal waste bin

(b) Medical waste was not always placed in the prescribed medical waste containers, boxes or bags. Containers used for the storage and transportation of these items did not comply with general health and safety standards. Sharps were stored and handled in used plastic bottles and other means of

storage. Colour-coded bags to differentiate between waste types were not always used with medical waste found in municipal and general waste bags.

Vredenburg Hospital Casualty: Sharps and needles stored in plastic domestic bottle

Vredendal Hospital Ward C Baby Room: Domestic drum used for storage of sharps and syringes

Swartland Hospital: Sharps placed in wine bags

(c) Access to medical waste was not restricted (unrestricted access to medical waste could lead to health hazards).

Caledon Hospital (Passage – outside theatres): Medical waste bags accessible to all

(d) In certain instances medical waste storage areas (collection points) were accessible and exposed to the elements (unrestricted access to medical waste could lead to health hazards).

Swartland Hospital: Medical waste for collection stored with foodstuffs (kitchen) and accessible

Somerset Hospital: Medical waste collection room full – waste stored outside

(e) At some hospitals yellow, sharp containers were overfull, posing health and injury risks.

Victoria Hospital High Care Unit: Overfull sharp containers

(f) At some hospitals, full medical waste boxes and sharp containers were not always sealed. Spillage of the mentioned items occurred regularly.

Caledon Hospital Medical Waste Storage Room: Yellow sharp containers not sealed

Mowbray Hospital Medical Waste Storage Room: Medical waste boxes broken – leakage occur (placentas)

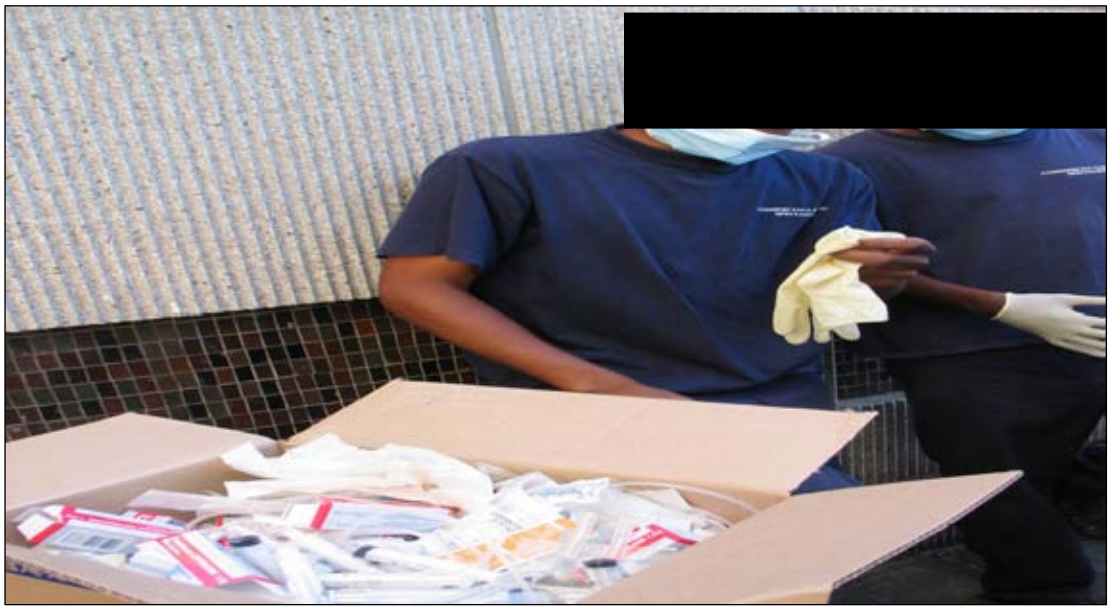
(g) Littering of medical waste noted at some hospitals where staff seemed unaware of the prescribed storage and disposal methods.

GF Jooste Hospital: Littering of medical waste

Caledon Hospital: (Waste Collection Site): Littering of dangerous needles

(h) Protective gear and equipment were not always used to mitigate injuries and other health hazards during the handling of medical waste at the said hospitals. The handling of medical waste without the necessary knowledge of and training regarding the risk involved in not using the prescribed protective clothing could lead to health injuries and liability claims against the department.

Somerset Hospital: Personnel (cleaning and removal of waste) did not use prescribed safety gear equipment



(i) The brackets used for sharp containers stored in wards and/or other strategic places were not modified to accompany the new sharps containers.

False Bay Hospital: Improper storage of medical waste

(j) During the aesthetic visits performed it was noted that sharp and other containers of the previous contractor were still in use or stored for extended periods at the waste collection sites.

Swartland Hospital Medical Waste Storage Room: Old containers stored

(k) The trolleys used at the hospitals for transporting medical and municipal waste to the incinerators or waste collection sites were completely open and overloaded with exposed waste, which constituted a health risk to employees and the general public. At some hospitals, medical waste was transported from the wards in open carriers with no indication to the general public and others of the dangers and risks involved. Used surgical gloves were also found outside buildings and all over the premises.

Mowbray Hospital: Incorrect and overloaded trolleys/carriers used

(l) At most of the hospitals visited there were no systems of verification to ascertain whether all medical waste collected was actually disposed of. No disposal certificates were issued by the medical waste contractors for the ultimate disposal of medical waste. As the ultimate responsibility rests with the department to ensure proper transportation and disposal of their waste generated, it was clear that the process was not monitored or checked once the waste was collected by the contractor.

Root cause

Non-compliance with departmental policies regarding waste management and related legislation:

- Waste segregation did not occur at the point of generation;
- The prescribed containers, boxes and bags were not used for storage, transportation and disposal;
- Medical waste containers, boxes and bags were not properly closed and sealed as required;
- No or limited access control to medical waste in wards, storage areas and collection points;
- Unacceptable medical waste intermediate storage occurred, such as in passages of hospitals, outside ward doors and in pathways;
- Insufficient or non-prescribed carts/trolleys were used for in-house transport of medical waste. Loaded carts were not moved through planned routes to minimise exposure for patients, visitors and sensitive areas;
- Ignorance of policies on the part of staff, patients and visitors; and
- Lack of proper waste management and control at hospitals.

Risk

The handling of medical waste without the necessary knowledge of and training regarding the risk involved in not using the prescribed protective clothing could, furthermore, lead to health injuries and liability claims by the staff and the general public against the department.

Suggested corrective measures

The department should:

(a) Consider and implement management measures to ensure that medical waste is handled, stored, transported and disposed of according to the applicable legislation, regulations and procedures, such as:

- Medical waste should be placed in the prescribed boxes and handled and stored accordingly. Full medical waste boxes should be properly sealed and access to these boxes should be restricted. Colour-coded bags need to be used to differentiate between the various waste types (separate medical and municipal waste).

- Medical waste should not be mixed with municipal waste and should be separated at generation.

- Access to medical waste should be strictly controlled (in wards, storage area and at collection points).

- Medical waste collection areas should be demarcated and access thereto should be restricted.

- The prescribed protective clothing and gear should be used during the entire process (from generation to disposal of medical waste).

- Littering of medical waste or illegal disposal should be discouraged through training and awareness programmes. Daily monitoring and cleaning are required to address this issue.

- The prescribed trolleys or carriers should be obtained for transportation of medical waste from the point of generation to collection sites or incinerators (to limit littering or exposure for patients, public and staff).

(b) Regular inspections should be conducted to ascertain compliance with the applicable legislation, regulations and procedures.

6.1.3 INCINERATORS

The Health Act, 1977 (Act No. 63 of 1977) identifies waste incineration (including medical waste) sites, disposal sites and waste collection, sorting, treating or processing sites as scheduled trades. Incineration is a scheduled process in terms of the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965) and the Department of Environmental Affairs and Tourism (DEAT) has published regulations that include emission standards, structural requirements and operating parameters for incinerators. The DEAT has recognised that due to various factors, such as location and the volume of waste incinerated, incinerators that do not meet the emission standards may still not impact significantly on human health and the environment. However, the burden of proof is on the operator/owner and this would require a full multi-pathway health risk assessment before the DEAT can grant a permit.

Section 24 of the Constitution of the Republic of South Africa, 1996, states that everyone has the right to an environment that is not harmful to their health or well-being. Section 8(1) of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) states that the employer should provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of the employees. This act also contains various general safety regulations that should be adhered to.

Twelve hospitals, seven of which were in the West Coast Region, made use of incinerators to destroy their medical waste. The incinerators were old and most were in a poor condition, which could lead to health and related hazards.

A physical inspection of incinerators in operation at the following eight hospitals revealed discrepancies as listed below:

- Vredenburg Hospital
- Citrusdal Hospital
- Vredendal Hospital
- Caledon Hospital
- Swellendam Hospital
- Ladismith Hospital
- Swartland Hospital
- False Bay Hospital

(a) Although registration certificates were issued for the incinerators in use in terms of the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965), they did not specify any validation period or renewal date. Regular inspections or reports on the operation and condition of the incinerators could not be confirmed since the registration certificates were issued.

(b) The following guidelines as set by the DEAT regarding infectious waste incinerators were not adhered to:

(i) There were no records of the quantities of waste incinerated at the hospitals for any specified period.

(ii) The temperature control at the incinerators prior to and during the incineration process was not as required. Many toxins have to be incinerated at specific temperatures. Any variances in these temperatures could lead to the creation of toxins even more dangerous than the original ones, with the possibility that these toxins could enter the environment via the incinerator smokestack.

Vredendal Hospital: Incinerator set on 450 – 600 degrees

(iii) Incinerators at some hospitals were used as continued burners and not as batch burners. One of the conditions for a registration certificate referred to above was that *no waste is fed into an incinerator at the start-up and until the minimum operational temperature is reached or, until the charge has been completely combusted.*

(iv) The operators of the incinerators at some hospitals did not always wear the necessary protective clothing and gear while feeding the incinerators with hazardous and infectious medical waste.

(v) Not enough or no visible safety and risk classifications/specifications were displayed in order to inform the operators, staff and the general public of the risks and hazards involved in the handling, storage, disposal and transportation of medical waste. No notices/signs were displayed in and around the incinerators at the hospitals to indicate the safety and risk

classifications/specifications in order to inform the operators, staff and the general public of the risks and hazards involved.

(vi) Access to the incinerators at the relevant hospitals was not always properly controlled or limited to authorised operators only.

Citrusdal Hospital: No proper access control exercised at the incinerator

(vii) Ashes from the incineration process to be collected and disposed of on municipal landfill sites included needles and other sharps that had not been incinerated properly. These items pose injury risks to waste handlers and others exposed thereto.

Vredenburg Hospital: Improper incineration included needles not destroyed properly

Caledon Hospital: Improper incineration included sharps not destroyed properly

Root cause

- Non-compliance with legislation.
- Incinerator operators were not properly trained and were not aware of the minimum requirement and legislation pertaining to such a scheduled process.
- Incinerators were old and dilapidated and in most cases could not burn at the prescribed temperature of 800 degrees or more.
- The staff were not aware that ultimate responsibility rests with the department to ensure and prove that medical waste was incinerated or disposed of as required.
- Incinerator operators were not equipped with or did not wear or use the prescribed protective clothing and/or gear.
- No signs or risk and safety classifications were available for display in and around incinerator areas.
- No access control and monitoring thereof.

Risk

The incorrect disposal methods for health care waste created other health risks. Medical waste, such as sharps that are not properly incinerated, resulted in occupational hazards for waste handlers, scavengers and all exposed thereto. The release of toxic substances such as dioxins, furans and co-planar PCBs into the environment could have adverse health effects.

Suggested corrective measures

(a) The entire process of the generation, handling, storage, transportation and disposal (incineration) of medical waste at the hospitals should be investigated and corrective measures should be taken to ensure compliance with the minimum requirements as set out in the applicable legislation, regulations and procedures.

(b) Management should ensure that the registration certificates, issued in terms of section 12 of the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965) with regard to the incineration process at the hospitals, specify a period of validity or date of renewal, while adherence to the conditions and

specifications as stipulated on the certificate should be monitored on a regular basis (and recorded as such).

(c) All incinerator operators should be adequately trained to ensure the correct operation of incinerators as well as effective disposal methods as required by legislation and related guidelines. Training is essential to ensure that waste is incinerated per batch and at the required temperature.

(d) Incinerator operators should be equipped and monitored to ensure that they use the prescribed safety clothing and equipment.

(e) Incinerators in use should be assessed to ensure the ability to burn at the required temperature (800 or more degrees for medical waste) and if they do not, they should be upgraded accordingly. Periodic maintenance to replace or repair defective components is also necessary.

(f) Sufficient and visible safety and risk classifications/specifications should be displayed in and around the incinerator area as well as notices and signs to inform/warn all exposed of the nature of the operation and the relevant hazards/risks involved.

(g) For control and statistical purposes waste volumes incinerated should be recorded as substantive documentation of ultimate disposal.

(h) Ashes from medical waste incineration should also be regarded as hazardous waste and disposed of accordingly.

6.1.4 MEDICAL WASTE REMOVAL CONTRACT (DOH 46/2004)

The contract (DOH 46/2004, dated 11 May 2005) and related bid specifications between the department and a private contractor for the removal of medical waste was scrutinised. A meeting with the management of the contractor on 12 December 2005 focused on contractual issues and departmental involvement. The discussion revealed the following issues and discrepancies:

(a) The contractor was available for and gave training to hospitals within their service area (as indicated in the bid specifications, paragraph 9). The company also had a field supervisor responsible for the effective collection, storage and transport services. Although training and awareness, or the lack

thereof, regarding medical waste handling, transportation and disposal were identified as a major factor contributing to the non-compliance with legislation and related requirements, some hospitals declined or did not participate in this training process.

At the time of the audit, Tender DOH 46/2004 included 29 hospitals and 49 clinics. To date only 17 hospitals and 21 clinics received or accepted the training opportunities available from the service provider. The lack of training, knowledge and awareness among hospital staff regarding medical waste management and control could be addressed by the training opportunities offered by the service provider.

(b) Prescribed stickers were available and should be used by hospitals to identify and distinguish between the various medical waste types to ensure the correct disposal thereof. During the aesthetic visits conducted at the selected hospitals, it was evident that these stickers or means of identification were not always used or considered.

Contractor: Prescribed stickers for identification of medical waste types

(c) The bid specifications (paragraph 14) indicated that a waste-hauling trolley would be provided at each institution for efficient and safe carting of waste

containers. The trolleys and carts used at the hospitals, however, did not comply with prescribed standards and constituted health and injury risks.

Brewelskloof Hospital: Trolleys used at hospitals – not as prescribed for safe transportation

(d) Wall brackets for sharp containers supplied by the contractor were also available (as specified in paragraph 14 of the bid specifications). However, during the aesthetic visits at various selected hospitals it was found that the previous contractor's brackets were still being used (not suitable for the new round container) or sharp containers were placed on floors, desks and elsewhere. According to the contractor the hospitals did not order/request delivery.

Contractor: Sharp container brackets in stock - available

(e) Specific containers were supplied by the contractor for expired pharmaceutical fluids, which were being disposed of in drains at most of the hospitals visited.

Contractor: Expired pharmaceuticals containers available – not used at all hospitals serviced

(f) The bid specifications (paragraph 15) clearly indicated that schedule 6 and 7 drugs should be destroyed under the supervision of the responsible pharmacist, who would personally deliver and supervise immediate destruction thereof. Some hospitals followed the same process with scheduled and other expired pharmaceuticals.

(g) Hospitals used different containers and means of storage, transportation and disposal of placentas from labour wards. It was confirmed by the contractor that special containers were available for these purposes to eliminate spillages and leakages. These containers were, however, not used by all hospitals as it was observed that boxes, bags and other modified containers were being utilised.

(h) A proper manifest system was in use by the contractor for the administration and control of medical waste containers delivered, collected, transported and disposed of. The hospitals serviced by the contractor did not receive or file any disposal certificates of medical waste (as substantive proof of ultimate disposal) as required in section 28 of NEMA.

(i) Paragraph 8 of the bid specifications clearly states that each waste deposit point at hospitals should be identified with a sign stating the purpose thereof, with a wall-mounted bracket fitted below, suitable for the specific container used. During the aesthetic walk-through visits undertaken at the selected hospitals it was noted that these signs were absent.

Root cause

During meetings and discussions with the contractor and the hospital's management, the following became evident:

- There was a lack of communication between the various levels of the department to involve/use the contractor and its related services to the maximum or as required.
- Hospitals were not aware of their responsibilities and interaction with the contractor did not take place as the various services indicated in the bid specification were not utilised to ensure effective medical waste management.
- Reluctance on the part of the hospital management to involve or utilise the contractor to assist with medical waste management processes and related training.
- The department and relevant hospitals were not aware of or conversant with the "duty of care" principle and the ultimate responsibility for waste disposal.
- No uniformity, and in some cases uncertainty, between all hospitals regarding medical waste management and disposal.
- Lack of training and awareness among hospital staff and management regarding legislation and minimum requirements applicable to medical waste management and control.

Risks

Various risks emanated from the fact that the contractor was not properly utilised in the medical waste management processes of each hospital. Services that were part of the contract and bid specifications were not used, which contributed to the various discrepancies and non-compliance issues identified during the aesthetic visits and highlighted in this report. There was also a risk that the contractor could be paid for services not rendered or bid specifications not adhered to.

Suggested corrective measures

During an inspection of the contractor premises and a subsequent meeting held on 14 December 2005 the contractor indicated their willingness and preparedness to address several of the discrepancies and risks identified during aesthetic visits performed at the selected hospitals.

It is imperative that the department should:

(a) Revisit the bid specifications and encourage hospitals to make proper use of the services provided by the contractor.
(b) Ensure that all hospitals are conversant with their responsibilities and the process of interaction with the contractor to improve medical waste management and control.
(c) Make available legislation and related requirements regarding medical waste handling, storage, transportation and disposal.
(d) Consider and implement a uniform system at all hospitals of the department to ensure correct and prescribed processes are followed from the generation to the ultimate disposal of medical waste.
(e) Encourage and ensure proper training of staff and the recording thereof, involving the contractor.
(f) Ensure that each hospital has control over and keeps records of all their medical waste generated and ultimate disposal thereof.

6.1.5 MEDICAL WASTE REMOVAL CONTRACT (DOH 17/2003)

A separate contract (DOH 17/2003) was negotiated with a contractor for the period 1 October 2003 to 30 September 2005 (extended to 31 March 2006), which included 12 hospitals located in the Southern Cape Karoo Region. The contract price was offered per container and included the supply of the different types of containers (sharps, non-anatomical, anatomical, radioactive and pharmaceutical waste containers and plastic bags), collection and disposal of the medical waste.

According to the contractor, hospitals have a choice whether to be part of this contract or to make use of alternative, privatised services or disposal methods. Ladismith Hospital, which was one of the hospitals selected in this region, did not form part of this contract and is not serviced by the contractor. Other hospitals not serviced included:

- Uniondale Hospital
- Prince Albert Hospital
- Murraysburg Hospital
- Laingsburg Hospital

The discrepancies noted in the medical waste stream (generation to disposal of medical waste) of hospitals visited in this region suggested that the contractor should be approached to be involved in addressing certain issues, such as:

- Enhanced training and management;
- To ensure waste segregation and minimisation practices;
- Providing prescribed equipment such as trolleys/carriers for transportation, etc.; and
- Monitoring to ensure a proper operation, segregation and storage process.

It was confirmed with the engineering directorate that the intention was to include all hospitals that form part of the Southern Cape/Karoo region in the next tender commencing 1 April 2006.

6.1.6 EXPIRED MEDICINES

The Medicines and Related Substances Control Act, 1965 (Act No. 101 of 1965) regulates the disposal of undesirable medicines. Section 35 of this act authorises the minister to institute draft regulations regarding medicines and related substances.

During the aesthetic visits performed at pharmacies the following discrepancies were found at most of the hospitals:

(a) A lack of proper control over and the recording of expired medicines and related stock on hand and the disposal thereof.

(b) No formal action plan or proper record-keeping system was in place to ensure that all expired medicines were properly destroyed (certificate of disposal).

(c) Expired medicines that were accumulated from the various clinics and wards could not be pinpointed regarding the quantities and types of medicine, which increased the risk of theft as well as the misuse of expired medicines.

(d) No official/pharmacist signed any record as proof that the expired medicines, as condemned by the Board of Survey, had been properly disposed of.

(e) Various types of containers, boxes and bags were used by pharmacists to store and dispose of expired medicines. The prescribed containers as supplied by the contractor were not always used.

Robertson Hospital Pharmacy: Incorrect container and lack of control over expired quantities

(f) At some hospital foodstuffs were stored with pharmaceuticals.

Wesfleur Hospital Pharmacy: Foodstuffs stored with medicines

(g) Expired pharmaceutical fluids were disposed of in drains at the hospitals visited.

Mowbray Hospital: Expired or unused fluids disposed of in drains

(h) At some hospitals expired scheduled medicines (schedules 6 and 7) were also disposed of with other expired stock.

Root cause

- Non-compliance with legislation
- No formal action plan was in place to ensure that expired medicines were disposed of as required.
- Pharmacists were not conversant with the requirements relating to the transcription of expired stock
- Lack of checking and monitoring regarding the process from transcription to ultimate disposal.

Risks

- Expired medicines (including scheduled items) could be misused (issued or sold) with health consequences to end-users (liability issues).
- No control over or record of stocks received, condemned and ultimate disposal thereof.
- Spillage of expired medicines not stored and transported in the prescribed containers.
- Negative impact, due to chemical reactions and improper disposal, on the environment and all those exposed to it.

Suggested corrective measures

(a) A register, containing the following details, should be kept for expired medicines in stock and received from wards/clinics:

- Type of medicine
- Quantity of medicine
- Date when medicine was placed in the container for expired stock
- Date when medicine was removed/disposed of.
- Reference to the disposal certificate (ultimate disposal).
- Signature of pharmacist and person assisting.

(b) A disposal certificate should be obtained/filed for all expired medicines incinerated or removed to ensure and substantiate ultimate disposal thereof.

(c) Containers available from the contractors for expired pharmaceuticals should be used for identification purposes and to prevent/mitigate spillage.

(d) Expired and used fluids should not be disposed of through drains, but stored and disposed of in the prescribed containers available/provided.

(e) Schedule 6 and 7 expired medicines should be separated from other expired stock as required by legislation and related guidelines and disposed of accordingly.

6.1.7 X-RAY DEPARTMENTS: SILVER RECOVERY

At several of the hospitals included in the aesthetic visits, it was found that silver recovered from X-ray and related activities was not properly managed or controlled. as indicated below:

Caledon hospital: X-ray room: fixer fluids recovery

(a) An external contractor that was responsible for silver recovery and the actual reimbursement of the individual hospitals, collected the recovered silver without weighing it or confirming the weight to hospital officials upon collection.

(b) There was no proper record or evidence of the actual weight collected to ensure correct reimbursement.

(c) Reimbursements were not compared to the actual weight collected to ensure the correctness thereof.

Root cause

- No uniform policy and procedures in place to ensure proper control over the recovery and reimbursement process.
- Lack of proper management and monitoring.

Risk

This lack of proper control and management posed the risk of insufficient reimbursement of and therefore financial losses to the hospitals.

Suggested corrective measure

Management should ensure that the process of collection (weighing) is properly monitored, documented and followed up to ensure timely and correct reimbursement for silver recovered at all hospitals.

6.1.8 WASTE COLLECTION SITE AT TYGERBERG HOSPITAL

During visits to the medical waste collection room the following discrepancies were noticed:

- The room where medical waste was stored for collection by the waste company was not closed and there was no access control.
- Sharp containers were found to be not sealed properly with spillage of dangerous, used needles.
- Unsealed sharp containers and boxes were not removed by the contractor (stored for undisclosed periods).

- Leakage of bloodied materials (placentas) from boxes.
- Disorderly manner of storage for collection.
- No visible warning signs in and around this room regarding the hazardous contents stored.

Tygerberg Hospital: Medical waste collection room

Tygerberg Hospital: Medical waste collection room

Root cause

- Non-compliance with departmental policies regarding medical waste management.
- Staff were ignorant or unaware of the risks and hazards involved in medical waste handling and disposal.
- Medical waste boxes, containers or bags were not sealed at the point of origin, which made it difficult to identify or take action against perpetrators.
- Lack of knowledge or awareness of the legislation and/or minimum requirements relating to the medical waste process.
- There was no access control regarding the storage and collection sites of medical waste.
- Non-availability of warning signs or instructions to follow with regard to such waste.

Risks

Risks emanating from unsealed containers or improper disposal methods included injury and other health hazards for all exposed thereto. Liability (in terms of Common Law) to inform all involved of the risk and hazards and to ensure compliance with the minimum requirements, rests with the department.

Suggested corrective measures

(a) Medical waste containers, boxes and bags should be sealed when full at the point of generation (wards).

(b) General assistance or staff responsible for the removal of the medical waste should not move any unsealed containers, boxes or bags.

(c) Medical waste collection sites should be closed off and access control enforced.

(d) Medical waste collection sites should be kept orderly and littering of such waste or bloodied materials limited/discouraged.

(e) Warning signs should be erected in and outside this site to warn all exposed thereto of the risk and hazardous contents.

(f) Proper checking and monitoring at ward level and during collection, storage and transportation should be performed to ensure that risks are minimised.

(g) All staff involved in the process from generation to disposal should be made aware of and trained to make them conversant with the hazards and risks involved as well as minimum requirements in this regard.

6.1.9 AWARENESS OF ACTS AND PROCEDURES BY THE GENERATOR OF WASTE

Ultimate responsibility relating to the generation of waste (in this instance medical waste) is vested in the department. The White Paper on Integrated Pollution and Waste Management for South Africa: GN 227, GG20978, 17 March 2000 refers to the precautionary principle as used in SA legislation as part of cleaner production. Furthermore, this approach embraces the cradle-to-grave principle, the precautionary principle and the preventative principle.

The generator of waste was not always aware of the acts and procedures relating to:

- legislative control
- packaging

It was also noted that most hospitals were not aware that they retained the ultimate responsibility for ensuring that waste was handled and disposed of correctly and in a responsible manner.

Root cause

- Training needs of all involved in the medical waste process were not addressed at all levels.
- No proper information system was in place as to make staff conversant with the legislation and minimum requirements.
- Not enough checking and monitoring performed.

Risks

Risks emanating from a lack of awareness included ignorance of and non-compliance with legislation and related requirements, which could lead to liability claims as a result of injuries or other health hazards.

Suggested corrective measures

(a) The hospitals should consider proper measures to ensure that waste is handled, transported and disposed of according to laws and regulations

(b) Engage in regular inspections and awareness campaigns to ensure compliance with laws and regulations as well as specifications for the removal and disposal of hazardous waste (including contractors).

6.1.10 TRAINING OF STAFF IN MEDICAL WASTE MANAGEMENT

Section 8(e) of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) states that an employer shall provide such information, instructions, training and supervision as may be necessary to ensure, as far as reasonably practicable, the health and safety of his employees in the workplace.

During the aesthetic visits to the selected hospitals, it was evident that there was a need for training and awareness amongst staff regarding the medical waste management process, from generation to ultimate disposal. Although limited training was provided to some hospitals and officials by the contractor and/or occupational health and safety training officers, it was evident during our excursions that this was insufficient or not properly directed so as to address the discrepancies, risks and concerns regarding medical waste management.

(Also refer to par. 5.1.4(a) regarding the Medical Waste Contractor)

Staff were therefore:

- not always aware of the legal and safety requirements.
- not always trained to work with the equipment.
- not conversant with the use of health care and waste definition terminology.

Root cause

- Not enough training personnel available.
- Training not directed at operational personnel responsible for medical waste management.
- Budget constraints.

- Recent change in waste removal contractor.

Risks

Risks emanating from a lack of proper training and related programmes include:

- Illegal dumping and/or disposal of medical waste.
- Injuries due to the lack of knowledge and understanding of the consequences of improper storage, transportation and disposal of medical waste.
- Liability claims emanating from illegal dumping and a lack of information or training provided.

Suggested corrective measures

A formal training programme that addresses proper medical waste management (from generation to storage, transportation and disposal), considering all the relevant risks and health hazards, should be established for the training of all staff.

Comments of the accounting officer

1. The department agreed with the above findings and is in the process of:

(a) Implementing regular training sessions for all staff members to be presented by the Infection Prevention and Control Committee in respect of waste management protocols.
(b) Placing all medical waste in prescribed boxes and ensuring that it is handled and stored correctly.
(c) Ensuring that full medical waste boxes are properly sealed and access to these boxes is restricted.
(d) Ensuring that medical waste is not mixed with municipal waste.
(e) Ensuring that access to medical waste is strictly controlled (in wards, storage area and at collection points).
(f) Ensuring that prescribed protective clothing and gear are used during the entire process (from generation to disposal of medical waste).
(g) Discouraging littering of medical waste or illegal disposal through training and awareness programmes.

(h) Obtaining prescribed trolleys or carriers for transportation of medical waste from the point of generation to collection sites or incinerators (to limit littering or exposure for patients, public and staff).

(i) Conducting regular inspections to determine compliance with the applicable legislation, regulations and procedures.

(j) Training all incinerator operators to ensure correct operation of incinerators as well as effective disposal methods as required by legislation and related guidelines. Training will also ensure that waste is incinerated per batch and at the required temperature.

(k) Keeping a register for expired medicines in stock and received from wards/clinics, containing the following details:

- Type of medicine
- Quantity of medicine
- Date when medicine was placed in the container for expired stock
- Date when medicine was removed/disposed of.
- Reference to the disposal certificate (ultimate disposal).
- Signature of pharmacist and person assisting.

(l) Obtaining and filing all disposal certificates for all expired medicines incinerated or removed to ensure and substantiate ultimate disposal thereof.

(m) Displaying, in and around the incinerator area, adequate and visible safety and risk classifications as well as notices or signs to inform/warn all exposed of the nature of the operation and the hazards/risks involved.

(n) Recording waste volumes incinerated for control and statistical purposes.

(o) Ensuring that expired and used fluids are not disposed of through drains, but stored and disposed of in the prescribed containers available/provided. They will also ensure that all expired medicines are separated from other expired stocks as required by legislation and related guidelines and disposed of accordingly.

(p) Ensuring that all fire prevention measures are in place and that the necessary equipment is readily available.

2. With regard to the medical waste removal contract, the Directorate Engineering and Technical Support Services are in the process of:

(a) Revisiting the bid specifications and encouraging hospitals to make proper use of the services provided by the contractor.

(b) Ensuring that all hospitals are conversant with their responsibilities and the process of interaction with the contractor to improve medical waste management and control.

(c) Making available legislation and related requirements regarding medical waste handling, storage, transportation and disposal.

(d) Considering and implementing a uniform system at all hospitals of the department to ensure that correct and prescribed processes are followed from generation to the ultimate disposal of medical waste.

(e) Encouraging and ensuring proper training of staff and the recording thereof, involving the contractor.

(f) Ensuring that each hospital has control over and keeps records of all their medical waste generated and ultimate disposal thereof.

6.2 INFRASTRUCTURE CONDITIONS

6.2.1 CONDITIONS OF BUILDINGS AND EQUIPMENT AT TYGERBERG HOSPITAL

Section 24 of the Constitution of South Africa, 1996, states that everyone has the right to an environment that is not harmful to their health or well-being. Section 8 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) states that the employer should provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of the employees. Section 9 of the aforementioned act states that every employer shall conduct his undertaking in such a manner as to ensure, as far as reasonably practicable, that persons other than those in his employment, who may be directly affected by his activities, are not exposed to hazards to health or safety risks.

It is important to note that the same discrepancies and deficiencies (health and safety risks) noted at the other selected hospitals in the province, regarding the handling, storage, disposal and transportation of medical waste, were also present at Tygerberg Hospital.

Areas visited at the hospital included:

- Medical emergency unit
- Porters' rooms

- Psychiatry
- HIV/Aids (8th floor)
- Day surgery ward
- F4: Orthopaedic
- CSSD
- Mortuary
- Outpatients (toilets)
- Casualties: resuscitation
- Entrance: casualties
- Trauma unit
- X-Ray (emergency): first floor
- Blood bank
- Exit (no. 10)
- Wards J-I (paediatrics – casualty)
- Labour ward
- National health laboratory services
- Pharmacy
- Storage area (kitchen waste)
- Medical waste collection site
- Main kitchen
- Basement
- Nurses' home

During a walk-through by the audit team of the above areas and subsequent discussions with selected staff members, it became evident that:

(a) The generation, storage, transportation and disposal of medical waste were not controlled as required by the minimum requirements for waste disposal (as issued by the Department of Water and Forestry) and that the situation constituted health and safety risks to all exposed to it.

(b) The hospital (buildings and structures) was deteriorating rapidly and that this constituted health and safety risks to all users. No or very limited maintenance took place due to staff shortages and other resource problems.

(c) There were security concerns in and outside buildings and on the premises.

During a meeting with the management of Tygerberg Hospital on 27 July 2005 and subsequent detailed walk-throughs performed on 28 July 2005, 27 September 2005 and 2 December 2005 (at pre-identified areas), revealed other occupational health and safety hazards, structural deficiencies to buildings and equipment as well as security concerns were noted. Areas of specific concern included:

(a) Main kitchen

Visits to the main kitchen on 27 and 28 July revealed the following risks and hazards to staff and patients:

- Damp and drainage problems
- Leakages from roof and side panels
- Equipment obsolete, depleted or not functioning properly
- Floors under water
- Staff not wearing the prescribed clothing or gear
- Cooking equipment leaking
- Electricity boxes open and wiring/cabling exposed
- Paint peeling off and other structural damage caused by dampness and leakages
- Kitchen equipment was rusted and operating in a very unhygienic manner
- Staff toilets and locker rooms in appalling condition

Section 34 of the Health Act, 1977 (Act No. 63 of 1977) refers to regulations relating to conditions dangerous to health, while section 35 refers to regulations relating to food and milk. During the audit visits to the kitchen and related areas it was noted that the kitchen equipment and other apparatus were unhygienic, depleted or obsolete, which posed health and safety risks to staff and patients.

The current conditions were conducive to food contamination and related infections, illnesses and other health hazards. Staff were also subjected to occupational health and safety risks while operating under dangerous conditions and using obsolete/depleted equipment.

Tygerberg Hospital main kitchen: Panels missing and leakage

Tygerberg Hospital main kitchen: Leakage and electricity cabling exposed

Tygerberg Hospital main kitchen: Leakage at electricity points posed safety hazards

Tygerberg hospital main kitchen: Emergency exits locked

Tygerberg Hospital main kitchen: Electricity boxes open/exposed without any access control

Tygerberg Hospital main kitchen: Light fittings posed injury/safety risks

Tygerberg Hospital main kitchen: Damp and leakage noted in the kitchen and surroundings

Root cause

- Non-compliance with Occupational Health and Safety legislation.
- The main kitchen was not suitably located.
- The structural planning and design of the kitchen and operational area were not suited for the daily volumes and food preparation/storage operations.
- No or limited maintenance to address dilapidation and deterioration.
- Old and depleted items and stock were in use.
- Improper drainage system as well as leakage and damp (depleted and obsolete plumbing).
- Not enough visible warning signs and operational information to limit occupational health and safety hazards/risks.
- There was no proper ventilation in the kitchen and related areas.
- Malodours and vapour emanated from the basement underneath.
- There were pests such as rats, cockroaches, etc. caused by food spillage and improper draining systems.

Risks

Health and safety risks emanated from the unhygienic condition of the kitchen, equipment and circumstances in which food was prepared and stored. The situation was also conducive to food poisoning caused by food contaminated with pathogenic bacteria, toxins, viruses and parasites arising from improper preparation or storage of food.

Liability claims could also be instituted against the department. Depleted, outdated or malfunctioning equipment in use and unhealthy working conditions were also a cause of concern regarding the health and safety of kitchen personnel and others exposed thereto.

Suggested corrective measures

(a) The kitchen and related areas should be properly assessed to ascertain the conditions and hygiene under which food is prepared and stored.
(b) All depleted and redundant stock and equipment should be either repaired or replaced.
(c) Immediate maintenance and repairs should be done to ceiling panels, electricity cable covering, light fittings, water pipes, cooking equipment, leakages and damp as well as paint peeling off walls.
(d) Proper checking of and repairs to the drainage system and leakages into the basement area.
(e) Display of proper, visible and adequate warning signs as well as information regarding occupational health and safety risks/hazards emanating from operations.
(f) Staff should be equipped and monitored to ensure that they wear and use the prescribed protective gear and equipment.
(g) All structural damage to the building should be assessed and repaired immediately.
(h) Staff toilets and locker rooms should be upgraded and maintained.

(b) Wards and general areas of the hospital

Occupational health and safety concerns, such as buildings and structures deteriorating, damp and drainage problems, obsolete and redundant equipment, lack of or limited maintenance, were noted during the aesthetic visits to this hospital. We take cognisance of the fact that NOSA was performing a detailed assessment and

analysis to compare the cost of repairs to building a new hospital. It was, however, of concern to note the conditions and circumstances in some wards which hampered proper health care service delivery. The following photographs serve merely as examples of the dilapidation and deterioration noted at the hospital and surroundings:

Tygerberg Hospital: F4 Orthopaedic

Tygerberg Hospital: CSSD

Tygerberg Hospital: Day surgery ward

Root cause

- Non-compliance with Occupational Health and Safety legislation
- Staff shortages and other resource problems such as equipment and cleaning materials affected daily maintenance.
- Budget constraints due to the size of the hospital and its operations.
- No regular repairs, maintenance or replacement of broken and obsolete equipment, assets and structures.
- Damp and leakages due to dilapidated plumbing systems.
- No monitoring of the condition of the buildings and infrastructure to detect discrepancies in time.
- Theft and vandalising of buildings, structures and equipment.
- Infrastructural deficiencies.

Risks

Inadequate or repairs increased the risk of rapid deterioration and/or dilapidation of buildings, equipment and other assets. This ignorance and lack of maintenance will also give rise to inflated expenses/costs for reactive repairs. Any injuries or negative health and safety effects caused by dilapidated or obsolete structures and equipment could result in liability claims against the department.

Suggested corrective measures

It is imperative that conditions within the working environment be adequately assessed and that all measures be considered to ensure adherence to legal requirement/safety regulations. All necessary measures should be taken to address the unhygienic/hazardous condition of service equipment and building/structures that prevailed in and around this hospital.

(a) The findings/suggestions made by NOSA should be scrutinised and implemented as a matter of urgency.
(b) All obsolete and redundant stock should be replaced.
(c) Maintenance should take place on a daily basis and all potential risks/hazards addressed immediately.
(d) Structural damage to buildings and structures should be assessed and repaired as soon as possible.
(e) Water pipes and drainage systems should be assessed, repaired or replaced.
(f) Damp and leakages should be addressed.
(g) Electricity cabling/wiring should be assessed and related safety concerns should be addressed.
(h) Staff shortages should be addressed to ensure proper daily maintenance and security.

(c) Basement

During our preliminary walk-through, the basement at Tygerberg Hospital was identified as a health concern. An aesthetic visit performed on 27 September 2005 revealed unhygienic conditions conducive to pests, vermin and/or other unwanted elements. This basement is situated directly below the main kitchen area of the hospital where food is prepared and stored on a daily basis.

Other issues included:

- There was a very bad odour/stench from damp and leakage.
- Various pipes were leaking water and/or steam.
- Deficiencies in pipes/drainage caused structural damage to the building and infrastructure.
- Insects (cockroaches) infested the area.

- A very bad odour/vapour filtered through the ceiling of the basement to the kitchen.

Tygerberg Hospital basement: Structural damage to pipes with water leakages

Tygerberg Hospital basement: Water leaking from dilapidated pipes and other waste from the kitchen

Tygerberg Hospital basement: Food and related waste leaked through the floor of the main kitchen

Root cause

- Non-compliance with Occupational Health and Safety legislation.
- No or limited maintenance in and around this area.
- Water, food and other waste leaking from the kitchen area.
- Damp and leakage from dilapidated pipes and infrastructure.
- Lack of drainage of water, food and other waste.
- No ventilation system in place.

Health and safety risks included:

- Structural damage to and dilapidation of the building caused by damp and leakages.
- Contamination of food in kitchen area above (with accompanying health hazards).
- Perfect breeding ground for pests, vermin and other unwanted elements.
- Financial implications as a result of structural damage, water leakages and/or pest control action/remediation.

Suggested corrective measures

(a) The basement area infrastructure should be assessed and proper maintenance and repairs should be done on all dilapidated or improper piping.
(b) The area should be assessed to address the improper drainage and ventilation.
(c) The area should be cleaned on a regular basis and properly maintained.
(d) Regular pest control services should be procured/rendered.
(e) Kitchen waste and water leaking through the ceiling of the basement should be addressed.

(d) Nurses home

A visit to the nurses' home on 2 December 2005 revealed the following discrepancies:

(a) Fire extinguishers were removed from strategic positions and no fire extinguisher was available on some floors.
(b) The building and surroundings were in need of maintenance and are deteriorating rapidly.

Tygerberg Hospital: Nurses' home: Fire extinguishers removed from strategic places

Tygerberg Hospital: Building in need of maintenance and repairs

Root cause

- Non-compliance with Occupational Health and Safety legislation
- Part of the nurses' home (residences) was rented out to students and training staff (Stellenbosch University).
- Lack of maintenance staff and budgeted funds.
- Lack of control over the daily maintenance process.
- Lack of funds for renovations, maintenance and/or equipment.

Risks

This lack of maintenance and the dilapidation of the building constituted health, safety and injury risks. A fire risk as well as related hazards emanate from the fact that fire extinguishers were removed or not in strategic places as required.

Suggested corrective measures

(a) The nurses' home should be adequately equipped with fire extinguishers and all fire hoses/extinguishers should be checked on a regular basis.

(b) Fire extinguishers should be readily available and placed at strategic positions in and around the buildings.

(c) The building should be maintained on a daily basis to prevent rapid deterioration/dilapidation from occurring.

6.2.2 CONDITIONS OF BUILDINGS AND EQUIPMENT AT OTHER HOSPITALS VISITED

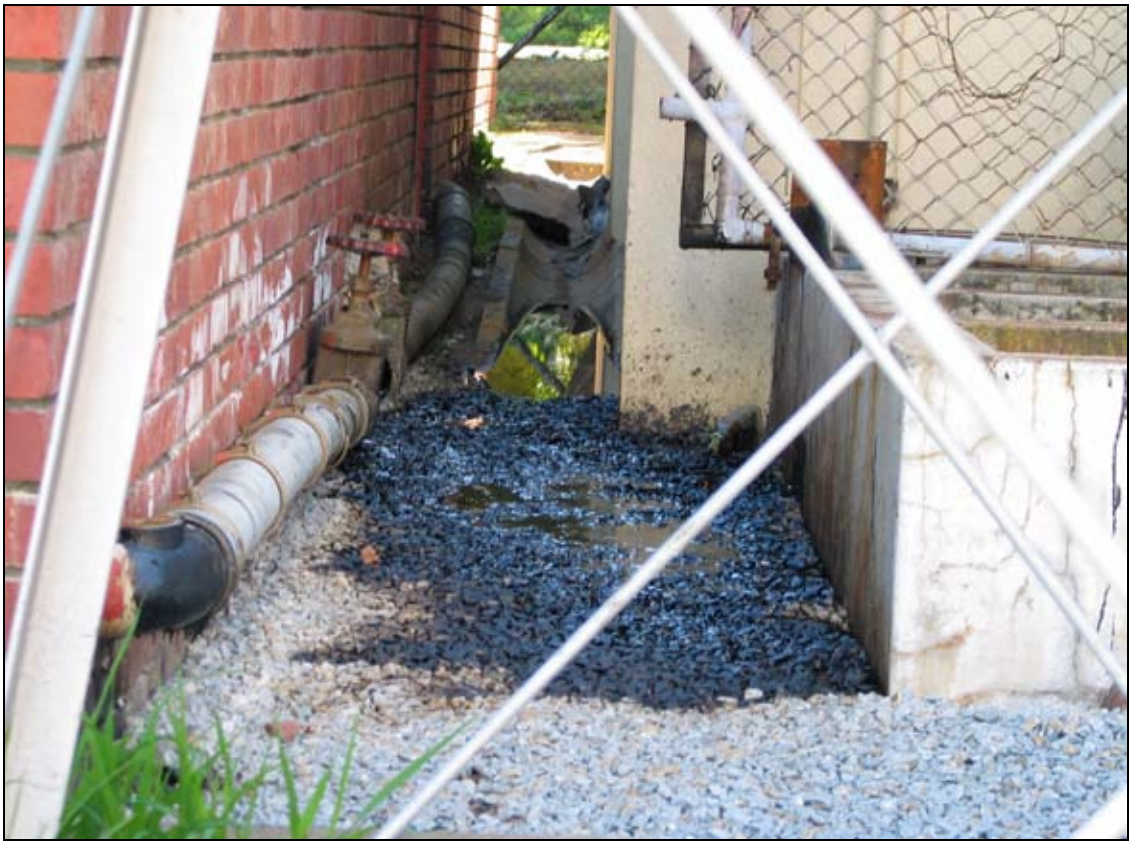
Section 24 of the Constitution of South Africa, 1996, states that everyone has the right to an environment that is not harmful to their health or well-being. Section 8 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) states that the employer should provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of the employees. Section 9 of the said act states that every employer shall conduct his undertaking in such a manner as to ensure, as far as reasonably practicable, that persons other than those in his employ, who may be directly affected by his activities, are not exposed to health or safety hazards.

(a) During a visit to Swartland Hospital in Malmesbury it was evident that the hospital (buildings and equipment) was in need of general repairs and maintenance. Buildings, structures and equipment were dilapidated and not conducive to rendering proper and safe health care services.

Swartland Hospital: Cracks in walls and structures (interior)

Swartland Hospital: Damp in the interior of the building close to light fitting and electricity cable

Swartland Hospital: Oil leakage poses major fire hazards and could result in contamination of the environment



(b) A visit to GF Jooste Hospital revealed leakages/damp in the high care unit (ceiling). The nature of the specialised treatment and services required and rendered could be threatened due to leakages.

GF Jooste Hospital High Care Unit: Damp around electricity cable/light fitting

GF Jooste Hospital Kitchen: Occupational health and safety risks

(c) Visits to Caledon Hospital revealed some health and safety concerns caused by dilapidated buildings and structures and a lack of or limited maintenance or repairs internally and externally. Although this hospital was earmarked for a

major upgrade, it was very difficult to ensure proper health care services under prevailing conditions.

Caledon Hospital: Labour ward (passage)

(d) Vredenburg Hospital was found to be dilapidated, with health and safety concerns. However, the new hospital will be occupied within the next four to six months.

Root cause

Improper maintenance at hospitals caused by budget constraints and a shortage of cleaning and maintenance staff resulted in dilapidation and deterioration of buildings, structures and equipment.

The conditions prevailing at some hospitals could pose the risk of liability claims against the department as stipulated in the Compensation for Occupational Injuries and Diseases Act, 1993 (Act No. 130 of 1993).

Risks

The conditions prevailing at some hospitals pose the following risks:

- Exposure of staff and patients to safety and health risks.

- Liability claims against the department as stipulated in the Compensation for Occupational Injuries and Diseases Act, 1993 (Act No. 130 of 1993).

Suggested corrective measures

(a) The conditions of the working environment should be assessed and all measures considered ensuring adherence to legal requirements and safety regulations.

(b) Measures should be taken to address the unhygienic and hazardous conditions of service, equipment and building structures in and around the said hospitals.

(c) To avoid liability claims, the hospitals should ensure that they perform their core function (health care services).

(d) Management should ensure that all fire prevention measures at the hospitals are in place and that the necessary equipment is readily available.

Comments of the accounting officer

Background

Budget cuts over more than 14 years in the face of increased service demands, with higher patient numbers and greater severity of patient illness, have led to essential health services being prioritised to the detriment of non-core services. Posts for doctors and nurses were filled preferentially, resulting in a dramatic decline in maintenance staff. The maintenance of buildings was seen as being mainly the responsibility of the Department of Public Works and Transport and only maintenance below R3 000,00 was funded by the hospital.

Funding made available by the Department of Public Works and Transport for maintenance and upgrades was limited and only a fraction of the priority list completed by the hospital could be addressed. Urgent maintenance work was not done because the available funding did not cover all the prioritised areas. Heavy traffic of staff, patients, students, public, goods and services, plus vandalism and theft, has aggravated the situation. Given the large number of entrances and exits and the reduction in security staff as patient services were prioritised, security is difficult.

The lack of maintenance over many years led to large parts of Tygerberg hospital deteriorating to the point where the South Africa Building Regulations and the Occupational Health and Safety Act were not complied with. A facility audit conducted by the CSIR from July 2005 to October 2005 recommended that the hospital should be rebuilt in view of the structural and functional defects and shortcomings. In order to address these deficiencies as well as those identified in the waste management audit, the following steps were taken:

Tygerberg Hospital

Condition of buildings and equipment

Main kitchen

1. All the drains have been fixed.
    - Links have been repaired.
    - Drainage pipes have been replaced.
2. Washing-up areas have been renovated.
    - Wash basins have been installed.
    - Leaks have been repaired.
    - Toilet seats have been replaced.
3. Overhead sewerage pipes have been repaired.
4. The obsolete tilting deep-frying cooking pots in the diet kitchen have been condemned and removed.
5. The lock placed on the emergency exit in the main kitchen to reduce shrinkage will be replaced with an electronic alarm system.
6. Exposed wiring and light fittings have been repaired.
7. The display of warning signs is being addressed as part of the overall improvement of signage.
8. Proper protective gear for staff is in the process of being procured.
9. Staff toilets and locker rooms have been upgraded.
10. The urgent recommendations included in the CSIR report have been implemented.

Basement

1. All the drains have been fixed.
    - Links have been repaired.
    - Drainage pipes have been replaced.
2. Ventilation system has been repaired.
3. Regular pest control has been implemented.

New kitchen

1. A feasibility study on the relocation of the main kitchen has carried out. An alternative site has been identified for a new kitchen.
2. A project manager has been appointed for the planning, construction and commissioning of a new kitchen.

Wards and general areas

The following wards and other areas have been upgraded:

1. Upgraded wards and clinical areas
    - J2, J Ground, J1, J3
    - G lower ground, G ground, G1, G2, G3
    - C2A East, C2A theatre, T theatre east and west, C2A west high care
    - R2 converted to nurses' tea room, R2 archival room created.
    - R1 upgraded and converted into anaesthetic store; R1 technologists' day room installed.
    - A5 – two 8-bed wards converted into one high care unit
    - H9 passage converted to an infection prevention and control unit.
    - C5 converted into a nursing skills laboratory.
    - C3 Obstetric clinics A, B, C have been upgraded.

2. Repair of roof
    - F4 roof has been sealed and waterproofed.
    - B5 roof has been sealed and waterproofed.
    - Roof of patient transport hub has been waterproofed.
    - Whole of C block and H passages have been waterproofed.
    - Nuclear medicine roof has been repaired and waterproofed.

3. Other areas
    - Tube feed room completely renovated.
    - Transit lounge commissioned by converting a waiting area into a transit area at Exit 6, with a wind lobby outside.
    - East ambulance deck has been converted into a provincial HealthNet patient transport hub.
    - 400 fire extinguishers have been serviced.

Central sterile services department (CSSD)

The following areas have been addressed:

1. Eleven (11) new flash autoclaves have been installed
2. CSSD has been subdivided into a “Clean” and “Dirty” area.
3. The non-functioning CSSD linen room has been converted into a manager’s office. The manager was previously located outside and some distance from the CSSD, which made supervision difficult.
4. Three (3) Miele instrument washing machines have been installed.
5. CSSD staff room has been upgraded.

Nurses’ home

1. 65 fire extinguishers have been replaced.
2. The fire safety officer checks fire hoses and extinguishers on a regular basis.
3. The Disa nurses’ home and part of the Protea nurses’ home have been leased via Property Management (Department of Public Works and Transport) in collaboration with the hospital management to the Universities of the Western Cape, Cape Peninsula University of Technology and the University of Stellenbosch. Maintenance is a joint responsibility.

7. APPRECIATION

The assistance rendered by the staff of all the hospitals visited and the department during the audit is sincerely appreciated.

D E L ZONDO
Corporate Executive
Pretoria
29 August 2007

AUDITOR-GENERAL

ANNEXURE A

REPORT OF THE AUDITOR-GENERAL ON A SUSTAINABLE DEVELOPMENT AUDIT OF THE HANDLING, STORAGE, DISPOSAL AND TRANSPORTATION OF MEDICAL WASTE AS WELL AS INFRASTRUCTURE CONDITIONS OF SELECTED HOSPITALS AT THE WESTERN CAPE DEPARTMENT OF HEALTH

Specific areas visited per hospital

Area visited	Tygerberg	Grootte Schuur	Mowbray Maternity	Wesfleur	GF Jooste	Somerset	Vredenburg	Citrusdal	Vredendal	Ceres	Robertson	Brewelskloof	Caledon	Swellendam	Oudtshoorn	Mossel Bay	Ladismith	George	Victoria	Hottentots Holland	Malmesbury	False Bay
AIDS Treatment & Counselling											X											
Ambulance Section														X		X						
Ante-Natal / Post-Natal				X		X																
Autoclaves											X											
Baby Ward (premature)											X											
Basement - kitchen	X																					
Basement Area (collection site)	X																					
Blood Bank	X	X								X												
Casualties				X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Casualties: Resuscitation	X																					
Children's Ward							X					X			X		X					X
Chris Barnard Museum																						
Clinic PGS Room										X									X	X		
Clinic Pharmacy										X												
CSSD	X																					
D Ward																				X		
Day Surgery Ward	X																					
Dentist				X																		
Entrance - Casualties	X																					
ERICA Section (private)													X									
Exit no. 10	X																					
F4 Orthopaedic	X																					
G Ward																				X		
General areas (passages/ o/s)	X																					
General ward				X				X		X			X				X					
General ward (Med & surgical)							X															
Grounds & Premises													X									
HIV/AIDS (8 th Floor)	X																					
Hospital Clinic																X						
Incinerator							X	X	X		X		X				X					
Intensive Care Unit					X													X	X	X		
Kidney Ward							X															
Labour Ward	X	X	X	X		X	X		X	X	X		X	X	X	X	X	X		X	X	
Linen Depot																			X		X	
Loading Area		X																				
Main Kitchen	X	X		X	X																X	X
Medical Emegency Unit	X																					
Medical Waste Collection Site					X	X				X	X	X			X	X		X	X			
Medical Waste Storage Room								X					X		X						X	
Men's Ward											X	X		X		X			X			
Mortuary	X			X	X									X	X	X					X	X
Municipal Waste Collection Site					X	X	X		X					X		X	X	X		X		
National Health Lab Services	X																					
Neo-Natal Intensive Care			X																			
Nurses' Home	X																					
Nursing Home																					X	
Outpatients - toilets	X																					
Outpatients.				X			X											X		X	X	X
P Ward																				X		
Pharmacy	X	X	X	X	X	X		X	X			X		X	X	X	X	X	X	X	X	
Porters' Room - storage area	X																					
Psychiatry	X																					
Radiography		X																				
Rape Room																					X	
Sterilisation Room																					X	X
Storage area - kitchen waste	X										X											
Stores				X																		
Surgery Ward						X																
Surgical Males																			X			
TB Room Males													X									
Termination of pregnancy theatre					X																	
Theatres		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X		
Trauma Unit Emergency	X	X																				

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Triage Area						X																
UCT - SATVCI												X										
Ward A									X											X		
Ward B									X													
Ward C Baby Room									X													
Ward J-1 (paediatrics) casualty	X																					
Waste Disposal Area		X	X	X																		
Water Tank																					X	
Women's Ward											X	X				X	X		X			X
X-Ray Dept	X		X	X	X	X			X	X	X	X	X	X	X	X	X	X		X	X	X

ANNEXURE B

REPORT OF THE AUDITOR-GENERAL ON A SUSTAINABLE DEVELOPMENT AUDIT OF THE HANDLING, STORAGE, DISPOSAL AND TRANSPORTATION OF MEDICAL WASTE AS WELL AS INFRASTRUCTURE CONDITIONS OF SELECTED HOSPITALS AT THE WESTERN CAPE DEPARTMENT OF HEALTH

Detailed schedule of findings per hospital

Findings	Tygerberg	Grootte Schuur	Mowbray Maternity	Wesfleur	GF Jooste	Somerset	Vredenburg	Citrusdal	Vredendal	Ceres	Robertson	Brewelskloof	Caledon	Swellendam	Oudtshoorn	Mossel Bay	Ladismith	George	Malmesbury	False Bay	Victoria	Hottentots Holland	Total	Percentage of 22 hospitals
Medical and municipal waste is mixed	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	20	91%
No record / control / monitoring of medical waste collected and disposed of (no disposal certificates)	x	x	x		x	x		x		x	x	x	x		x	x		x	x	x	x		16	73%
Unspecified or unmarked trolleys used for transporting medical waste to and from wards/collection sites	x	x	x	x	x	x	x			x	x	x	x	x		x	x	x			x		16	73%
No control / record over expired pharmaceuticals written off / disposed of (no certificate of disposal or monitoring)		x	x		x	x			x		x	x	x		x	x		x	x	x	x		14	64%
No access control to hazardous medical waste in wards or at collection sites	x	x			x	x	x						x			x		x			x		9	41%
Red bags used for municipal waste and black bags used for medical waste					x	x	x				x	x	x	x		x					x		9	41%
Expired medicine - liquids disposed of in drains			x	x		x		x										x	x	x	x		8	36%
Medical waste boxes, bags, sharp containers broken or not sealed properly	x		x		x	x		x								x					x		7	32%
Littering & spillage of medical waste				x	x	x	x												x	x	x		7	32%
Yellow sharp containers overflowing - littering of hazardous waste					x	x	x	x		x								x			x		7	32%
Incorrect or not the specified containers used for storage & disposal of medical waste				x	x	x	x		x	x													6	27%
No verification process - weight collected / amount paid - silver recovery									x		x	x			x		x	x					6	27%
No warning signs used nor erected to warn all exposed to medical waste or related areas	x					x	x											x			x		5	23%
Buildings, structures, equipment etc. dilapidated, redundant and posing risks to all exposed to them	x				x		x						x						x				5	23%
Incorrect temperature for incineration							x	x	x				x	x									5	23%
Stock from previous contractor - not removed					x					x			x						x				4	18%
Incinerated medical waste ashes disposed of with municipal waste													x	x			x		x				4	18%
Cardboard boxes used for sharps storage - transportation - disposal - serious injury risks						x									x	x		x					4	18%
Scheduled medicines - expired - follow the same process as with other expired medicines						x				x			x										3	14%
Unhygienic & unhealthy working conditions	x				x																		2	9%
Collection intervals differ from the contract specifications					x					x													2	9%
Sharps found within ashes for disposal on municipal landfills							x						x										2	9%
Plastic bottles and drums are used for sharps & needles													x				x						2	9%
Serious & immediate training needed for incinerator operators													x	x									2	9%
No record of expired medicines received back from patients & wards															x		x						2	9%
Yellow sharp containers too small - hazardous when closed / sealed															x			x					2	9%

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Through confirmation - needles found within linen																			x	x			2	9%
Access control to and from hospitals/ wards poor or non-existent (security concerns)	x																						1	5%
Emergency exits blocked - health and safety risk during emergencies	x					x																	1	5%
Blood containers left in passages and accessible to all	x																						1	5%
Easy and unlimited access to medication and pharmaceuticals stored in wards	x						x																1	5%
Chemicals, tablets, fluids etc. - expired pharmaceuticals dumped/stored together	x																						1	5%
Serious shortage of health and safety equipment (such as eyewear, aprons, other health & safety gear, etc.)	x																						1	5%
Sharp container - brackets not modified for new containers - risk of spillage		x																					1	5%
Ambulance personnel dispose of their medical waste in municipal bins		x																					1	5%
No mechanism in place to dispose of radio-active / toxic waste		x																					1	5%
Medical waste collection sites full - stock levels too high			x																				1	5%
Fridge for medication - used for private foodstuffs				x																			1	5%
Sharp containers also include other waste					x																		1	5%
Nappies regarded as medical waste and removed by contractor										x													1	5%
Treatment trolleys with sharp containers and other medical waste stored in pas-sages - accessible to all												x											1	5%
Sharp storage area - hazardous													x										1	5%
Incinerator operators do not use the prescribed health & safety gear, equip-ment, etc.													x										1	5%
No control over medical waste received from clinics													x										1	5%
Placentas & body parts are also incin-erated													x										1	5%
Bakkie used for transporting medical waste - not safe or as required															x								1	5%
Serious oil leaks at incinerator room / boilers																			x				1	5%
Serious risk re water tank panels com-pletely rusted / dilapidated																			x				1	5%
No protective gear used by medical waste handlers						x																	1	5%
Blankets (linen) found in medical waste bags						x																	1	5%
Plastic drum (open) used for syringes/ needles										x													1	5%