



Department of Employment & Labour Approved Inspection Authority (OH0036-CI04)

CONFIDENTIAL REPORT

SITE NOISE AND PERSONAL NOISE DOSIMETRY REPORT

Project Number: GEO 06962_5

Issue Date: 29 April 2025

Prepared for:

Mr. C. Kidd
EnviroServ Waste Management (Pty) Ltd
Shongweni Landfill site
Durban

Prepared by:

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OH 0036

STATEMENT

This survey/assessment was performed by Geozone Environmental (Pty) Ltd, a Department of Employment and Labour Approved Inspection Authority (OH0036-CI04). Geozone Environmental is accredited by the South African National Accreditation System (SANAS) as a Type A Inspection Body (OH0036) in terms of SANS17020. Geozone Environmental is specifically accredited to perform surveys and assessments in terms of the following regulations promulgated under the Occupational Health and Safety Act, 1993 (Act 85 of 1993):

- *Lead Regulations (2001)*
- *Noise Induced Hearing Loss Regulations (2003)*
- *Asbestos Abatement Regulations (2020)*
- *Hazardous Chemical Agents Regulations (2021)*

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M.D. Visser
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DOCUMENT CONTROL SHEET

**DOCUMENT: Geozone Environmental (Pty) Ltd Project No GEO06962_5:
EnviroServ Waste Management (Pty) Ltd, Shongweni Landfill Site: Site noise survey &
personal noise dosimetry**

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EXECUTIVE SUMMARY

As part of an integrated occupational hygiene initiative, Geozone Environmental conducted a detailed assessment of the noise rating levels associated with operational activities at the EnviroServ Shongweni landfill site. The objective of this investigation was to evaluate compliance with statutory noise exposure limits and to identify potential risks to employee health and safety.

The findings of the noise survey indicate that the 8-hour average noise level within the Liquid Treatment Plant (LTP) area remained below the statutory threshold of 85 dBA. Accordingly, personnel operating within this area are unlikely to experience hazardous noise exposure during standard working shifts, as supported by data from the previous report (reference: GEO06697_3).

However, it was observed that the Chemical Controller was subjected to noise levels exceeding the permissible limit during the assessment period. Notably, the individual did not utilise any hearing protection devices (HPDs) at the time of the survey, thereby increasing the risk of potential hearing impairment.

These findings highlight the need for targeted interventions, particularly regarding the consistent use of personal protective equipment in high-risk areas, to ensure ongoing compliance with occupational health regulations and the safeguarding of employee well-being.

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LIST OF DEFINITIONS AND ABBREVIATIONS

Term	Definition
8-hour noise rating level	Means the rating level normalized to a nominal 8-hour working day and should be A weighted
Noise action level	Means the value of the LAeq,8h at or above 82 dB(A) for continuous noise
SANS 10083	Means the South African National Standard Code of Practice for the Measurement and Assessment of Occupational Noise for Hearing Conservation Purposes

Abbreviation	Meaning
dB	decibel
HPD	hearing protective devices
IMaxL	The average maximum noise level recorded during the sampling time.
IMaxP	The maximum instantaneous noise level recorded during the sampling time.
IMinL	The average minimum noise level recorded during the sampling time.
LAr,8h	The noise rating level within an area averaged over a shift length of 8-hours.
LAr,T	The noise rating level - the value of the impulse corrected equivalent continuous A-weighted sound pressure level that is representative of noise in the working environment.
NIHL	Noise-Induced Hearing Loss
NRR	Noise Reduction Rating
SNR	Singel Number Rating
TWA	Time Weighted Average

1. PURPOSE

The purpose of this survey was to assess the 8 hour noise rating levels to which workers engaged at the Leachate Treatment Plant (LTP) and on the active cell on the EnviroServ Shongweni landfill site are exposed during the course of their duties. This was done in order to:

- *Compare the findings to the statutory requirements*
- *Assess the worker health risks associated with typical exposures to noise rating levels*
- *Recommend any necessary remedial actions*

2. PREMISES

The survey was conducted at the EnviroServ Waste Management (Pty) Ltd, Shongweni landfill site, KwaZulu Natal on 14 February 2025.

3. INTRODUCTION

Specified maximum exposure limits for noise are provided in the Occupational Health and Safety Act, 1993 (Act 85 of 1993). Workers who are exposed to noise rating levels higher than the specified limit (*85 dBA for a continuous 8-hour exposure*) are at increased risk of developing noise induced hearing loss.

Geozone Environmental last assessed worker exposure to noise at the Shongweni Landfill site in May 2024 (GEO Project No. 06697_3). In accordance with the current Occupational Hygiene Programme for the site, repeat noise survey are performed every 12 months in order to ensure that a suitably representative number of workers are assessed.

Worker exposure to noise rating levels when engaged in various activities on the landfill site was also investigated by performing appropriate personal noise dosimetry.

The outcomes of the noise dosimetry sampling are detailed and discussed in the ensuing report.

4. STATUTORY REQUIREMENTS

The **Noise Induced Hearing Loss Regulations** promulgated (Government Gazette No 22499) under Section 43 of the **Occupational Health and Safety Act, 1993 (Act 85 of 1993)** are of relevance to this survey. In particular, the following regulations apply:

Regulation 3: states that no employer or self-employed person shall require or permit any person to enter any workplace under his/her control within which the person will be exposed to noise **at or above the 85dB(A) noise rating limit**.

Regulation 6: requires an employer or self-employed person to assess his/her undertaking in order to determine if any person may be exposed to noise which is at or above the noise rating limit. Such an assessment must be undertaken within 6 months of starting the operation and must be reviewed at intervals not exceeding two years.

Regulation 7: refers to Noise Monitoring - where an assessment of noise exposure indicates that any employee may be exposed to noise at or above the noise rating limit, the employer shall ensure that a measurement programme of noise exposure at that workplace is:

- (a) carried out in accordance with the provisions of these regulations
- (b) carried out after the relevant health & safety reps have been informed
- (c) carried out by an **approved noise inspection authority**
- (d) representative of the exposure of employees to noise (as per methodology: SANS10083)

GNR.889 of 25 August 2017 published in Government Gazette No 41065, made provision for the inclusion of noise monitoring by means of personal dosimetry for employees potentially exposed to noise at or above the noise rating limit, who neither work in an area of approximate equal noise level nor at a fixed location.

Regulation 9: refers to noise zones and requires that an employer or self-employed person ensure that:

- (a) where the exposure to noise is equal to or in excess of the noise rating limit, that workplace or part thereof is zoned as a noise zone
- (b) a noise zone is clearly demarcated and identified by a notice indicating that the relevant area is a noise zone and that hearing protective equipment must be worn
- (c) no person enters or remains in a noise zone unless he/she wears the required hearing protective equipment
- (d) the reason is identified why noise exposure is equal to or in excess of the noise rating limit and that action is taken, as soon as reasonably practicable, by means other than hearing protective equipment, to lower the noise levels below the noise rating limit.

4. STATUTORY REQUIREMENTS...continued

Requirements for noise zones are also listed in the SANS 10083-2023 and include:

- *The boundaries of the noise zones must be clearly demarcated by posting up of relevant symbolic safety signs at all entrances and exits.*
- *All employees required to work within the declared noise zone must be issued with approved hearing protectors (SABS1451). These employees must be instructed in the correct use and care of these protectors as well as the potential hazards associated with being exposed to excessive noise levels. Enforcement of the wearing of the protective equipment is required.*
- *All employees required to work within a declared noise zone must undergo both pre-employment audiometric testing (by a qualified audiometrist) as well as yearly re-examinations for the first three years whereafter every two years is sufficient (provided there has been no shift in referral threshold). Exit examinations when leaving the company are also recommended.*

5. INSTRUMENTATION

- Svantek Sound Level Calibrator, Type SV36, Serial No. 90261.
- Casella dBadge personal noise dosimeter Model 2, Serial No. 4482287

External calibration of the Svantek instruments is performed annually by a SANAS accredited facility whilst the Casella noise dosimeters are calibrated every 24 months - refer attached calibration certificates.

The total uncertainty of the measurements is $\pm 0.3\text{dB}$ – refer attached calibration certificates.

6. METHODOLOGY

The measurements and calculations were carried out in accordance with the SANS 10083-2023 National Standard for The Measurement and Assessment of Occupational Noise for Hearing Conservation Purposes. Measurement of equivalent continuous A-weighted sound levels was carried out in accordance with Clause 8 of this document.

Noise zoning

Noise rating levels for each location were obtained according to the procedure specified in the above document. Every effort was made to obtain as representative a sample of noise rating levels as possible, with measurement time intervals be selected to include all significant variations in noise levels within each area.

The following parameters are used:

IMaxP : The maximum instantaneous noise level recorded during the sampling time

IMinL : The average minimum noise level recorded during the sampling time.

IMaxL : The average maximum noise level recorded during the sampling time.

LAr,T : The noise rating level - the value of the impulse corrected equivalent continuous A-weighted sound pressure level that is representative of noise in the working environment.

6. METHODOLOGY...continued

Noise dosimetry

The noise dosimeters were attached to the collars of the selected workers (within 100mm of their ear positions), activated and left to run for the duration of their shifts. Dosimetry was performed over as much of the shifts as practicably possible and all measurements were obtained under typical operational conditions, with all noise sources running normally.

The following parameters are referenced:

- LA,EQ:** the equivalent continuous A-weighted sound pressure level that is representative of noise in the working environment over the measurement period.
- LAI,EQ:** the impulse corrected equivalent continuous A-weighted sound pressure level that is representative of noise in the working environment over the measurement period.
- LA,8h:** the impulse corrected equivalent continuous A-weighted sound pressure level that is representative of noise in the working environment over 8 hours (= LEx,8h)
- % dose:** The noise dose vs Statutory limit (85dBA) to which the wearer of the dosimeter would be exposed based on the measured LA,8h (LEx,8h). Expressed in % where an exposure to an average of 85dBA over 8 hours = 100% dose.

7. RESULTS

7.1 Noise zoning

Leachate Treatment Plant

Location / Source	IMaxP (dBL)	IMinL (dBA)	IMaxL (dBA)	LAr,T (dBA)
1. Steps to generator	96.6	71.0	98.7	72.0*
2. Entrance gate with warning sign	89.4	65.6	67.8	66.2*
3. Area next to "danger / gevaar / ingozi" sign	84.1	60.5	63.2	61.2*
			(LAr,T)av	68.5*

**Note: Reference values were used from previous report (GEO06697_3) due to the fact that the LTP was not operational on the day of the survey.*

7. RESULTS...continued

7.2 Personal noise dosimetry

7.2.1 Mr. S. Mbembu – Chemical Controller

Employee name	Work area	Work description	Sampling period	Measured LA,EQ (dBA)	Projected LA,8h (dBA)	Statutory limit (dBA)	Projected Dose %	Measured LAI,EQ (dBA)
Sakhile Mbembu	Landfill Site	Chemical Controller	05:58:23	85.8	87.1	85.0	163.0	94.2

Instrument Details			
Unit Serial Number	4482287		
Run Information		Calibration Data	
Start Time	2025/02/13 09:32:59	Before Cal. Date	2025/02/10 13:23:50
End Time	2025/02/13 15:31:22	Before Cal. SPL	113,99375 dB
Run Duration	05:58:23	Before Cal. Pot. Pos	-1,85 dB
Measurement Duration	05:58:23	Cal. After Date	2025/02/17 13:07:49
Total Pause Duration	00:00:00	After Cal. SPL	114,040625 dB
Dosimeter 1			
Setup			
ISO Criterion	85	dB	
D1 Data			
LEX,8HRS	85,8	dB	
Projected LEX,8HRS	87,1	dB	
LEP,d	85,8	dB	
Projected LEP,d	87,1	dB	
ISO Dose %	121.0	%	
Projected ISO Dose %	163.0	%	
General Noise Data			
LAEQ	87,1	dB	
LCEQ	91,9	dB	
LAIEQ	94,2	dB	
LCPK	130,5	dB	occurred at 2025/02/13 13:53:26

8. DISCUSSION

The tabled results represent typical sound level ratings under normal operating conditions.

8.1 Noise zoning

Leachate Treatment Plant (Referenced From Previous Report Geo06697_3)

In order to allow the direct comparison of the tabled results to the statutory maximum noise rating level (85 dBA for 8 hour exposures), the LAr,8h or 8 hour noise rating level for the area has to be calculated. This LAr,8h is the noise rating level within an area averaged over a shift length of 8 hours. The procedure for calculating these 8 hour noise rating levels is specified in SANS 10083-2023: National Standard for the measurement and assessment of occupational noise for hearing conservation purposes. In order to calculate the 8 hour noise rating level, the amount of time which workers spend exposed to the measured average noise rating levels needs to be calculated.

- The LAr,Tav or average noise rating level at the LTP was 68.5 dBA. The LTP runs continuously – i.e. the measured noise rating level = the time weighted noise rating level over 8 hours (LAr,8h = 68.5 dBA). This is well below the statutory limit (85 dBA).
- Employees who engage in work within the LTP area are therefore unlikely to be exposed to excessive noise rating levels. Employees are not required to spend prolonged periods of time within the plant area.
- The LTP is not a declared a noise zone at present and workers are not required to make compulsory use of hearing protective devices (HPD).
- The air blow off from the compressor was not measured during the survey period.

8. DISCUSSION...continued

Personal noise dosimetry

The dBadges measure the average noise rating levels (LA,EQ) to which the workers are exposed over the length of the sampling periods. If sampling is performed over sufficiently long periods to ensure that the results are representative of typical shift length exposures, then the recorded LA,EQ = LA,8h which can be compared directly to the Statutory limit (85dBA). If the sampling is not conducted over the course of a full shift but is deemed suitably representative of a typical shift length exposure, then reference is made to the projected LAr,8h and projected Dose %.

8.2 Mr. S. Mbembu – Chemical Controller

The measured LA,EQ to which the chemical controller was exposed during the survey period = 85.8 dBA. On-site observations confirmed that the sampling period was suitably representative of the typical chemical controller exposure to noise. Based on an 8-hour maximum exposure time, the projected LA,8h to which the spotter was exposed = 89.3 dBA - i.e., *in excess of the statutory limit (85 dBA)*.

The recorded LAI,EQ (accounts for operator exposure to impulsive/impact noise) was 94.2 dBA. The Chemical Controller's exposure to such impact noise may be fairly frequent due the nature of their work on the active cells.

Based on these results, Mr. S. Mbembu was exposed to excessive noise rating levels during the survey period.

The selected chemical controller did not make use of any hearing protective devices.

9. RECOMMENDATIONS*

* "Opinions and interpretations expressed herein are outside the scope of SANAS accreditation"

It is a requirement of law to investigate all alternative noise control measures as far as is reasonably practicable before declaring any area a noise zone and requiring workers to wear hearing protectors. When dealing with any noise hazard within the work environment, the following hierarchy of control measures is recommended:

- *Elimination or substitution of the machine / process creating the hazard*
- *Engineering modification to the machine / process (e.g. enclosure, separation, insulation)*
- *Administrative controls, controlling or limiting access of personnel to the hazard*
- *Declaring a noise zone and issuing of hearing protectors to affected workers*

- 9.1 It is not deemed necessary to declare the LTP a noise zone.
- 9.2 All mechanical parts within the LTP enclosure (motors, fans, pumps) should continue to be regularly inspected and maintained according to a set schedule. Regular servicing and maintenance would prevent worn-out or defective parts from increasing area average noise rating levels.
- 9.3 Spotters who engage in activities within the disposal areas on site should be issued with approved ear plugs for compulsory use whenever they are at risk of exposure to excessive noise rating levels (work in close proximity to disposal vehicles and plant equipment). Ear plugs with a minimum Noise Reduction rating (NRR) of 23dB are recommended.
- 9.4 The Chemical Controller should be issued with and made to wear approved ear plugs with a minimum Noise Reduction Rating (NRR) of 23dB, in the interest of employee health.
- 9.5 All operational staff must remain subject to appropriate audiometric examinations as part of their medical surveillance protocols.
- 9.6 A follow up noise survey is recommended within 12 months to confirm the risks of worker exposure to excessive noise rating levels on site.

10. CONCLUSIONS

As part of a comprehensive occupational hygiene programme, Geozone Environmental investigated the noise rating levels generated by activities conducted on the EnviroServ Shongweni landfill site.

Based on the outcomes of these noise surveys, the following may be concluded:

- *The 8 hour average noise level within the LTP area was below the statutory maximum (85 dBA). Employees who engage in activities within this plant area are therefore unlikely to be exposed to excessive noise rating levels during typical shifts. (referenced from previous report GEO06697_3).*
- *The Chemical Controller was exposed to excessive noise rating levels during the survey period. The employee did not make use of any HPD during the survey period.*

11. REFERENCES

- 11.1 SANS 10083:2023 National Standard for: "The measurement and assessment of occupational noise for hearing conservation purposes." The Council of the South African Bureau of Standards.
- 11.2 SANS 1451: Parts I and II - 1988. Standard Specifications for: "Hearing protectors - Ear-muffs and Ear-plugs". The Council of the South African Bureau of Standards.
- 11.3 South Africa (Republic). 1993. Occupational Health and Safety Act, No. 85 of 1993. Pretoria. Government Printer.
- 11.4 ACGIH Handbook for Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices – 2021 ed.
- 11.5 Geozone Environmental (Pty) Ltd – Project No. GEO 04323. Site noise survey. March 2018.
- 11.6 Geozone Environmental (Pty) Ltd - Project No. GEO 04430. Site noise dosimetry. June 2019.
- 11.7 Geozone Environmental (Pty) Ltd – Project No. GEO 04560_0. Site noise dosimetry. April 2020.
- 11.8 Geozone Environmental (Pty) Ltd – Project No. GEO 05385_6. Site noise dosimetry. March 2021.
- 11.9 Geozone Environmental (Pty) Ltd – Project No. GEO 05814_1. Site noise dosimetry. March 2022.
- 11.10 Geozone Environmental (Pty) Ltd – Project No. GEO 06208_2. Site noise dosimetry. April 2023.
- 11.11 Geozone Environmental (Pty) Ltd – Project No. GEO 06655_2. Site noise dosimetry. February 2024.
- 11.12 Geozone Environmental (Pty) Ltd – Project No. GEO 06697_3. Site Noise and dosimetry. May 2024.



Annexure A

Calibration certificates



employment & labour

Department:
Employment and Labour
REPUBLIC OF SOUTH AFRICA

National Department of Employment and Labour
Republic of South Africa

APPROVED INSPECTION AUTHORITY

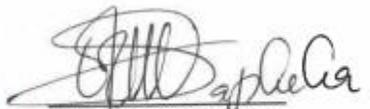
Registered in accordance with the provisions of the Occupational Health and Safety Act, Act 85 of 1993, as amended.

This is to certify that:

GEOZONE ENVIRONMENTAL (PTY) LTD

has been approved by the Department of Employment & Labour as a Type A, Approved Inspection Authority: Occupational Health and Hygiene under the following regulations:

- o Asbestos Abatement Regulations 4(2), 5(7), 13, 15(2)(c), 16 & 22
- o Hazardous Chemical Agents Regulations 6 & 12.
- o Lead Regulations 7 & 14.
- o Noise Induced Hearing Loss Regulation 7


CHIEF INSPECTOR

Valid from: **15 July 2022**
Expires: **14 July 2026**
Certificate Number: **OH0036 – CI 04**





CAL-048-13-00
CAL-048-01-00

M AND N ACOUSTIC SERVICES (Pty) Ltd

Co. Reg. No. 2012/123238/07 VAT NO: 4300255876 BEE Status: Level 4

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E-mail: admin@mnacoustics.co.za / marianka@mnacoustics.co.za

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CERTIFICATE OF CONFORMANCE

CERTIFICATE NUMBER	2024-AS-3200
ORGANISATION	GEOZONE ENVIRONMENTAL (PTY) LTD
ORGANISATION ADDRESS	BLOCK 13, FANCOURT OFFICE PARK, CNR FELSTEAD & NORTHUMBERLAND, NORTHRIDING, GAUTENG, 2162
CALIBRATION OF	ACOUSTIC CALIBRATOR
MANUFACTURER	SVANTEK
MODEL NUMBER	SV 36
SERIAL NUMBER	90261
DATE OF CALIBRATION	04 DECEMBER 2024
RECOMMENDED DUE DATE	DECEMBER 2025
PAGE NUMBER	PAGE 1 OF 3

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Calibrated by: W.S. SIBANYONI (CALIBRATION TECHNICIAN)	Authorized/Checked by: M. NAUDÉ (SANAS TECHNICAL SIGNATORY)	Date of Issue: 09 DECEMBER 2024
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Director: Marianka Naudé (082 727 3312)

148
1302**M AND N ACOUSTIC SERVICES (Pty) Ltd**

Co. Reg. No: 2012/123238/07 VAT NO: 4300255876 BEE Status: Level 4

P.O. Box 61713, Pierre van Ryneveld, 0045

No. 15, Mustang Avenue
Pierre van Ryneveld, 0045Tel: 012 689-2007 (076 920 3070) • Fax: 086 211 4690
E-mail: admin@mnacoustics.co.za / marianka@mnacoustics.co.za
Website: www.mnacoustics.co.za**CERTIFICATE OF CALIBRATION**

CERTIFICATE NUMBER	2023-AS-0012
ORGANISATION	GEOZONE ENVIRONMENTAL (PTY) LTD
ORGANISATION ADDRESS	GROUND FLOOR, BLOCK 13, FANCOURT OFFICE PARK, NORTHRIDING
CALIBRATION OF	DOSE BADGE complete with ½" MICROPHONE
MANUFACTURER	CASELLA
MODEL NUMBERS	dBADGE 2 and 252
SERIAL NUMBERS	4482287 and 103000
DATE OF CALIBRATION	09 - 10 JANUARY 2023
RECOMMENDED DUE DATE	JANUARY 2025 (SEE REMARKS 4.8)
PAGE NUMBER	PAGE 1 OF 4

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Calibrated by: D.N. MASIMULA (CALIBRATION TECHNICIAN)	Authorized/Checked by: M. NAUDE (SANAS TECHNICAL SIGNATORY)	Date of Issue: 11 JANUARY 2023
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Director: Marianka Naudé



The Southern African Institute for Occupational Hygiene

This is to certify that

Mariné Steyn

ID Number: 9506080176081

Has satisfied the requirements of
the Constitution of the Institute
and on recommendation of the Professional Certification Committee
is registered as an

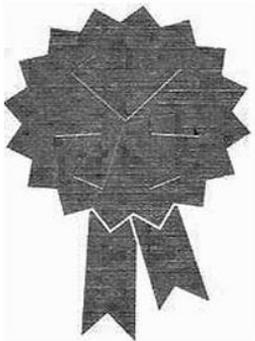
Occupational Hygiene Technologist (OHT)

Member Number: 1813

Valid until: 31 January 2026

Dr Ivan Niranjana

Chairperson: Professional Certification Committee



Member ID: 60359257

Certificate ID: 60359257-29892

Issued by the Southern African Institute for Occupational

Hygiene

SAQA Professional Body ID: 844

**IOHA Recognised
Certification Scheme**





The Southern African Institute for Occupational Hygiene

This is to certify that

Maritza Visser

ID Number: 7812310020087

Has satisfied the requirements of
the Constitution of the Institute
and on recommendation of the Professional Certification Committee
is registered as an

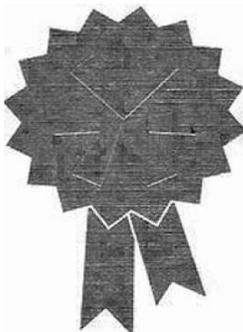
Occupational Hygienist (OH)

Member Number: 0434

Valid until: 31 January 2026

Dr Ivan Niranjana

Chairperson: Professional Certification Committee



Member ID: 33914641

Certificate ID: 33914641-29893

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SAQA Professional Body ID: 844

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