John Thompson (A division of ACTOM (Pty) Ltd)

EIA REPORT IN TERMS OF SECTION 22A OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT 39 OF 2004 (NEM: AQA): JOHN THOMPSON BOILER MANUFACTURERS, ERF 14826, SACKS CIRCLE, BELLVILLE SOUTH

August 2016

NAEIS Registration No.: WCCT035
SEC Project Ref. No.: 015034

PO Box 30134, Tokai, 7966
Telephone: 021 712 5060, Fax: 021 712 5061
Email: info@environmentalconsultants.co.za
TABLE OF CONTENTS

ITEM	 PAGE

1.1	 PROJECT BACKGROUND AND DESCRIPTION OF THE ACTIVITY........................................1

1.2	 LEGAL FRAMEWORK .........................................................................................1
 
1.2.1	 The Atmospheric Pollution Prevention Act, Act No. 45 of 1965 (APPA).........................2

1.2.2	 The National Environmental Management: Air Quality Act, Act No. 39 of 2004 (NEMAQA), as amended 2

2	 TERMS OF REFERENCE AND DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER.................................................................2

3	 RECEIVING ENVIRONMENT .............................................................................3

3.1	 SITE DESCRIPTION..........................................................................................3

3.2	 ENVIRONMENTAL SENSITIVITY ....................................................................5
 
3.2.2	 Hydrogeology and Hydrology........................................................................6

3.2.3	 Vegetation .....................................................................................................6

3.2.4	 Climate..........................................................................................................6

4	 ACTIVITY DESCRIPTION ....................................................................................6

4.1	 FOUNDRY PROCESS (LISTED ACTIVITY) ......................................................7

5	 NEED AND DESIRABILITY ...............................................................................16

6	 DESCRIPTION OF POTENTIAL IMPACTS ......................................................19

6.1	 AMBIENT AIR QUALITY IMPACTS - HEALTH IMPACTS DUE TO ATMOSPHERIC EMISSIONS ..........................................................21

6.2	 AMBIENT AIR QUALITY IMPACTS - “ACID RAIN” IMPACTS ASSOCIATED WITH EMISSIONS ..........................................................21

6.3	 AMBIENT AIR QUALITY IMPACTS - LIFESTYLE / NUISCANCE IMPACTS ASSOCIATED WITH EMISSIONS ..........................................................21

6.4	 SUMMARY – AMBIENT AIR QUALITY IMPACTS ........................................22

6.5	 HEALTH AND SAFETY OF EMPLOYEES .....................................................22

6.6	 WASTE IMPACTS..............................................................................................24

6.7	 CONTAMINATION OF SOIL AND FRESHWATER ECOSYSTEMS .................24

6.8	 SOCIO-ECONOMIC IMPACTS ASSOCIATED WITH THE FACILITY .............25

7	 IMPACT ASSESSMENT .................................................................................25

7.2	 IMPACT ASSESSMENT .................................................................................27

8	 DETAILS OF PUBLIC PARTICIPATION ................................................................42

9	 CONCLUSION AND WAY FORWARD ................................................................43
## LIST OF DRAWINGS AND APPENDICES

<table>
<thead>
<tr>
<th>Appendices</th>
<th>Drawings</th>
<th>Terms of Reference Documents</th>
<th>Specialist Input</th>
</tr>
</thead>
</table>
| **Appendix A** | 1) Site Location Maps  
2) Biodiversity Fine Scale Plan, City of Cape Town  
3) Site Photographs  
4) Site plan showing the location of all point and area emissions sources  
5) Proposed new extraction system diagram | 1) Letter of Instruction/Directive from City Health to John Thompson (Pty) Ltd to commence with the rectification process as per Section 22A of the National Environmental: Air Quality Amendment Act | 1) Stack Emissions Survey, John Thompson Foundry, DDA Environmental, September 2013  |
| **Appendix B** | **Terms of Reference Documents**                                          |                                                                                               | 2) Air Emissions Report, John Thompson Foundry, Yellowtree, December 2015         |
| **Appendix C** | **Environmental Management Programme**                                    |                                                                                               | 3) Air Impact Report, John Thompson Foundry, Airshed Planning Professionals, November 2015 |
1. INTRODUCTION

1.1. Project Background and Description of the Activity

John Thompson (JTB), a division of ACTOM (Pty) Ltd, is a boiler manufacturing enterprise situated on Erf 14826, Sacks Circle, in Bellville South. Part of the boiler making process is the casting of steel components for the boilers in a foundry situated at the facility.

JTB was established on the current site in 1946 to provide an installation and erection service for its boilers which were imported from overseas.

In 1954, the operation was expanded and the company started manufacturing the boilers at the Cape Town site.

Figure 1 Google Earth image of the site with a 500m radius from the centre of the site indicated in red (Google Earth)

1.2 Legal Framework

Steel foundries entail the melting in furnaces of metal; pouring the molten metal into moulds; manufacturing the moulds; breaking open the moulds after the components have been cast; and finishing the components (or “fettling”), by means of sand blasting and filing. Associated with these typical foundry activities are emissions of particulate matter, sulphur dioxide (SO₂) and oxides of nitrogen (expressed as NO₂).

John Thompson (Pty) Ltd
These emissions can present ambient air quality and human health impacts. As such, foundries are listed activities in terms of air quality legislation in South Africa; and the John Thompson facility is required to operate with a licence in terms of this air quality legislation.

1.2.1 The Atmospheric Pollution Prevention Act, Act No. 45 of 1965 (APPA)

Until March of 2010, the Second Schedule of the Atmospheric Pollution Prevention Act, Act No. 45 of 1965 (APPA), was in force, with steel foundries requiring to be registered in terms of the Second Schedule of the APPA as follows:

Schedule Process No. 30: Iron and steel works: That is to say, processes-
   a) In which iron, iron ores, steel or ferro-alloys are produced or processed so as to give rise to noxious or offensive gases; or
   b) Involving the cleaning of castings and handling of casting mould materials.

JTB applied for and was granted an APPA Registration Certificate to operate a foundry on 26/11/1979.

1.2.2 The National Environmental Management: Air Quality Act, Act No. 39 of 2004 (NEMAQA), as amended

On 01/04/2010, Sections 21 and 22 of the National Environmental Management: Air Quality Act, Act No. 39 or 2004 (NEMAQA) came into force, with the publishing of the Minimum Emissions Standards. In terms of the Minimum Emissions Standards, read together with Sections 21 and 22 of NEMAQA, John Thompson operates a listed activity:

Category 4, Subcategory 4.10: Foundries (Production and casting of iron, iron ores, steel or ferro-alloys, including the cleaning of castings and handling of casting mould materials – all installations).

On 22/11/2013 the 2010 list of Minimum Emissions Standards was updated. Foundries remain listed in terms of the 2013 standards, which are currently still in force.

In terms of the provisions of the Minimum Emissions Standards, JTB had until 31/03/2014 in which to apply to convert their APPA registration certificate to an AEL in terms of the NEMAQA. JTB missed this deadline and so their APPA registration certificate lapsed. JTB is now making application for an AEL in terms of Section 22A of the NEMAQA, which is a provision of the Act applicable to the conducting without a licence of an activity resulting in atmospheric emissions.

This EIA Report has been compiled in support of JTB’s application for an Atmospheric Emissions Licence in terms of Section 22 and in accordance with the specific content requirements of Section 22A(f) of the NEMAQA.

2 TERMS OF REFERENCE AND DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

Sillito Environmental Consulting (SEC) has been appointed as the independent Environmental Assessment Practitioner (EAP) to assist JTB in the fulfilment of the

John Thompson (Pty) Ltd
requirements as stipulated in a letter of instruction issued by the City Health (the relevant air quality authority) to JTB on 02/02/2015.

The letter requires JTB to apply for an Atmospheric Emissions Licence in terms of Section 22A of NEMAQA. Section 22A (f) of the Act stipulates the content requirements of such an application. This EIA Report has been compiled in fulfilment of these requirements; and should be read together with the following documentation:

- The AEL application form which will be made on the online SAAELIP system; and
- The Atmospheric Impact Report compiled by Airshed Planning Professionals, air quality specialists, which was compiled in accordance with the requirements of the City’s letter of instruction. The AIR provides an assessment and modelling of the ambient air quality impacts of operations at the facility.

The City’s letter of instruction and the AIR have been appended to this report.

This Impact Assessment Report was prepared by Chantel Müller of SEC, and reviewed by Adrian Sillito. Adrian Sillito is a certified environmental assessment practitioner (CEAPSA), Professional Natural Scientist (Pr.Sci.Nat.) and a member of the International Association for Impact Assessment (IAIA). Adrian has nineteen years’ experience in the field of environmental management and impact assessment. Chantel has eight years’ experience in environmental management, and obtained her MPhil Environmental Management at the University of Stellenbosch in October 2008.

SEC has extensive experience in impact assessment processes and in environmental management. SEC has completed many thousands of applications in terms of national environmental legislation in most provinces of South Africa since 1998. SEC does not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the letter of instruction issued by the City. SEC has no vested interest in the outcome of the AEL application process.

3 RECEIVING ENVIRONMENT

3.1 Site description

The site is situated in the Sacks Circle Industrial area of Bellville South, Cape Town. Please refer to Figure 1 for the site location information. The geographical co-ordinates for the site are 33° 55’ 44, 25ʺ S, 18º 38ʹ 31, 06ʺE and the site has an elevation of 67 m above mean sea level. The facility is located in a heavy industrial area with industrial properties to the North, East and West of the site, the Cape Peninsula University of Technology is located South of the site and across Sacks Circle.

The premises as shown in Figure 2 are owned by JTB and the site covers an area of approximately 58,400m2 of which approximately 17,800m2 comprises buildings consisting of a foundry, multiple workshops, stores, boiler house, offices and training centre with the remainder comprising concrete hard standing and tarmac roads. A more detailed site layout plan is presented in Figure 3 which also identifies individual buildings.
The site contains multiple buildings made of a variety of construction materials ranging from standard brick construction with concrete roofing to steel frame workshops with part brick walls and asbestos cladding and a combination of asbestos and metal roof sheeting.
The areas of the site which do not contain buildings are either concrete or tarmac surfaced with small areas of garden or areas which have not been surfaced. The surfaced areas consist predominantly of roadways, parking lots and equipment/material storage areas in various locations across the site.

Access from Sacks Circle is via multiple gates which are security controlled.

There are a number of support installations across the site, namely bulk and cylinder gas storage, standby generator, diesel and Heavy Fuel Oil (HFO) above ground storage tanks, compressors and transformers.

There is also a rail servitude which is no longer in use on the Northern side of the site.

The site is has been classified as a Major Hazard Installation as a result of the bulk storage of flammable gases.

3.2 Environmental Sensitivity

3.2.1 Geology

According to the 1:250 000 Geological Map of Cape Town (3318), the Site is underlain at depth by Malmesbury Group bedrock comprising greywacke, phyllite and quartzite. This is overlain by Transformed sediments comprising of light grey to pale red sandy soils of the Quaternary age.
3.2.2 Hydrogeology and Hydrology

According to the 1: 3 000 000 scale Aquifer Classification Map of South Africa (DWAF, 1999), the main water-bearing strata in the area may be classified as a fractured aquifer. The regional aquifer may be further classified as a major aquifer on a regional scale with moderate vulnerability and high susceptibility rating\(^1\) with borehole yields ranging from 0.1 - 0.5l/s.

Water quality is generally good to moderate with electrical conductivity values of between 70 and 300 mS/m.

The 1: 500 000 scale hydrogeological map series (Sheet 3317) compiled by the Department of Water and Sanitation indicates that the site is underlain by undifferentiated coastal deposits (unconsolidated to semi consolidated sediments including sand, calcrete, calcarenite, aeolianite, marine gravel, clay and silcrete and limestone).

3.2.3 Vegetation

According to Mucina and Rutherford’s Vegetation Map of South Africa, 2006, the site is situated within the Cape Flats Dune Strandveld Ecosystem. The ecosystem threat status for this vegetation type classified as Endangered. However, due to the transformed nature of Sacks Circle Industrial area, the area where the site is situated is not included in the City of Cape Town’s Biodiversity Network as an area that needs to be conserved. Please note, approximately 4.5 km south-west of the site is a conservation area bounded by patches of CBA 1B. Please refer to the map contained in Appendix A.

3.2.4 Climate

The site is located within the Cape Mediterranean climate belt. According to the South African weather service, the area receives on average of approximately 700 mm of rain per year. The lowest average rainfall month is November (approx. 14 mm/month) whilst the highest average rainfall month is June (approx. 93 mm/month). In terms of temperature, the average midday temperature for the area ranges from 17.5°C in July to 26.5 in February.

4 ACTIVITY DESCRIPTION

There are several processes taking place on site which comprise the boiler manufacturing process, of which the foundry process for component manufacturing forms a part.

\(^{1}\) Vulnerability: likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer.

Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and relative importance of the aquifer in terms of its classification.

John Thompson (Pty) Ltd
Figure 5: Boiler manufacturing process

4.1 Foundry Process (Listed Activity)

The JTB foundry produces boiler components by means of melting steel, moulding and finishing according to the Meehanite process.

Moulds are manufactured from foundry sand and binders.

Steel offcuts and other virgin steel are melted in induction furnaces after which the molten metal is then poured into moulds and allowed to solidify.

The mould material is removed and the casting goes through fettling, surface cleaning, sanding and grinding to achieve final desired shape and dimensions.

The production process includes the following:

1) Moulds Making:

John Thompson (Pty) Ltd
Two forms of mould preparation are used at JTB

a) Omega Moulding:

- The moulds are made of foundry sand of high purity blended with a binder (Isocure) and an activator, the mould hardens instantly at ambient temperature under the action of gaseous catalyst (Triethylamine or Diethylamine). The grain size and size distribution of this critical raw material is monitored during all supplies. The sand and binder are mixed in a Sand mixer prior to curing:
  - 500 kg per day (capacity)

b) Corebelter Moulding:

- The moulds are made of foundry sand of high purity blended with a binder (Isocure) and an activator, the mould hardens instantly at ambient temperature under the action of gaseous catalyst (Triethylamine or Diethylamine).
  - 2 tons per day (capacity)

Preparation of moulds and cores gives rise to particulate (dust from sand handling) and VOC’s from any resin, hardener and catalyst used (the binder system) and the chemical reactions during mixing and curing.

Extraction is localised at the mould making area which vents to Stack 3 as reflected in Figures 9 and 10 below.

Once the moulds are ready they are placed on the conveyor belt or retained in the floor area for pouring

2) Melting Process:

Virgin steel and steel off-cuts are melted in the medium frequency core-less induction furnaces (see Figure 6 below). The chemistry of the molten metal is checked before pouring the castings. Pouring temperature and pouring speed of individual items are controlled and monitored to ensure consistently high quality of castings.

a) The utilised equipment consists of the following:

- Two Induction Furnaces: 450 kW, 1 ton capacity, Inductotherm Induction furnaces powered by electricity and 300 kg ladle for transferring molten steel as reflected in Figure 5 below.
- 1 ton gantry crane holding the ladle
3) Pouring / Casting

Molten metal is poured into moulds (a) in the floor moulding area; or (b) positioned on a conveyer belt.

a) The floor moulds are omega-type moulds. The ladle is filled with molten steel from the furnace and is moved to the floor pouring area by means of the gantry crane after which it is poured into the moulds.

There is localised extraction at the floor pouring area which vents to Stack 3.

b) The moulds on the conveyer belt are corebelter-type moulds. The ladle is filled with molten steel from the furnace and is moved to the moulds on the conveyor system. Molten steel is poured into the moulds which are moved by the conveyor belt into an enclosed tunnel to contain and concentrate emissions (see Figure 7).
Figure 6: Pouring into moulds on the conveyor system

Casting/pouring give rise to emissions relating to the pyrolysis and combustion of the binders and particulate matter, iron and its oxides. They also include minimal NOx and SOx, as well as carbon monoxide, carbon dioxide and the organic products of thermal degradation of the binders.

There is currently no localised extraction at the conveyor casting area. The JTB’s Air Pollution Control Department has designed an extraction system for this pouring process which ties into the existing system and ducting which exits to Stack 1. Please refer to the diagram contained in Appendix A.

4) Knock-out Section (Shaker)

The solidified castings are separated from the used sand with the automated knock-out machine. Knocking out gives rise to particulate emissions from the sand moulds which are extracted to Stack 2.

5) Tumbler (Rotoblast) & Fettling

The castings produced are cleaned of residual sand. The running and risering systems are removed from the castings. They are then ground, finished, packed (wherever necessary) and made ready for shipping. Equipment used:

- Tumbler (Rotoblast) machine
- Pedestal Stone grinders
- Pencil Grinder & Surface Grinders

Fettling and finishing give rise to particulate matter consisting of sand and iron grindings.

Particulate emissions are controlled by means of a bag filter system on the shot / ROTOBLAST system as well as stone grinding / fettling applications.
The foundry processes with primary inputs, fuels, outputs and emissions are reflected in Figure 10 below:

**Figure 8: Foundry Layout**
Figure 9: Foundry areas covered by extraction

- Stack 1
- Stack 2
- Sand Bunker
- Mold breaking and shaking extraction to stack 2
- Casting extracting to stack 1
- Mold manufacture & casting extracting to stack 3
- Mold manufacturing extracting to stack 3
- Casting extracting to stack 1
- Mold manufacture extracting to stack 3

John Thompson (Pty) Ltd
Figure 10: Foundry process - primary inputs, fuels, outputs and emissions
4.2 Proposed new foundry extraction system

Concern has been raised that the existing foundry extraction system is not adequate to ensure an appropriate level of indoor air quality. JTB’s Air Pollution Control Department has therefore designed an upgrade of the extraction system, as follows:

(a) Localised extraction at the pouring area, comprising of laminar / horizontal extraction for that process.
(b) Ducting connecting the new localised extraction to the existing system of localised extraction above the conveyer belt tunnel; above the mould making area; and above the mould breaking and shaking area.
(c) The new localised extraction (conveyer belt pouring area) will exit to Stack 1.

It is a possibility that the stack exit gas velocity as well as the concentrations of emissions may change with the new system. During the upcoming 2016 stack emissions testing, these parameters will be tested and reported on. In the event that the Minimum Emissions Standards are exceeded, any required changes to the system specifications will be made at that time.

4.3 Associated Processes:
There are several processes taking place on site besides the foundry activities, which comprise the boiler manufacturing process. These include:

a) Hot forming of pipes and plates: There are seven hot formers (custom-designed LPG-fuelled equipment and ovens) for heating pipes and plates for bending and shaping purposes. Two of the hot formers are corrugating machines and only one or the other operates at any one time.

b) Pipe shop: At the pipe shop, pipes to be bent or shaped are first filled with compacted sand before bending to retain pipe shape integrity.

c) Boiler training centre: There is a training centre situated on the site where clients learn to operate the boilers. The centre includes a coal fired boiler and an HFO fired boiler. These are used routinely but intermittently for training purposes.

Basic Specification: Coal-fired Boiler
TU500:

Thompson EUROPAC Package Steam Boiler

| Number of Boilers | : One |
| Boiler Model      | : TU500 |
| Nominal Rating    | : 5000 kg/h (from and at 100°C) |
| Actual Evaporation| : 4185 kg/h (with feed water at 20°C) |
| Working Pressure  | : 1000 kPa |
| Design Pressure   | : 1100 kPa |
| Design Code       | : EN12953 (Latest Version) |
| Fuel Specification| : Grade “A” pea coal |
| Gross Calorific Value | : 28.5 MJ/kg |

John Thompson (Pty) Ltd
Fuel Consumption at MCR : 495 kg/hr
Boiler Efficiency on NCV : 85%

The boiler is supplied complete with the following:
- One Thompson Triumph chain grate stoker with integral forced draught fan
- Set boiler valves and mountings with variable speed feed pump controls and automatically operated rear soot blowers.
- Two boilers mounted feed water pumps complete with feed delivery pipework.
- One MICROPAC control panel.
- Boiler lagging grade 430 Finish 2B stainless steel cladding.
- Two ash removal trolleys.
- Access ladder and platform.
- One swinging coal chute.
- One grit collector complete with double flap valve and trolley for an emission of 250 mg/Nm³.
- One floor mounted induced draft fan.
- Set stoker removal trolleys.
- Set tools and spares for commissioning.
- Set boiler and stoker operating and maintenance manuals.

Basic Specification: Oil-fired Boiler
TR100:
Thompson REDIPAC Package Steam Boiler

Number of Boilers : One
Boiler Model : TR100
Nominal Rating : 1000 kg/h (from and at 100°C)
Actual Evaporation : 837 kg/h (with feed water at 20°C)
Working Pressure : 1 000 kPa
Design Pressure : 1 100 kPa
Design Code : EN12953 (Latest Version)
Fuel Specification (Oil) : LFO
Gross Calorific Value : 45.476MJ/kg
Fuel Consumption at MCR : 61 kg/hr
Kinematic Viscosity : 1.5 to 5.5 cSt at 50°C
Boiler Efficiency on NCV : 90%

The boiler is supplied complete with the following:
- Front and rear smokebox with vertical gas outlet.
- Access ladder and steps.
- Boiler lagging and 0.9mm grade 430 Finish BA stainless steel cladding.
- One multistage pressure jet burner unit including combustion air fan, heated oil filter and oil meter.
- Burner refractories.
- Set boiler valves and mountings including remote level indicator.
- Rear smokebox economiser.
- One TDS controller and water sample cooler.

John Thompson (Pty) Ltd
− One boiler mounted feed water pump with variable speed control.
− One boiler mounted control panel.
− Set tools and spares for commissioning.
− One boiler operating and maintenance manual.

d) Plasma cutter: There is one plasma cutter (water submerged) at the facility for precision cutting of steel plates.

e) Welding and cutting, drilling and machining: Welding and cutting take place across the site for boiler component manufacture and assembly.

f) Spray painting takes place in several locations in the site yards as required

The associated processes are reflected in Figure 5 above.

5 NEED AND DESIRABILITY

The DEA&DP’s Guideline on Need and Desirability poses a series of questions, the answers to which will determine whether the foundry and boiler making enterprise is necessary and desirable given the broader planning and environmental management imperatives, policies and plans (such as those detailed above) which relate to the area.

1) Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved Spatial Development Framework (SDF) agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible Integrated Development Plan IDP)?

Erf 25151 is zoned as General Industrial 1. As such, the activity is in line with the zoning of the site and therefore with forward planning in terms of SDF and IDP.

2) Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?

JTB was originally established on Erf 14826, Sacks Circle, Bellville South in 1946 and operates as a boiler manufacturing enterprise. The activity is in line with the zoning of the site, as the site is situated in a fully developed industrial area. The property’s existing land use rights are not infringed upon.

3) Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate).)

John Thompson (Pty) Ltd
The site is located in the fully developed Sacks Circle industrial area of Cape Town, where heavy industrial activities take place.

Such industrial activities provide critical services to the Cape Town metro and are essential.

4) Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?

Yes. The site is long-established and a fully serviced site. No additional bulk engineering services infrastructure is required associated with any activities being undertaken at the JTB site.

5) Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)?

Please refer to Question 4 above.

6) Is this project part of a national programme to address an issue of national concern or importance?

No. However, boiler manufacturing is a key industry in support of stable power supply in the country. The facility can therefore be considered a key economic support facility.

7) Is the development the best practicable environmental option for this land/site?

The DEA&DP's Guideline on Need and Desirability references the NEMA as stating that the "Best Practicable Environmental Option" means "the option that provides the most benefit and causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term"

The steel foundry’s activities are in line with the zoning of the site and support the land use of the site. The assessment of impacts associated with the facility has found that all of the associated negative impacts can either be avoided altogether, or can be minimised to acceptable levels with the implementation of appropriate mitigation measures and management. In addition, the benefits associated with operating the facility, when considered against closing the facility down, are considerable.

The facility is thus considered to be the "Best Practicable Environmental Option" for the site.

8) Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF as agreed to by the relevant authorities?

No. The activity is in line with the zoning of the site (General Industrial 1) and therefore with forward planning in terms of the IDP and SDF of the Local Municipality.
9) **Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?**

The site is located within a fully developed and transformed industrial area. The EMF for the area shows Sacks Circle falling in an area designated for urban use, and outside of any conservation and biodiversity zones, hydrological zones, cultural and recreational resources zones, or natural economic resources zones.

10) **Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)**

As the site is zoned General Industrial 1 and is situated in an industrial area, the site location as well as the historical and current land uses of the site and surrounds are considered to favour the land use.

11) **How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?**

The site is situated in a fully developed industrial area and due to transformed nature of Sacks Circle there are no sensitive cultural areas.

With regards to sensitive natural features, there are none in close proximity to the site which could be impacted by the activity.

However, it needs to be considered that steel melting, moulding, and finishing has the potential to impact on the air quality. These impacts are described in Section 7 of this report.

12) **How will the development impact on people’s health and wellbeing (e.g. in terms of noise, odours, visual character and sense of place, etc.)?**

One of the main potential impacts on people’s health and wellbeing from a foundry is due to atmospheric emissions of particulate matter, sulphur dioxide, and oxides of nitrogen. These impacts are described in Section 7 of this report.

Provided these emissions are minimised to acceptable levels through best practice operational procedures, as well as adequate emissions abatement, adverse health impacts can be minimised.

Another key potential impact associated with an industrial facility such as JTB is the potential impact on staff health and safety. This is due to the nature of a foundry – melting and pouring of molten steel; making and breaking of moulds containing silica (inhalable particulate); as well as working with hot forming equipment, welding, drilling, cutting, etc.

Provided standard operating procedures are adhered to which ensure the safety of staff, these impacts can be considered as acceptable.

*John Thompson (Pty) Ltd*
Visual character, sense of place and noise are not considered impacts of any significance, due to the location of the facility within an industrial area.

13) Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?

No: An opportunity cost is defined in the DEA&DP’s Guideline on Need and Desirability as “the net benefit that would have been yielded by the next best alternative”. It is reasonable to suggest that the site would be used for some other industrial use, given the location, zoning and historic land use of the site.

There is no reasonable motivation for suggesting that some alternative industrial land use must take place on that particular site; and that if the alternative activity could not go ahead, there would be unacceptable costs incurred.

14) Will the proposed land use result in unacceptable cumulative impacts?

The impact assessment has found that there are no impacts associated with the facility, including cumulative impacts, which following mitigation are unacceptably high. The impacts can all be prevented or minimised through implementation of appropriate design and operational measures.

6 DESCRIPTION OF POTENTIAL IMPACTS

The impact of any activity on the receiving environment where the activity takes place is dependent on the nature of the activity, together with the nature of the receiving environment.

Steel foundries entail the melting in furnaces of metal; pouring the molten metal into moulds; manufacturing the moulds; breaking open the moulds after the components have been cast; and finishing the components (or “fettling”), by means of sand blasting and filing. Associated with these typical foundry activities are emissions of particulate matter, sulphur dioxide (SO2) and oxides of nitrogen (expressed as NO2).

These emissions can present ambient air quality and human health impacts.

Impacts on the surrounding environment (social, economic and bio-physical) include:

1) Atmospheric emissions, especially the release of pollutants such as particulate matter and CO, NO2 and SO2, which can have associated localised negative health impacts at sufficiently high concentrations. Cumulative negative impacts on air quality in the region, with associated broader-scale, longer-term negative health impacts for residents, can also be associated with unacceptably high concentrations of such emissions.

2) There is also the potential for “acid rain” type impacts associated with excessive emissions. In the industrialised context of the site, this could impact negatively on the

John Thompson (Pty) Ltd
infrastructure assets of neighbouring facilities; as well as impacting downstream receiving water bodies via the municipal stormwater system.

3) Lifestyle and nuisance impacts in terms of decreased visibility can also be associated with emissions from an industrial concern such as a steel foundry.

4) Health and safety of employees can be adversely affected due to the hazardous nature of inputs utilised and wastes produced, as well as due to the high temperatures at which the processes take place. A key aspect is use of silica in mould making.

5) Risks associated with the generation, storage and handling of waste generated by the foundry, coal boiler, workshops and a minimal quantity by the offices. The waste produced is predominately used foundry sand, cutting fluids and oils, containers and packaging of the boiler components; chemicals; and a nominal quantity of boiler ash when the boilers are test fired at the training centre. There is some (minimal) associated risk to health and safety of employees, and risk of soil and groundwater contamination; as well as downstream impacts on scarce landfill airspace.

6) There is also some minor risk of soil and groundwater contamination associated with the foundry. Potential sources of contamination include the storage, handling and disposal of the fairly limited use of chemicals (resins and solvents mostly) at the facility.

The following potential benefits are associated with the proposed JTB facility:

1) The steel foundry provides employment opportunities for workers in the industry; and

2) John Thompson (Pty) Ltd is an important role player in the power generation industry in South Africa, and currently operates several sites in South Africa. These are located in Johannesburg, Durban, Witbank and Port Elizabeth. The clients of JTB are diverse and include a wide range of both local and overseas clients in the sugar, food and beverage, chemical, petrochemical, steel, pulp, paper and textiles industries. The JTB facility can therefore be considered as a key facility in the power generation sector.

The receiving environment is a fully developed, industrial environment. Sensitive receptors to the impacts identified as potentially associated with the foundry facility include:

- The health and safety of staff on the site
- The health of people working and living in the local Bellville South area
- On a cumulative basis, the health of residents in the Cape Town region
- The assets of neighbouring facilities
- To a limited degree, soil and water resources in the form of groundwater, as well as receiving water bodies into which the municipal stormwater system discharges; and
- On a broader scale but also to a very limited degree, scarce landfill airspace associated with waste generation and disposal.

John Thompson (Pty) Ltd
Each of the impacts potentially associated with the facility is investigated in some detail below.

6.1 Ambient air quality impacts - health impacts due to atmospheric emissions

Emissions associated with a foundry which may have a significant detrimental effect on the environment, according to the NEMAQA minimum emissions standards, are the Particulate Matter and CO, NO₂ and SO₂.

Emissions from the facility have the potential to impact negatively on the health of workers in and immediately around the facility. On a broader, cumulative level, emissions can contribute to poor air quality in the region, with negative health impacts on the broader area.

An example of adverse health impacts due to emissions, are as follows:

According to the United States Environmental Protection Agency ², Particulate Matter (PM) refers to airborne particles of varying chemical and physical composition. Sources of PM include fuel combustion and industrial processes (e.g. galvanising), which generate “fine” or small diameter particles (less than 2.5 micrometers); and activities which generate “coarse” particles, such as vehicles traversing sandy surfaces, or handling of construction materials. “Coarse” particles are greater than 2.5 micrometers in diameter.

Particles found to be most significant in terms of adverse health effects are those with diameter less than 10 micrometers. These particles are referred to as PM10, and so emissions sampling and analysing for particulate focusses on PM10.

Adverse health effects of particulate matter include acute respiratory symptoms, such as difficulty breathing, or aggravated coughing. PM has also been linked to aggravated asthma and decreased lung function (experienced as shortness of breath).

6.2 Ambient air quality impacts - “acid rain” impacts associated with emissions

Emissions of sulphur dioxide react with water molecules in the atmosphere to produce acids. Excessive emissions of sulphur dioxide can settle on the rooftops and surfaces of the plant and surrounding enterprises. Corrosion and damage to infrastructure could then occur. In addition, incident rainfall will then transport (in very dilute form) the acid and particulate into the stormwater system and on into receiving water bodies, with possible negative effects on freshwater or marine ecosystems.

6.3 Ambient air quality impacts - lifestyle / nuisance impacts associated with emissions

Atmospheric emissions have the potential to adversely impact the lifestyle of residents in the area, due to adverse impacts on visibility.

² http://www.epa.gov/region7/air/quality/pmhealth.htm

John Thompson (Pty) Ltd
“Fine” particulate (small diameter) impairs visibility since they remain suspended in the air and can travel long distances\textsuperscript{3}. The USEPA cites visual impairment of some 70% relative to natural conditions in some parts of the USA where smog is prevalent.

PM emissions from the facility therefore need to adequately controlled in order to minimise possible adverse impacts on the lifestyle of workers and residents in the area.

### 6.4 Summary – ambient air quality impacts

Whilst the ambient air quality impacts described in Sections 6.1 to 6.3 above are possible, they are considered to be negligible in the case of a foundry such as the John Thompson foundry, which is powered by electricity as opposed to fossil fuels.

This finding is supported by stack emissions testing undertaken during 2013 and 2015 – where monitoring found the levels for Particulate Matter and CO, NO\textsubscript{2} and SO\textsubscript{2} to be well below the Minimum Emissions Standards.

In addition, an Air Quality Impact Assessment has been undertaken by Airshed Planning Professionals, air quality specialists. The pollutants assessed included the following: PM\textsubscript{10}, CO, SO\textsubscript{2} and NO\textsubscript{2}. Findings from this study reveal that all pollutants assessed did not exceed their respective limit values.

The conclusion from the findings is that air quality impacts due to the facility’s operation will be immaterial and will contribute minimally to the pollutant footprint in the region.

Please refer to the studies contained in Appendix D.

### 6.5 Health and safety of employees

Silica is used in the foundry in the manufacture of moulds. Silica is mixed with resins and a catalyst to form a mould into which the molten steel is poured. Silica is also used in the blasting of the cast components to clean off any mould residue. Potential employee exposure to silica can therefore occur as follows:

- Delivery of the silica
- Manufacture of the moulds
- Breaking of the moulds once casting has been completed
- Blasting of the cast components - this is a controlled process which takes place in a closed system; and
- Transport of the used silica to an area for storage prior to collection for disposal.

According to a pamphlet published by the Department of Labour with regards to handling and use of crystalline silica dust\textsuperscript{4}, “respirable crystalline silica dust is one of the most aggressive, lung damaging dusts that can be encountered in the workplace”. Occupational exposure to silica dust over a long period of time can cause, for example, progressive

\textsuperscript{3} Ibid.

\textsuperscript{4} Guide on Workers’ Health Protection: Through the Good Handling and Use of Crystalline Silica Dust and Products Containing It

\textit{John Thompson (Pty) Ltd}
fibrosis of the lungs (where stiffness or scarring of the lung tissue leads to impairment of oxygen absorption); and a tendency to tuberculosis of the lungs.

Exposure to welding fumes and organic chemicals can also occur in the workshop and mould making areas, which could result in adverse health impacts.

There is some concern around acceptable indoor air quality at the foundry. JTB’s Air Pollution Control division has therefore designed a proposed new extraction system, which is to be implemented in order to improve indoor air quality.

High temperature work including all works at the foundry related to melting and casting of the steel; and activities associated with the hot forming of steel plates and pipes at the pipe shop and ancillary workshops can be hazardous.

The John Thompson facility also includes bulk storage of flammable substances, which can present a health and safety risk to employees.

There are therefore significant risks posed to employee’s health and safety by a heavy industrial concern such as the JTB facility. These risks need to be carefully managed at all times.
6.6 Waste Impacts

Any industrial concern generates both hazardous and general waste, which needs to be correctly managed and disposed of in order to avoid excessive use of landfill airspace, or potential contamination of soil and freshwater resources.

Solid waste is generated by the foundry, coal boiler, workshops and a minimal quality by the offices. This is predominately used foundry sand; cutting fluids and oils; containers and packaging of the boiler components; chemicals; and a nominal quantity of boiler ash when the boilers at the training centre are fired.

Various containers are used at the facility for the separation of waste into specific waste streams. Waste is generally placed initially in open topped drums which are located across the site and are then emptied into a combination of 10 m³ capacity RORO open skips and 6 m³ capacity RORO open skips as required and removed by a waste provider (Wasteman) who supplies certificates of safe disposal in order to confirm correct disposal.

Other waste is made up of absorbent materials used for spill clean-ups, domestic waste, etc. Fluorescent tubes are crushed in a tube crusher and disposed of as hazardous waste.

Site management advises that the majority of hazardous waste materials are disposed of at the Vissershok Waste Disposal Facility, which is a hazardous waste landfill site. Cradle to grave responsibility and traceability is maintained by means of the issue of Certificates of Safe Disposal which are kept on site for some of the materials disposed of.

Effective waste management in order to reduce waste to landfill and to minimise risks associated with waste storage and handling on the site, is therefore required at the JTB facility.

6.7 Contamination of soil and freshwater ecosystems

With the storage and handling of hazardous inputs (such as resins and binders used for mould making; diesel fuel for powering forklifts and trucks; heavy furnace oil for powering one of the test boilers; etc.) and wastes, there is the possibility that contamination of soil and freshwater ecosystems could occur in the event of a failure of storage vessels and bunds; or associated with incorrect handling procedures.

The following source-pathway-receptor scenario would apply in the event of such a spill or leak (source: the source of possible contamination; pathway: the means by which the contamination could occur; receptor: what would be impacted):

John Thompson (Pty) Ltd
Table 1: Source-pathway-receptor scenario for potential soil and groundwater contamination.

<table>
<thead>
<tr>
<th>Source</th>
<th>Pathway</th>
<th>Receptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spill or leak of hazardous good from container and / or bunded areas.</td>
<td>Through exposed broken ground surface through layers to permeable, sub soils beneath the site to the shallow perched water table.</td>
<td>Groundwater; fresh water ecosystems; aquifer, soil; soil ecosystems; associated human health risk (through dermal contact; vapour inhalation; ingestion of groundwater).</td>
</tr>
<tr>
<td></td>
<td>Migration across surfaces to municipal storm water system and on to freshwater ecosystems.</td>
<td>Freshwater ecosystems; associated human health risk (through dermal contact; vapour inhalation; ingestion of groundwater).</td>
</tr>
</tbody>
</table>

The types of impacts which could be expected on soil and freshwater ecosystems include an increase in phosphate levels, which would boost algal growth and cause nitrification. A lowering of pH could also occur, with an adverse impact on micro-organisms. These impacts can be localised, but could also be experienced further away in the event of an off-site migration of contaminants.

There is also the potential for human health impacts due to contaminated soils and groundwater.

6.8 Socio-economic impacts associated with the facility

John Thompson (Pty) Ltd is an important role player in the power generation industry in South Africa, and currently operates several sites located in Johannesburg, Durban, Witbank and Port Elizabeth. The clients of JTB are diverse and include both local and overseas clients in the sugar, food and beverage, chemical, petrochemical, steel, pulp, paper and textiles industries.

The facility also employs approximately 500 staff members with 440 in the manufacturing facility and 60 in the administration section.

7 IMPACT ASSESSMENT

The impact assessment was undertaken in accordance with the principles of Integrated Environmental Management as detailed in Section 23 of NEMA and in the NEMA EIA Regulations.

The impact assessment is aimed at determining the likely significance of any impacts (positive or negative) associated with the development. The significance of the impacts is determined by investigating certain key aspects, or parameters, of the potential impact, which are determined by the nature of the activity, as well as the nature of the receiving environment. Aspects investigated include the extent, duration and timing, and magnitude of the impact.

Table 2 below provides an explanation of the parameters used to determine the significance of an impact, as well as what “significance” means in the context of this impact assessment.

John Thompson (Pty) Ltd
<table>
<thead>
<tr>
<th>ITEM</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXTENT</strong></td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td>Extending only as far as the boundaries of the activity, limited to the site and its immediate surroundings</td>
</tr>
<tr>
<td>Regional</td>
<td>Impact on the broader region</td>
</tr>
<tr>
<td>National</td>
<td>Will have an impact on a national scale or across international borders</td>
</tr>
<tr>
<td><strong>DURATION</strong></td>
<td></td>
</tr>
<tr>
<td>Short-term</td>
<td>0-5 years</td>
</tr>
<tr>
<td>Medium-Term</td>
<td>5-15 years</td>
</tr>
<tr>
<td>Long-Term</td>
<td>&gt;15 years, where the impact will cease after the operational life of the activity</td>
</tr>
<tr>
<td>Permanent</td>
<td>Where mitigation, either by natural process or human intervention, will not occur in such a way or in such a time span that the impact can be considered transient.</td>
</tr>
<tr>
<td><strong>MAGNITUDE OR INTENSITY</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Where the receiving natural, cultural or social function/environment is negligibly affected or where the impact is so low that remedial action is not required.</td>
</tr>
<tr>
<td>Medium</td>
<td>Where the affected environment is altered, but not severely and the impact can be mitigated successfully and natural, cultural or social functions and processes can continue, albeit in a modified way.</td>
</tr>
<tr>
<td>High</td>
<td>Where natural, cultural or social functions or processes are substantially altered to a very large degree. If a negative impact then this could lead to unacceptable consequences for the cultural and/or social functions and/or irreplaceable loss of biodiversity to the extent that natural, cultural or social functions could temporarily or permanently cease.</td>
</tr>
<tr>
<td><strong>PROBABILITY</strong></td>
<td></td>
</tr>
<tr>
<td>Improbable</td>
<td>Where the possibility of the impact materialising is very low, either because of design or historic experience</td>
</tr>
<tr>
<td>Probable</td>
<td>Where there is a distinct possibility that the impact will occur</td>
</tr>
<tr>
<td>Highly Probable</td>
<td>Where it is most likely that the impact will occur</td>
</tr>
<tr>
<td>Definite</td>
<td>Where the impact will undoubtedly occur, regardless of any prevention measures</td>
</tr>
<tr>
<td><strong>SIGNIFICANCE</strong></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Where a potential impact will have a negligible effect on natural, cultural or social environments and the effect on the decision is negligible. This will not require special design considerations for the project</td>
</tr>
<tr>
<td>Medium</td>
<td>Where it would have, or there would be a moderate risk to natural, cultural or social environments and should influence the decision. The project will require modification or mitigation measures to be included in the design</td>
</tr>
<tr>
<td>High</td>
<td>Where it would have, or there would be a high risk to natural, cultural or social environments. These impacts should have a major influence on decision making.</td>
</tr>
<tr>
<td>Very High</td>
<td>Where it would have, or there would be a high risk of, an irreversible negative impact on biodiversity and irreplaceable loss of natural capital that could result in the project being environmentally unacceptable, even with mitigation. Alternatively, it could lead to a major positive effect. Impacts of this nature must be a central factor in decision making.</td>
</tr>
<tr>
<td><strong>STATUS OF IMPACT</strong></td>
<td></td>
</tr>
<tr>
<td>Whether the impact is positive (a benefit), negative (a cost) or neutral (status quo maintained)</td>
<td></td>
</tr>
<tr>
<td><strong>DEGREE OF CONFIDENCE IN PREDICTIONS</strong></td>
<td></td>
</tr>
<tr>
<td>The degree of confidence in the predictions is based on the availability of information and specialist knowledge (e.g. low, medium or high)</td>
<td></td>
</tr>
<tr>
<td><strong>MITIGATION</strong></td>
<td></td>
</tr>
</tbody>
</table>
Other factors which are also considered in the assessment of impacts include whether the impact is direct, indirect or cumulative. A direct impact can be explained as being a direct result of activities associated with the development, such as the contamination of a stream by spillage from sewage pipes or pumps.

An indirect impact would be a downstream, secondary or “knock-on” impact resulting from an impact directly associated with the development (such as negative impacts associated with the stream off the site).

A cumulative impact would be an impact which already occurs in the receiving environment associated with other activities taking place in proximity to the development, such as polluted stormwater and runoff from existing road surfaces.

Other factors considered include whether the impact is reversible; and whether the impact could cause an irreplaceable loss of resources.

The impact assessment methodology used has been closely guided by the DEAT EIA Guideline Documents, on the assessment of impacts and alternatives (DEAT 2012); as well as reference to the description of the criteria used for the assessment of impacts as contained in the DEA&DP EIA Guideline Document Series (2013).

The assessment of the potential impacts has been based on SEC’s extensive experience related to environmental impact assessment as well as specialist assessment and input, where applicable.

It must be noted that determining the significance of impacts, although carefully and systematically considered, still remains a subjective judgement, as there are no truly objective measures that can be used to judge significance.

7.2 Impact Assessment

Impacts that may result from the operational phase of the facility

Impacts on Geographical and Physical Aspects

<table>
<thead>
<tr>
<th>Impacts on the geographical and physical aspects: Atmospheric Emissions - Acid Rain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of impact:</td>
</tr>
<tr>
<td>Emissions of sulphur dioxide react with water molecules in the atmosphere to produce acids. Excessive emissions of sulphur dioxide, nitrogen dioxide and of PM can settle on the rooftops and surfaces of the plant and surrounding enterprises. Corrosion and damage to infrastructure could then occur. In addition, incident rainfall will then transport (in very dilute form) the acid and particulate into the stormwater system and on into receiving water bodies, with possible negative effects on freshwater or marine ecosystems.</td>
</tr>
</tbody>
</table>

Whilst the impacts described above are possible, they are commonly associated

John Thompson (Pty) Ltd
with a fossil-fuel powered foundry, as opposed to the John Thompson foundry, which is electricity-powered.

These impacts are considered to be negligible. This finding is supported by stack emissions testing undertaken during 2013 and 2015 – where monitoring found the levels for SOx and NOx emissions to be well below the Minimum Emissions Standards.

In addition, an Air Quality Impact Assessment has been undertaken by Airshed Planning Professionals, air quality specialists. The pollutants assessed included the following: PM10, CO, SO2 and NO2. Findings from this study reveal that all pollutants assessed did not exceed their respective limit values.

The conclusion from the findings is that air quality impacts due to the facility’s operation will be immaterial and will contribute minimally to the pollutant footprint in the region.

Please refer to the studies contained in Appendix D.

**Proposed mitigation:**

Best practice measures for mitigating excessive PM, NOx and SOx emissions include:

- Preventative maintenance schedules to be in place for all foundry and foundry abatement equipment.

- Standard operating procedures to be in place for foundry, including quality checks on raw materials.

- Emergency response plan to be in place.

- Stack emission monitoring should continue to be undertaken annually.

To ensure that the abatement equipment functions as designed, preventative maintenance schedules are in place. These have been included in the EMP contained in Appendix C.

**Impacts on geographical and physical aspects: Soil & Freshwater Ecosystems**

**Nature of impact:**

With the storage and handling of hazardous inputs and wastes, there is the possibility that contamination of soil and freshwater ecosystems could occur in the event of a failure of storage vessels and bunds; or associated with incorrect handling procedures.

The pathway of such contamination could be over hardened surfaces and into the municipal stormwater system (most likely given the developed nature of the site and surrounds); or through exposed sandy surfaces and possibly into groundwater.

The types of impacts which could be expected on soil and freshwater ecosystems include an increase in phosphate levels, which would boost algal
growth and cause nitrification. A lowering of pH could also occur, with an adverse impact on micro-organisms. These impacts can be localised, but could also be experienced further away in the event of an off-site migration of contaminants.

With the John Thompson facility, the quantities of such chemicals and wastes stored and handled is limited and so the magnitude of any such contamination is considered to be low.

<table>
<thead>
<tr>
<th>Extent and duration of impact:</th>
<th>The extent of the impact would be local in the vicinity of the site.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability of occurrence:</td>
<td>The probability of occurrence is considered to be unlikely since (a) the quantities of such chemicals and wastes stored and handled is limited and (b) there are effective standard operating procedures and preventative maintenance schedules available for managing this aspect of operations.</td>
</tr>
<tr>
<td>Degree to which the impact can be reversed:</td>
<td>Contamination is likely to be small scale if it does occur, and so easily reversed with remediation procedures.</td>
</tr>
<tr>
<td>Degree to which the impact may cause irreplaceable loss of resources:</td>
<td>As for the reversibility of the impact, and additionally considering the transformed nature of the site, it is unlikely that any irreplaceable resources will be lost in the event of a spill or leak.</td>
</tr>
<tr>
<td>Cumulative impact prior to mitigation:</td>
<td>As the site is located in the Sacks Circle, Bellville, an area used for industrial purposes, the site is surrounded by other potential sources of soil and freshwater contamination. This impact is therefore considered to be cumulative.</td>
</tr>
<tr>
<td>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</td>
<td>Medium</td>
</tr>
<tr>
<td>Degree to which the impact can be mitigated:</td>
<td>The impact can be mitigated with the appropriate management measures.</td>
</tr>
</tbody>
</table>
| Proposed mitigation: | – John Thompson’s standard operating procedures, preventative maintenance schedules, Emergency Response Plan, etc. have been included in the EMP contained in Appendix H.  
– A dedicated, secure chemicals store is in place at the facility.  
– An Integrated Waste Management Plan should be produced and implemented on site.  
– Waste generated from the site should be classified in terms of the NEM: WA National Norms and standards for the assessment of waste for landfill.  
– The waste area should be bunded and protected from the weather, specifically rainfall and stormwater ingress and egress.  
– Empty paint cans should be included in the scrap steel to be sent for |
The used foundry sand should be stored in a skip of adequate capacity to avoid overflows during heavy rainfall events. All hazardous waste should be disposed of at the Vissershok Waste Disposal facility and Certificates of Safe Disposal should be kept on record.

<table>
<thead>
<tr>
<th>Cumulative impact post mitigation:</th>
<th>The cumulative impact associated with a spill or leak once all the above mitigation measures were implemented can be considered to be low.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</td>
<td>Low</td>
</tr>
</tbody>
</table>

**Impacts on geographical and physical aspects: Impact of Waste on Landfill Airspace**

| Nature of impact: | The processes associated with the foundry have associated waste impacts – coal ash, used foundry sand, cutting fluids and oils, containers and packaging of the boiler components and chemicals are produced during operations and need to be managed adequately to prevent undue stress on landfill airspace. Also, as described in the assessment of impacts on soil and freshwater ecosystems, inadequate waste management, transportation and disposal has the potential to contaminate these ecosystems. This aspect is dealt with in the assessment of soil and freshwater ecosystem impacts above. |
| Extent and duration of impact: | The extent would be regional as the impact would be on the City of Cape Town metropole’s landfill sites. The duration is long term for as long as the facility is operational. |
| Probability of occurrence: | The impact is definitely associated with the facility, but only on a small scale and can be adequately managed and minimised, as described in the mitigation section below. |
| Degree to which the impact can be reversed: | If unacceptable quantities of waste are being disposed of to landfill, alternative means of recycling or recovering the waste are easy to implement in the case of a foundry plant, as described in the mitigation section below. |
| Degree to which the impact may cause irreplaceable loss of resources: | Landfill airspace is an irreplaceable resource. This impact can be easily avoided, though. |
| Cumulative impact prior to mitigation: | The impact is considered to be cumulative – the facility is situated in an urban environment where waste is continually produced. |
| Significance rating of impact | Medium |
prior to mitigation (Low, Medium, Medium-High, High, or Very-High)

Degree to which the impact can be mitigated:
The impact can be easily mitigated with the appropriate management measures.

Proposed mitigation:
Standard operating procedures for waste management have been included in the EMP contained in Appendix C.

These include:
- Scrap steel, including empty paint cans, are to be recycled.
- Used foundry sand to be re-used as far as feasibly possible before final disposal.
- An Integrated Waste Management Plan should be produced and implemented on site.
- Waste generated from the site should be classified in terms of the NEM: WA National Norms and standards for the assessment of waste for landfill.
- The dedicated waste storage area should be bunded and protected from the weather, specifically rainfall and stormwater ingress and egress.
- All hazardous waste should be disposed of at the Vissershok Waste Disposal facility and Certificates of Safe Disposal should be kept on record.

Cumulative impact post mitigation:
The cumulative impact on landfill airspace due to waste generation, once all the above mitigation measures were implemented, can be considered to be low.

Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)
Low

### Biological Impacts

**Impact on biological aspects:**

<table>
<thead>
<tr>
<th>Nature of impact</th>
<th>Due to the historical nature of the area, the area is completely transformed and therefore no known biological impacts will occur.</th>
</tr>
</thead>
</table>

### Socio-economic Impacts

**Impacts on socio-economic aspects: Atmospheric Emissions – Health Impacts**

<table>
<thead>
<tr>
<th>Nature of impact</th>
<th>Atmospheric emissions, especially the release of pollutants such as particulate matter and CO, NO2 and SO2, can have associated localised negative health impacts at sufficiently high concentrations. Cumulative negative impacts on air quality in the region, with associated broader-scale, longer-term negative health</th>
</tr>
</thead>
</table>
impacts for residents, can also be associated with unacceptably high concentrations of such emissions. Adverse health effects of small diameter, respirable particulate matter, for example, include acute respiratory symptoms, such as difficulty breathing, or aggravated coughing.

<table>
<thead>
<tr>
<th>Extent and duration of impact:</th>
<th>The duration would be long term for as long as the facility continues to operate. The extent is considered regional due to the nature of emissions and their ability to travel long distances.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability of occurrence:</td>
<td>Unlikely according to specialist findings.</td>
</tr>
<tr>
<td>Degree to which the impact can be reversed:</td>
<td>If the impact is of sufficient scale, adverse health effects could include, for example, permanent loss of adequate lung function. In such a case, the impact would be irreversible.</td>
</tr>
<tr>
<td></td>
<td>In the case of this particular facility, however, the scale is small, and prior emissions testing undertaken at the facility during 2013 and 2015, as well as an Air Quality Impact Assessment undertaken, have found emissions to be within acceptable limits. Therefore, the risk of such an irreversible impact occurring is considered to be negligible in this case.</td>
</tr>
<tr>
<td>Degree to which the impact may cause irreplaceable loss of resources:</td>
<td>If the impact is of sufficient scale, adverse health effects could include, for example, loss of adequate lung function. In such a case, good health can be considered an irreplaceable resource.</td>
</tr>
<tr>
<td></td>
<td>In the case of this particular facility, however, the scale is small, and prior emissions testing at the facility has found emissions to be within acceptable limits. Therefore, the risk of such a loss of irreplaceable resources is considered to be negligible in this case.</td>
</tr>
<tr>
<td>Cumulative impact prior to mitigation:</td>
<td>The impact is cumulative as the site is located in an area that is utilised for heavy industrial purposes, with several surrounding sources of atmospheric emissions.</td>
</tr>
<tr>
<td>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</td>
<td>Medium</td>
</tr>
<tr>
<td>Degree to which the impact can be mitigated:</td>
<td>At this stage, no specific mitigation beyond best practice is recommended as specialist findings are that emission impacts are negligible.</td>
</tr>
<tr>
<td>Proposed mitigation:</td>
<td>Emissions testing undertaken show that emissions are within the limits set by the minimum emissions standards. Stack emission monitoring should continue to be undertaken annually. The proper maintenance of the abatement equipment allows the equipment to effectively capture airborne particulate and emissions from the air stream. To ensure that the abatement equipment functions as designed, preventative</td>
</tr>
</tbody>
</table>

John Thompson (Pty) Ltd
Cumulative impact post mitigation: Due to the acceptable results from past emissions testing, the impact is considered to add to existing emissions in the industrialised area to only a small degree post-mitigation.

Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High): Low (according to the air quality specialists: “Air quality impacts due to the facility’s operation will be immaterial and will contribute minimally to the pollutant footprint in the region”)

<table>
<thead>
<tr>
<th>Impacts on socio-economic aspects: Atmospheric Emissions – Impacts on Lifestyle (Visibility)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of impact: Particulate matter emissions from an industrial activity such as operations at a foundry can impair visibility since they remain suspended in the air and can travel long distances. This can negatively impact on the lifestyle of people in the area.</td>
<td></td>
</tr>
<tr>
<td>Extent and duration of impact: The duration would be long term for as long as the facility continues to operate. The extent is considered regional due to the nature of emissions and their ability to travel long distances.</td>
<td></td>
</tr>
<tr>
<td>Probability of occurrence: Unlikely according to air quality specialist findings.</td>
<td></td>
</tr>
<tr>
<td>Degree to which the impact can be reversed: Impairment of visibility could easily be reversed with cessation of the activity causing the emissions.</td>
<td></td>
</tr>
<tr>
<td>Degree to which the impact may cause irreplaceable loss of resources: Lifestyle / visibility is not considered to be an irreplaceable resource.</td>
<td></td>
</tr>
<tr>
<td>Cumulative impact prior to mitigation: The impact is cumulative as the site is located in an area that is utilised for heavy industrial purposes, with several surrounding sources of atmospheric emissions.</td>
<td></td>
</tr>
<tr>
<td>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High): Medium</td>
<td></td>
</tr>
<tr>
<td>Degree to which the impact can be mitigated: At this stage, no specific mitigation beyond best practice is recommended as specialist findings are that emission impacts are negligible.</td>
<td></td>
</tr>
</tbody>
</table>
### Proposed mitigation:

- Emissions testing undertaken at the facility show that emissions are within the limits set by the minimum emissions standards.
  - An Air Quality Impact Assessment undertaken, including dispersion modelling, found that the impact of emissions from the facility is expected to be insignificant.
  - The proper maintenance of the abatement equipment allows the equipment to effectively capture airborne particulate from the air stream.
  - To ensure that the abatement equipment functions as designed, preventative maintenance schedules are in place. These have been included in the EMP contained in Appendix C.

<table>
<thead>
<tr>
<th>Cumulative impact post mitigation:</th>
<th>Due to the acceptable results from past emissions testing, the impact is considered to add to existing emissions in the industrialised area to only a small degree post-mitigation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</td>
<td>Low (according to the air quality specialists: “Air quality impacts due to the facility’s operation will be immaterial and will contribute minimally to the pollutant footprint in the region”)</td>
</tr>
</tbody>
</table>

### Impacts on the socio-economic aspects: Health and Safety Impacts

<table>
<thead>
<tr>
<th>Nature of impact:</th>
<th>Health and safety of employees can be adversely affected due to the hazardous nature of inputs utilised and wastes produced, as well as due to the high temperature at which some of the activities take place. In particular, use of silica can have significant adverse health impacts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent and duration of impact:</td>
<td>The impact will occur as long as the activity is in operation.</td>
</tr>
<tr>
<td>Probability of occurrence:</td>
<td>Probable</td>
</tr>
<tr>
<td>Degree to which the impact can be reversed:</td>
<td>The impact cannot be reversed.</td>
</tr>
<tr>
<td>Degree to which the impact may cause irreplaceable loss of resources:</td>
<td>Due to the nature of the hazardous substances used (lung damaging; volatile, toxic); there is the potential for it to lead to physical impact/loss of life. Therefore the impact could cause irreplaceable loss of resources, but this is considered highly unlikely</td>
</tr>
<tr>
<td>Cumulative impact prior to mitigation:</td>
<td>The impact is considered to be cumulative as the site is located in an area that is utilised for heavy industrial purposes with associated health risk impacts.</td>
</tr>
<tr>
<td>Significance rating of impact</td>
<td>Medium</td>
</tr>
</tbody>
</table>

*John Thompson (Pty) Ltd*
<table>
<thead>
<tr>
<th>prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</th>
<th>The impacts can be effectively managed with the correct implementation of best practice health and safety procedures; as well as an adequate emissions extraction system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree to which the impact can be mitigated:</td>
<td>Operational measures:</td>
</tr>
<tr>
<td></td>
<td>Standard operating procedures and preventative maintenance schedules have been included in the EMP contained in Appendix C to mitigate potential health and safety impacts. Measures include, for example:</td>
</tr>
<tr>
<td></td>
<td>Standard operating procedure for Personal Protective Equipment is:</td>
</tr>
<tr>
<td></td>
<td>• All staff should be issued with PPE and records are maintained thereof.</td>
</tr>
<tr>
<td></td>
<td>• PPE consists of dust masks, overalls, safety shoes, ear protection and gloves.</td>
</tr>
<tr>
<td></td>
<td>In addition, occupational health monitoring in terms of the requirements of the OHS Act is undertaken to ensure that indoor air quality is acceptable.</td>
</tr>
<tr>
<td></td>
<td>Design measures:</td>
</tr>
<tr>
<td></td>
<td>JTB’s Air Pollution Control Department has designed an upgrade of the extraction system, as follows:</td>
</tr>
<tr>
<td></td>
<td>• Localised extraction at the pouring area, comprising of laminar / horizontal extraction for that process.</td>
</tr>
<tr>
<td></td>
<td>• Ducting connecting the new localised extraction to the existing system of localised extraction above the conveyer belt tunnel; above the mould making area; and above the mould breaking and shaking area.</td>
</tr>
<tr>
<td></td>
<td>• The new localised extraction (conveyor belt pouring area) will exit to Stack 1.</td>
</tr>
<tr>
<td></td>
<td>It is a possibility that the stack exit gas velocity as well as the concentrations of emissions may change with the new system. During the upcoming 2016 stack emissions testing, these parameters must be tested and reported on. In the event that the Minimum Emissions Standards are exceeded, any required changes to the system specifications must be made at that time.</td>
</tr>
<tr>
<td></td>
<td>Please refer to the extraction system design diagram contained in Appendix A.</td>
</tr>
<tr>
<td>Proposed mitigation:</td>
<td>Cumulative impact post mitigation:</td>
</tr>
<tr>
<td></td>
<td>The facility post-mitigation is expected to add to health and safety risks to a minor degree.</td>
</tr>
<tr>
<td>Significance rating of impact after mitigation</td>
<td>Low</td>
</tr>
<tr>
<td>Potential impacts on socio-economic aspects: Profitability and Stability of the John Thompson Facility; Income and Employment Opportunities</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Nature of impact:</strong> John Thompson (Pty) Ltd is an important role player in the power supply industry currently operating several sites in South Africa. These are located in Johannesburg, Durban, Witbank and Port Elizabeth and benefits are derived by a broad range of industries utilising JTB boilers for energy supply. The clients of JTB are diverse and include a wide range of both local and overseas clients in the sugar, food and beverage, chemical, petrochemical, steel, pulp, paper and textiles industries. The facility also employs approximately 500 staff members with 440 in the manufacturing facility and 60 in the administration section.</td>
<td></td>
</tr>
<tr>
<td><strong>Extent and duration of impact:</strong> The extent is considered to be regional and the duration is long-term for the duration of operations at the facility.</td>
<td></td>
</tr>
<tr>
<td><strong>Probability of occurrence:</strong> The benefits definitely occur.</td>
<td></td>
</tr>
<tr>
<td><strong>Degree to which the impact can be reversed:</strong> This is a benefit and so reversibility and loss of resources do not apply.</td>
<td></td>
</tr>
<tr>
<td><strong>Degree to which the impact may cause irreplaceable loss of resources:</strong> This is a benefit and so reversibility and loss of resources do not apply.</td>
<td></td>
</tr>
<tr>
<td><strong>Cumulative impact prior to mitigation:</strong> This benefit is considered to be cumulative, as there are other sources of employment and income in the Bellville area; as well as other power suppliers in the country.</td>
<td></td>
</tr>
<tr>
<td><strong>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High):</strong> Medium</td>
<td></td>
</tr>
<tr>
<td><strong>Degree to which the impact can be mitigated:</strong> N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Proposed mitigation:</strong> N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Cumulative impact post mitigation:</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</strong></td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Noise impacts:

| **Nature of impact:** | Heavy industrial activities such as is associated with a foundry has associated noise impacts – the operation of heavy vehicles and forklifts on the site; the handling of large steel components; etc. Due to the nature and scale of the operation, considered in the context of the industrialised surrounds, noise levels are not expected to be “disturbing” as defined in the Western Cape Noise Control Regulations, 2013 (i.e. to exceed ambient noise levels by 7dBA or more). |
| **Extent and duration of impact:** | The extent is local in the immediate vicinity of the site. Duration is long-term – for as long as the site is operational. |
| **Probability of occurrence:** | Definite. |
| **Degree to which the impact can be reversed:** | The impact is reversible with cessation of activities. But the facility is situated in a heavy industrial area and so noise impacts are appropriate for the surrounding land use. |
| **Degree to which the impact may cause irreplaceable loss of resources:** | The impact will not cause irreplaceable loss of resources. |
| **Cumulative impact prior to mitigation:** | The impact is considered to be cumulative as the site is situated in an established industrial area. |
| **Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)** | Low |
| **Degree to which the impact can be mitigated:** | Extensive mitigation is not applicable in the case of an industrial facility operating in a heavy industrial area. However, the applicant will need to operate within the noise limits set by the Western Cape Noise Control Regulations, 2013 in order to avoid “disturbing” noise. |
**Proposed mitigation:**

The facility needs to operate within the noise limits set in the Western Cape Noise Control Regulations, 2013. The preventative maintenance schedules included in the EMP contained in Appendix C will help ensure that equipment does not operate at elevated noise levels due to damage or failure.

In addition, John Thompson (Pty) Ltd needs to ensure that its vehicle fleet is regularly serviced and maintained to ensure that these vehicles do not operate at elevated noise levels due to lack of maintenance.

**Cumulative impact post mitigation:**

The impact is considered to be cumulative but of very low significance given the industrial nature of the surrounding area.

**Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High):**

Low

---

**Cultural Impacts**

**Impacts on the cultural-historical aspects:**

**Nature of impact:**

Due to the historical nature of the area, the area is completely transformed and therefore no known cultural-historical impacts have occurred due to the operation of the facility.

**Visual impacts / Sense of Place:**

**Nature of impact:**

Given the developed nature of the facility, the industrial developments already in place in the surrounding Bellville South area as well as the existing infrastructure associated with the site, the impact is considered to be entirely in keeping with the sense of place of the area.

---

**Impacts that may result from the decommissioning and closure phase**

The significant impacts associated with the possible future decommissioning the facility would be limited to noise, dust and waste management.

**Potential impacts on geographical and physical aspects: Air quality**

**Dust.**

**Nature of impact:**

During the possible decommissioning phase, dust would be generated from the following construction related activities on site:

- Heavy vehicles and equipment moving to and from the site;
- Possible demolition of the buildings (unlikely)

---

*John Thompson (Pty) Ltd*
<table>
<thead>
<tr>
<th><strong>Extent and duration of impact:</strong></th>
<th>The extent of the impact will be local and the duration short term for the decommissioning phase only.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Probability of occurrence:</strong></td>
<td>Definite during the decommissioning phase.</td>
</tr>
<tr>
<td><strong>Degree to which the impact can be reversed:</strong></td>
<td>The impact cannot be reversed, however, it is anticipated that impacts will be minor if managed adequately, if all proposed mitigation measures are implemented and the EMPr is followed.</td>
</tr>
<tr>
<td><strong>Degree to which the impact may cause irreplaceable loss of resources:</strong></td>
<td>Dust impacts will not cause loss of any irreplaceable resources.</td>
</tr>
<tr>
<td><strong>Cumulative impact prior to mitigation:</strong></td>
<td>The activity will occur within an industrial area where similar dust generating activities occur (e.g. vehicles moving to and from site). As such, the proposed activity will have a minor cumulative impact.</td>
</tr>
<tr>
<td><strong>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</strong></td>
<td>Low</td>
</tr>
<tr>
<td><strong>Degree to which the impact can be mitigated:</strong></td>
<td>There are standard, proven construction industry methods that can be implemented during the decommissioning phase, which will minimise dust impacts. Thus the impact can be mitigated with appropriate dust suppression and avoidance measures.</td>
</tr>
<tr>
<td><strong>Proposed mitigation:</strong></td>
<td>The following recommendations have been made to mitigate and manage dust impacts during the decommissioning phase:</td>
</tr>
<tr>
<td></td>
<td>- All vehicles should adhere to the local speed limits. When travelling within areas that are particularly dusty, vehicle speed should be reduced further.</td>
</tr>
<tr>
<td></td>
<td>- Affected roads should be wetted down as required.</td>
</tr>
<tr>
<td></td>
<td>- Rubble stockpiles should be limited in height and should be covered/wetted down as required.</td>
</tr>
<tr>
<td></td>
<td>- As far as possible, non-potable water should be used for wetting down activities.</td>
</tr>
<tr>
<td></td>
<td>- Decommissioning work should cease during high wind conditions if there is significant dust risk to adjacent neighbours or roads.</td>
</tr>
<tr>
<td></td>
<td>- All Contractors and personnel associated with the decommissioning activities should wear appropriate PPE as required.</td>
</tr>
<tr>
<td></td>
<td>- The use of goggles should also be considered.</td>
</tr>
<tr>
<td></td>
<td>- All relevant aspects of the City of Cape Town Environmental Health By-Law P.N. 13333 of 2003 must be complied with at all times.</td>
</tr>
<tr>
<td></td>
<td>- All relevant aspects of the City of Cape Town Air Quality Management by-Law P.G. 6772 of 2010 must be complied with at all times.</td>
</tr>
<tr>
<td><strong>Cumulative impact prior to mitigation:</strong></td>
<td>The cumulative dust impacts associated with the decommissioning phase once</td>
</tr>
</tbody>
</table>

*John Thompson (Pty) Ltd*
post mitigation: all recommended mitigation measures are implemented are considered to be very minor.

| Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High) | Low |

<table>
<thead>
<tr>
<th>Potential noise impacts:</th>
<th>Noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of impact:</td>
<td>The decommissioning phase of the JTB facility would entail the use of heavy machinery and equipment to dismantle buildings and infrastructure. These activities will generate noise which could be a nuisance impact for the surrounding areas.</td>
</tr>
<tr>
<td>Extent and duration of impact:</td>
<td>The extent is local in the immediate vicinity of the site with the noise impacts lasting for the duration of the decommissioning phase.</td>
</tr>
<tr>
<td>Probability of occurrence:</td>
<td>Definite.</td>
</tr>
<tr>
<td>Degree to which the impact can be reversed:</td>
<td>The impact is not reversible. Mitigation measures however can be implemented to ensure that noise levels remain acceptable, both for neighbouring properties as well as for those on the site decommissioning.</td>
</tr>
<tr>
<td>Degree to which the impact may cause irreplaceable loss of resources:</td>
<td>Without appropriate mitigation in the areas on site determined to emit noise levels above 85 dBA, hearing of workers can be damaged possibly on a permanent basis. This would represent the loss of an irreplaceable resource for the people concerned.</td>
</tr>
<tr>
<td>Cumulative impact prior to mitigation:</td>
<td>The impact is considered to be cumulative as the facility is situated in an industrial area.</td>
</tr>
<tr>
<td>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</td>
<td>Medium</td>
</tr>
<tr>
<td>Degree to which the impact can be mitigated:</td>
<td>The impact can be mitigated by implementing appropriate noise reduction and management measures.</td>
</tr>
<tr>
<td>Proposed mitigation:</td>
<td>The following recommendations have been made to mitigate and manage noise levels during the decommissioning phase:</td>
</tr>
<tr>
<td>–</td>
<td>The decommissioning contractor must use modern equipment, which produces the least noise.</td>
</tr>
<tr>
<td>–</td>
<td>Any unavoidably noisy equipment must be identified and located in an area</td>
</tr>
</tbody>
</table>

---

*John Thompson (Pty) Ltd*
where it has least likely impact.

- The use of noise shielding screens must be considered and the operation of such machinery restricted to when it is actually required.
- The use of ear protectors for workers using any machinery which emits noise in excess of 85 dBA.
- Steps must be taken to avoid any noise nuisance as defined by the City of Cape Town Environmental Health by-Law P.N. 13333 of 2003.
- All relevant aspects of the Western Cape Noise Control Regulations, P.N 200 of 2013 as promulgated under the Environment Conservation Act, 1989 must be complied with at all times.

<table>
<thead>
<tr>
<th>Cumulative impact post mitigation:</th>
<th>The decommissioning phase of the proposed activity will not contribute excessively to the environmental noise levels already experienced in the surrounding industrial area. In addition, noise impacts will be mitigated as far as possible, as outlined above.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</td>
<td>Low</td>
</tr>
</tbody>
</table>

The waste impacts are described and assessed, and mitigation measures are provided, in the operational phase impact assessment section above. This similarly applies to waste management during the decommissioning phase.
8 DETAILS OF PUBLIC PARTICIPATION

Section 22A, read together with Section 38 (3) of NEMAQA, calls for public participation during an application for an Atmospheric Emissions Licence. Public participation undertaken will include notifying stakeholders of the availability of this EIA Report, together with the supporting specialist studies, for their review and comment.

Means of notification will include an advertisement in two local newspapers (the Tygerburger and the Tyger Talk); as well as notifying adjacent landowners and occupants via registered letter. Relevant Organs of State will also be provided with an opportunity to comment on the EIA Report, namely:

- The DEA&DP’s Development Management and Air Quality branches; and
- The City’s Environmental Resource Management Department

In addition, community representatives in the form of the ward councillor and community organisations such as ratepayers’ associations will also be notified.

All identified stakeholders will be given 30 days in which to lodge with SEC their comments, issues or suggestions pertaining to the application.

Any comments/objections received will then be captured and responded to by the project team in a Comments and Responses Report, which will be attached to the Final EIR that will be submitted, together with the AEL, to the City of Cape Town’s Air Quality branch for their final decision.
9 CONCLUSION AND WAY FORWARD

This EIA Report has been compiled in support of JTB’s application for an Atmospheric Emissions Licence in terms of Sections 22A of the National Environmental Management: Air Quality Act, Act No. 39 of 2004 (NEMAQA). The EIA was undertaken in order to identify, assess and mitigate possible environmental impacts associated with the operation of the boiler manufacturing facility.

The impact assessment process has been guided by independent specialist input where necessary. This includes an Environmental Compliance Audit, an Air Quality Impact Assessment; stack emissions monitoring; as well as extensive input from the applicant on the processes in place at the facility and available to the industry.

The impacts identified were found overall to be of low significance. In particular, the air quality specialists found that “air quality impacts due to the facility’s operation will be immaterial and will contribute minimally to the pollutant footprint in the region”.

Where required, mitigation measures have been identified for the avoidance or at least the minimisation of possible impacts associated with facility. These measures have been included in an Environmental Management Programme, which will govern the life cycle of the facility. The EMPr has been included in Appendix C.