SALDANHA STEEL (PTY) LTD

FUGITIVE DUST MANAGEMENT PLAN

ARCELORMITTAL SOUTH AFRICA LIMITED

MAY 2024

CONFIDENTIAL

SALDANHA STEEL (PTY) LTD

FUGITIVE DUST MANAGEMENT PLAN

ARCELORMITTAL SOUTH AFRICA LIMITED

FUGITIVE DUST MANAGEMENT PLAN (VERSION 1): CONFIDENTIAL

PROJECT NO.: 41103718

DATE: MAY 2024

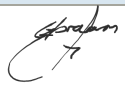
WSP

Building 1, Maxwell Office Park
Magwa Crescent West, Waterfall City
Midrand, 1685
South Africa

Phone: +27 11 254 4800

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Report			
Date	24 May 2024			
Prepared by	Z. Ebrahim			
Signature				
Checked by	B. Keiser			
Signature				
Authorised by	B. Keiser			
Signature				
Project number	41103718			
Report number	1 of 1			
File reference	\\corp.pbwan.net\za\Central_Data\Projects\41100xxx\41103718 - Bidvest Logistics Hub Phase 1 Bar\41 AQ\01-Reports\02-Final\FDMP			

CONTENTS

TABLES

FIGURES

1. INTORDUCTION

Saldanha Steel (Pty) Ltd (Saldanha Steel), a subsidiary of ArcelorMittal South Africa Limited (AMSA), is a steelwork focused on the export market located in Saldanha Bay, West Coast District Municipality (WCDM), Western Cape, South Africa. Given the activities undertaken at Saldanha Steel, the facility has obtained its Atmospheric Emission License (AEL) (Ref: WCWCD001), aligned with Government Notice Regulation 893 of 2013[1], promulgated in line with Section 21 of the National Environmental Management: Air Quality Act (Act 39 of 2004) (NEM:AQA)[2], which is valid until 04 December 2028.

In line with the Listed Activities contemplated in Section 21, the categories applicable to Saldanha Steel are *Category 4: Metallurgical Industry, subcategories 4.2, 4.6, 4.7, 4.8, 4.11, 4.12* and *Category 5: Mineral Processing, Storage and Handling, subcategories 5.1 and 5.2*.

Importantly, Saldanha Steel is currently in Care and Maintenance (C&M), with the ironmaking operations ceasing 15 January 2020 and the remaining operations ceasing 26 March 2020 due to challenges in the global steel market. Given this, there are currently no operations occurring on the steelworks site. While steel production remains unlikely due to continued global market challenges, AMSA have been investigating alternatives to enable Saldanha Steel to return a portion of the facility back to economic productivity along with job regeneration at the site.

Given a component of the existing design at Saldanha Steel is for bulk materials handling and storage, as required as part of the steel production process, Saldanha Steel, in conjunction with Bidfreight Port Operations (BPO), have identified the opportunity to recommence with their storage and handling of bulk materials, for export through the Transnet Port Terminals (TPT) Saldanha Bay terminal.

Saldanha Steel and BPO intend to establish a Logistics Hub to store, handle and export up to 5,000,000 tpa of bulk material commodities, requiring an amendment of the current AEL. The bulk commodity will be stored within a fully enclosed warehouse, with most activities, such as the offloading and loading of haul trucks, stockpiling, stockpile management and material handling occurring within the warehouse. Bulk material received via haul road into the warehouse will be wetted by water sprayers to reduce emissions, whereas material received via rail will be chemically sprayed at the tippler and wetted along the conveyor belts prior to being deposited within the warehouse. Within the warehouse, the material stockpiles will be wetted by water sprayers to reduce emissions.

[1] Department of Environmental Affairs: (2013): List of Activities which result in Atmospheric Emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage (No. R. 893), Government Gazette, 22 November 2013, (No. 37054), as amended by GN 551 in 2015 and GN 1207 in 2018.

[2] South Africa (2005): *National Environmental Management: Air Quality Act* (No. R. 39 of 2004) Government Gazette, 24 February 2005 (No. 27318)

Following the final decision of AMSA to proceed with this project, a letter of notification (Dated 08 March 2024) was provided to the WCDM (Licensing Authority) detailing the intention and project details of Saldanha Steel.

Following the review of this notification, the WCDM confirmed the intent of Saldanha Steel AEL to store and handle bulk commodities for export. Therefore, to commission the Logistics Hub, Saldanha Steel are required to, amongst others, compile a Fugitive Dust Management Plan (FDMP).

WSP Group Africa (Pty) Ltd (WSP) has therefore been appointed by Saldanha Steel to assist with compiling the FDMP, as presented herein.

2. PROCESS OVERVIEW

Saldanha Steel was commissioned in 1998 and is the first steel mill in the world to have successfully combined the Corex / Midrex process into a continuous chain, replacing the need for coke ovens and blast furnaces, assisting with emission control and environmental management.

The Saldanha Steel operation converts lump iron ore into steel and hot rolled coil (HRC), with various other products being produced such as Corex slag, sludge granules, coal fines, dolomite fines and briquettes.

Saldanha Steel, in conjunction with Bidfreight Port Operations (BPO), intend to establish a Logistics Hub at the bulk materials storage and handling area of the steelworks.

2.1. EXISTING PROCESS – STEELMAKING

Saldanha Steel employs operational equipment and technologies to convert lump iron ore into steel and Hot Rolled Coil (HRC), with the following key unit processes being undertaken**:**

- **Raw Materials Handling and Stockyard Area**

Raw Materials areas and the Stockyard area are located west of the plant and are used for the bulk storage and handling of Iron Ore and Coal; offloading and storage of various other raw materials. These commodities are transported via ship and rail and offloaded on the stockyard via conveyor belts and conveying via transfer stations equipped with dust extraction systems, various by-products are also stored on the stockyard and at various locations on site for re-use within the process or sale to external users.

- **The Corex Plant**

The Corex unit converts about 60% of the iron ore consumed into liquid iron. The plant consists of two main components, a reduction shaft and a melter-gasifier. Pellets can also be used to replace iron ore, or a mixture of pellets and iron ore can be used for the production of liquid iron.
In the reduction shaft the lump iron ore, transported via a conveyor belt, is first reduced to sponge iron by reaction with a reducing gas generated in the melter-gasifier. The reduced iron ore is then melted in the melter-gasifier using heat generated by the combustion of coal and coke with injected oxygen. Coal or coke can only be used during the combustion process. Small volumes of by-products are fed into the Corex as part of the waste reduction initiative on site. The Corex process is similar to a blast furnace facility.

- **The Midrex Plant**

Excess reducing gas generated in the Corex plant is used in the Midrex to convert the remaining 40% of the iron ore and pellets (transported via conveyor belts) into solid sponge iron (a highly metallised product suitable for steel commonly referred as DRI (Direct Reduced Iron).

- **The Steel Meltshop**

The liquid iron (transported via ladles) and DRI (transported via conveyor belts) are converted into steel at the Conarc in the Steel Meltshop. The Corex liquid iron contains about 4% carbon, virtually all of which is removed by electric arc and oxygen injection in the Conarc process, a hybrid between an Electric Arc Furnace and a Basic Oxygen Furnace. Ferrous scrap steel, Hot Briquetted Iron (HBI) and various fluxes are also charged into the Conarc furnace in the Steel Meltshop. Further steel refining takes place in the Ladle Heating Furnace (LHF) & Vacuum Oxygen Decarburizer (VOD). The Conarc at the Steel Meltshop may also operate on Scrap only as an input material to produce steel.

- **The Thin Slab Caster (TSC)**

At the Thin Slab Caster (TSC) the liquid steel from the LHF and/or VOD in the Steel Meltshop, transported via ladles and overheard cranes in ladles are continuously cast into slabs that vary from 50 - 100 mm thickness and from 900 - 1560 mm in width.

- **Roller Hearth Furnace (RHF)**

After casting at the TSC, the slabs proceed directly into a long (about 180 m) temperature equalising Roller Heath Furnace (RHF) where the temperature of the slabs is increased and maintained according to specification, for the rolling of the steel. The Corex gas and/or LPG is used as fuel in this RHF.

- **Hot Strip Mill**

The steel slab is reduced or rolled to its final thickness in two stages: the Roughing Mill and the Finishing Mill. In the roughing mill, the steel slabs are rolled in two roughing mill stands (4-high) to create a transfer bar with a gauge of approximately 20 mm. The steel slabs are subjected to compressive and frictional forces which reduce the gauge of the steel slabs and elongate them into coils.

In the Finishing Mill the transfer bar is rolled to the final thickness in a five-stand (4-high) finishing mill. The final thickness is 0.8 mm to 8.5 mm, which is then rolled up in a coil.

- **Temper Mill**

The steel coils are transferred from the Hot Strip Mill to the Temper Mill with a walking beam. The Temper Mill rolling facility is available to process up to 70% of the hot rolled coils. The main objective of this mill is not to reduce the strip thickness but to achieve good strip flatness quality and rewind defective coils.

- **Briquetting Plant**

Briquetting is the process of compressing and compacting fine powders, granular or shredded materials into a solid mass (briquette). The by-products produced at Saldanha Steel are to be utilized in the manufacturing of briquettes. The Press Briquetting method is a roll type press which comprises of two rotating wheels. Materials are fed into the mixer where water is added. The rolls compress the materials under high pressure to form a briquette. The briquette is then discharged from the machine. The briquette will be wet due to the water added into the mixer. It is then stored in a dry and well-ventilated area before being reused in the iron and steel making process.

2.2. PROPOSED PROCESS – LOGISTICS HUB

Saldanha Steel, in conjunction with Bidfreight Port Operations (BPO), intend to establish a Logistics Hub at the bulk materials storage and handling area of the steelworks. The following process will apply to the Logistics Hub:

- Up to 5,000,000 tpa of bulk material commodities will be handled within an enclosed warehouse by the Logistics Hub for export purposes. The individual bulk commodity quantities may fluctuate, depending on the bulk commodity required for export, although importantly, the total quantity of material handled, when operations are underway, will not exceed the threshold stipulated of 5,000,000 tpa.
- Up to 4,000,000 tpa will comprise of Manganese (Mn) ore. Of the 4,000,000 tpa Mn ore, up to 50% will be delivered via rail (2,000,000 tpa), with the remaining amount being delivered by truck (2,000,000 tpa).

- The anticipated volume to be delivered by road presents a worst-case scenario, making allowance for current challenges regarding rail infrastructure. Following planned rail infrastructure upgrades in 2026, it is anticipated the volume of material delivered by road will decrease, with the majority then delivered by rail, via the tipplers.

- Up to the maximum tonnage of the other bulk material commodities, which will be delivered via road, will comprise:

  - Phosphate Concentrate (maximum tonnage: 1,200,000 tpa)
  - Garnet Sands (maximum tonnage: 500,000 tpa)
  - Zircon Sands (maximum tonnage: 500,000 tpa)
  - Lead Concentrate (maximum tonnage: 250,000 tpa)
  - Copper Concentrate (maximum tonnage: 250,000 tpa)
  - Zinc Concentrate (maximum tonnage: 250,000 tpa)

  These quantities may fluctuate, depending on the bulk commodity required for export, although importantly, the total quantity of material handled, when operations are underway, will not exceed the threshold stipulated of 5,000,000 tpa.

- Regarding the 50% of Mn ore delivered via rail, this will comprise:

  - Delivery from rail to the existing rotary tippler, contained within a building with dust extraction and sprayers delivering chemical suppressant to the Mn ore while being tipped from the rail wagons.
  - Mn ore will move from the rotary tippler along conveyor CV111 (underground conveyor) to Transfer Station 1 (TS1), contained within a building enclosure.
  - From TS1 the ore will be transferred to a new conveyor, which is an above-ground conveyor, semi-enclosed equipped with longitudinal water sprayers.
  - From the new conveyor, ore will be loaded onto the main Mn ore stockpile, within the warehouse. Notably, this ore will still be wet from the chemical suppressant applied at the rotary tippler and water applied by the longitudinal sprayers on the new conveyor. Further, the main Mn ore stockpile will be wetted via water sprayers and within an enclosed warehouse to reduce dust emissions.

- Regarding the bulk material commodities delivered by truck, 50% Mn ore and other commodities, to the warehouse, this will comprise:

  - Trucks will enter the Saldanha Steel site via the truck entrance road located southeast of the site, via the weighbridge. It is noted, prior to reaching the weighbridge, approximately 1 km of this road is unpaved, although this section receives chemical dust suppressant. From the weighbridge, onto the Saldanha site, the proposed entrance road is unpaved, which will also receive chemical suppressant.
  - Trucks will carry approximately 34 t of commodities per load, covered by the standard strapped tarpaulins required for side tippler road trucks.
  - Trucks will unload in the southern end of the warehouse to a truck stockpile, with water being applied to the truck stockpile to reduce dust emissions.

- Yellow equipment (front-end loaders) will be used to transfer material from the truck stockpile to the main commodity stockpiles for reclaiming.

- Trucks delivering commodities to the TPT terminal will carry approximately 69 t of commodities per load, comprising three skips covered by heavy duty, fixed tarpaulins.

  - Trucks will exit the warehouse, and Saldanha Steel, via paved roads, making use of the existing paved haul road established for terminal access. Trucks exporting commodities to the terminal will not make use of public roads.
  - The bulk of the trucks for commodities export to the terminal will remain onsite between deliveries, located at the designated truck staging area, avoiding unnecessary use of public roads. Note, this will be dependent on the trucking requirements of the cargo handling company, so the number of trucks onsite may vary from time to time.

3. LEGISLATIVE OVERVIEW

Until 2004, South Africa's approach to air pollution control was driven by the Atmospheric Pollution Prevention Act 45 of 1965 (APPA), which was repealed with the promulgation of the National Environmental Management: Air Quality Act 39 of 2004 (NEM:AQA). The NEM:AQA represents a shift in South Africa's approach to air quality management, from source-based control to integrated effects-based management. Significant functions detailed in the NEM:AQA include:

- The National Framework for Air Quality Management.
- Institutional planning matters, such as the appointment of Air Quality Officers within government and the implementation of Air Quality Management Plans (AQMPs).
- Air quality management measures including, but not limited to:
    - The listing of activities that result in atmospheric emissions and which have the potential to impact negatively on the environment and the licensing thereof through an Atmospheric Emissions License (AEL).
    - Procedures to enforce Pollution Prevention Plans or Atmospheric Impact Reporting for the control and inventory of atmospheric pollutants of concern.
    - Requirements for addressing dust and offensive odours.

3.1. MINIMUM EMISSION STANDARDS

Saldanha Steel has obtained its AEL (Ref: WCWCD001), triggering *Category 4: Metallurgical Industry and Category 5: Mineral Processing,* valid until 04 December 2028. In line with the Listed Activities contemplated in Section 21, the category which is applicable to this AIR and triggers an AEL amendment is *Category 5: Mineral Processing, Storage and Handling, subcategories 5.1*.

Category 4: Metallurgical Industry, subcategories 4.2, 4.6, 4.7, 4.8, 4.11, 4.12 and *subcategories 5.2* are applicable to the Saldanha Steel operations and do not require amendment in this application.

The specific subcategories applicable to the steelmaking process, and as contained within the existing AEL, are:

- Subcategory 4.2: Combustion Installations
- Subcategory 4.6: Basic Oxygen Furnaces
- Subcategory 4.7: Electric Arc Furnaces (Primary and Secondary)
- Subcategory 4.8: Blast Furnaces
- Subcategory 4.11: Agglomeration Operations
- Subcategory 4.12: Pre-Reduction and Direct Reduction
- Subcategory 5.1: Storage and Handling of Ore and Coal
- Subcategory 5.2: Drying

3.2. NATIONAL AMBIENT AIR QUALITY STANDARDS

Ambient air quality standards are defined as "*targets for air quality management which establish the permissible concentration of a particular substance in, or property of, discharges to air, based on*

what a particular receiving environment can tolerate without significant deterioration"[3]. The aim of these standards is to provide a benchmark for air quality management and governance.

The National Ambient Air Quality Standards (NAAQS) presented in **Table 3-1** became applicable for air quality management from their promulgation in 2009[4] and 2012[5]. The NAAQS generally have specific averaging periods, compliance timeframes, permissible frequencies of exceedance and measurement reference methods. Given this report only focuses on dust management, pollutants of concern comprise particulate matter (PM_{10} and $PM_{2.5}$), which are discussed hereafter.

Table 3-1: South African National Ambient Air Quality Standards

Pollutant	Averaging Period	Concentration µg/m³	Permissible Frequency of Exceedance
Particulate matter (PM_{10})	24 hours	75	4
	1 year	40	0
Particulate matter ($PM_{2.5}$)	24 hours	40	4
		25[a]	4
	1 year	20	0
		15[a]	0

[a]: Effective date is 01 January 2030

3.3. NATIONAL DUST CONTROL REGULATIONS

On 01 November 2013 the legislated standards for dust fallout were promulgated in the form of the National Environmental Management: Air Quality Act (NEM:AQA) National Dust Control Regulations (GNR 827)[6]. These regulations provide the acceptable / allowable dust fallout rates for both residential and non-residential areas, as presented in **Table 3-2**.

[3] Department of Environmental Affairs (2000): *Integrated Pollution and Waste Management Policy for South Africa.* Government Gazette (No. R 227 of 2000), 17 March 2000 (No. 20978)
[4] Department of Environmental Affairs (2009): National Ambient Air Quality Standards. Government Gazette (No. R 1210 of 2009), 24 December 2009 (No. 32816)
[5] Department of Environmental Affairs (2012): National Ambient Air Quality Standard for Particulate Matter with Aerodynamic Diameter less than 2.5 Micro Metres ($PM_{2.5}$). Government Gazette (No. R 486 of 2012), 29 June 2012 (No. 35463)
[6] Department of Environmental Affairs (2013): National Dust Control Regulations. Government Gazette (No. R 827 of 2013), 01 November 2013 (No. 36974)

Table 3-2: Acceptable Dust Fallout Rates as per the National Dust Control Regulations

Restriction Areas	Dust Fallout Rate (D) (mg/m^2/day) 30-day average	Permitted frequency of exceeding dust fallout Rate	Reference Method
Residential Area	D < 600	Two within a year, not sequential months	ASTM D1739
Non-Residential Area	600 < D < 1,200	Two within a year, not sequential months	ASTM D1739
The method to be used for measuring dust fall rate and the guideline for locating sampling points shall be ASTM D1739:1970, or equivalent method approved by any internally recognised body. As confirmed by Saldanha Steel, the dust fallout method applied onsite for existing dust fallout monitoring is the ASTM D1739:1970 methodology, as per the requirements of GNR 827 of 2013.			

In addition to the permitted dust fallout rates contained within the National Dust Control Regulations, the regulations also set out guidance relating to the development of a Dust Management Plan, comprising:

- Identification of all possible sources of dust within the affected site.
- Detail best practicable measures to be undertaken to mitigate dust emissions.
- Detail an implementation schedule.
- Identify the line management responsible for implementation.
- Incorporate the dust fallout monitoring plan.
- Establish a register for recording all complaints received by the person regarding dustfall and for recording follow up actions and responses to the complainants.

The plan must be implemented one month after the approval by the Licensing Authority, with an implementation progress report being submitted to the Licensing Authority at agreed intervals

4. DUST FALLOUT MONITORING PLAN

Dust fallout at Saldanha Steel is monitored monthly, and as confirmed by Saldanha Steel, complies with the ASTM D1739:1970 methodology, as per the requirements of GNR 827 of 2013. The network comprises a total of eight samplers, with two fenceline samplers, four onsite samplers, and two offsite samplers. **Table 4-1** presents the monitoring network, detailing sampler coordinates and location classifications, while **Figure 4-1** illustrates sampling locations.

Table 4-1: Saldanha Steel dust fallout monitoring network

Station Name	Latitude (°S)	Longitude (°E)	Classification	Fence line / Offsite / Onsite
AM_NE [Northeast]	32.973397°	18.031272°	Non-Residential (1,200 mg/m^2/day)	Fence line
AM_SE [Southeast]	32.987269°	18.031633°	Non-Residential (1,200 mg/m^2/day)	Onsite
AM_SW [Southwest]	32.987317°	18.014097°	Non-Residential (1,200 mg/m^2/day)	Onsite
AM_NW [Northwest]	32.971192°	18.011889°	Non-Residential (1,200 mg/m^2/day)	Offsite
AM_N [North]	32.971314°	18.023183°	Non-Residential (1,200 mg/m^2/day)	Offsite
AM_S [South]	32.991094°	18.023197°	Non-Residential (1,200 mg/m^2/day)	Onsite
AM_E [East]	32.987814°	18.038583°	Non-Residential (1,200 mg/m^2/day)	Fence line
AM_W [West]	32.982314°	18.012867°	Non-Residential (1,200 mg/m^2/day)	Onsite

Figure 4-1: Saldanha Steel dust fallout monitoring network

5. EXISTING AIR QUALITY SITUATION

Table 5-1 presents the exceedances measured at the Saldanha Steel monitoring locations for the period January 2017 – December 2020, while **Figure 5-1**, **Figure 5-2** and **Figure 5-3** present the monthly fallout rates measured at the northern, south and southeast, and west and southwest samplers, respectively. While Saldanha Steel was in operation, fallout rates typically remained low at all sampling locations (prior to April 2020); the red, highlighted area in the fallout figures indicate the period of C&M.

For the period under review, one exceedance of the non-residential standard was recorded at AM_SE (Jan'17), AM_NW (May'17) and AM_S (Feb'19), remaining compliant with the standard as two non-sequential exceedances are permitted per twelve-month rolling period. Two exceedances were recorded at AM_SW (Apr'17 and Sep'18) and AM_W (Sep'18 and Apr'19), again remaining compliant as two non-sequential exceedances are permitted per twelve-month rolling period. AM_NE recorded three exceedances of the standard, in Feb'20, Nov'20 and Dec'20, resulting in non-compliance with the standard as three exceedances were recorded within a twelve-month period, two of which were sequential (Nov'20 and Dec'20). Notably, the two sequential exceedances measured occurred seven months after Saldanha Steel went into C&M. Given the C&M, no operations occurred at Saldanha Steel, with all stockpiles being removed during shutdown. Despite this, the highest fallout levels at AM_NE, from the available dataset, occurred during C&M, indicating other contributing sources in the area.

On average, dust fallout shows a decrease after Saldanha Steel went into C&M, as would be expected given the complete shutdown. However, location AM_NE shows a 98% increase in average fallout compared to historic data, while sampler AM_S shows a 10% increase in average fallout, again indicating potential contributions to fallout from neighbouring sources.

Table 5-1: Saldanha Steel dust fallout exceedances, Jan'17 – Dec'20

Station Name	1st Exceedance	2nd Exceedance	3rd Exceedance	Total Exceedances (Jan'17 – Dec'20)	Compliance Status
AM_NE [Northeast]	Feb'20	Nov'20	Dec'20	3	Non-compliant, three exceedances in 12-month period, two sequential
AM_SE [Southeast]	Jan'17	-	-	1	Compliant, two non-sequential exceedances permitted / 12 months
AM_SW [Southwest]	Apr'17	Sep'18	-	2	Compliant, two non-sequential exceedances permitted / 12 months

Station Name	1st Exceedance	2nd Exceedance	3rd Exceedance	Total Exceedances (Jan'17 – Dec'20)	Compliance Status
AM_NW [Northwest]	May'17	-	-	1	Compliant, two non-sequential exceedances permitted / 12 months
AM_N [North]	-	-	-	0	Compliant, no exceedances
AM_S [South]	Feb'19	-	-	1	Compliant, two non-sequential exceedances permitted / 12 months
AM_E [East]	-	-	-	0	Compliant, no exceedances
AM_W [West]	Sep'18	Apr'19	-	2	Compliant, two non-sequential exceedances permitted / 12 months

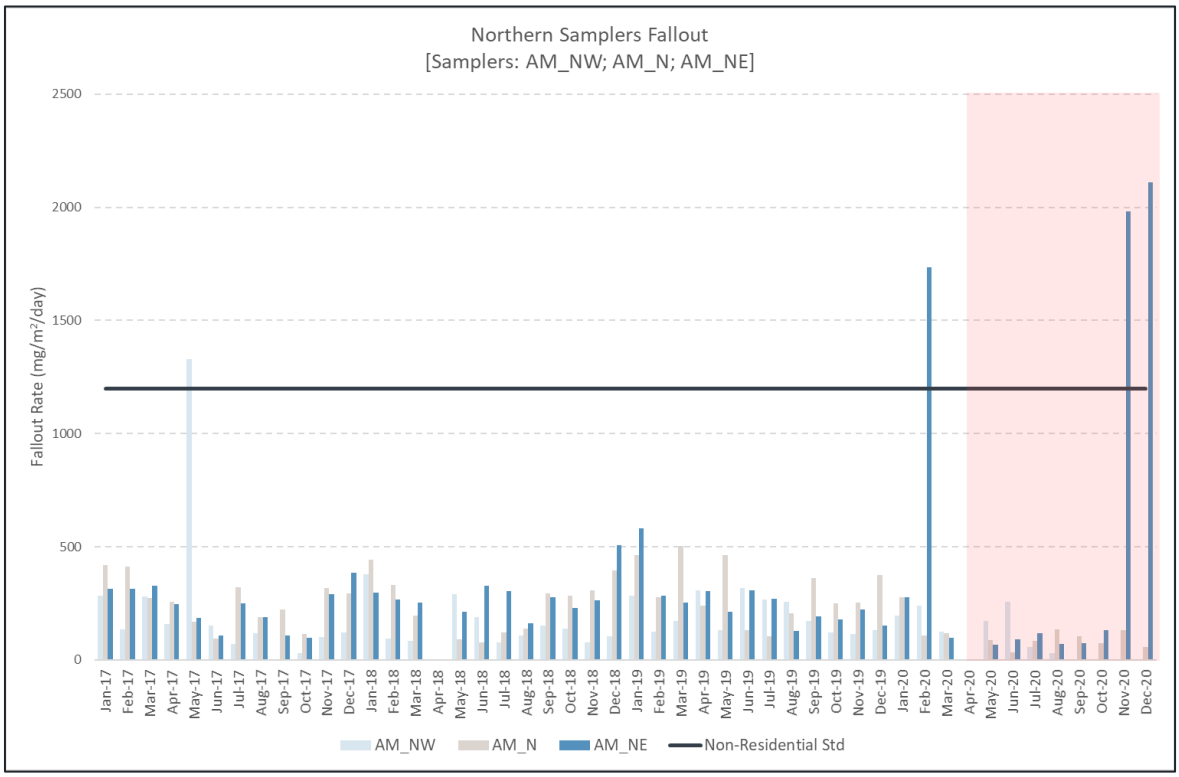


Figure 5-1: Saldanha Steel northerly samplers fallout rates, Jan'17 – Dec'20

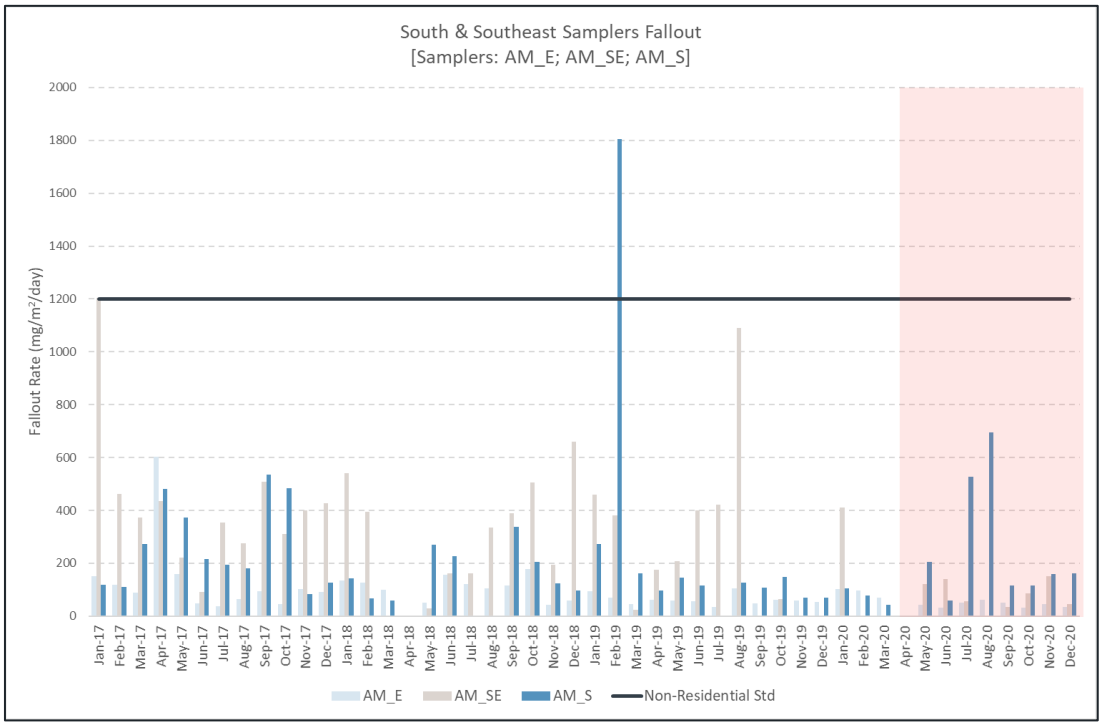


Figure 5-2: Saldanha Steel south and southeast samplers fallout rates, Jan'17 – Dec'20

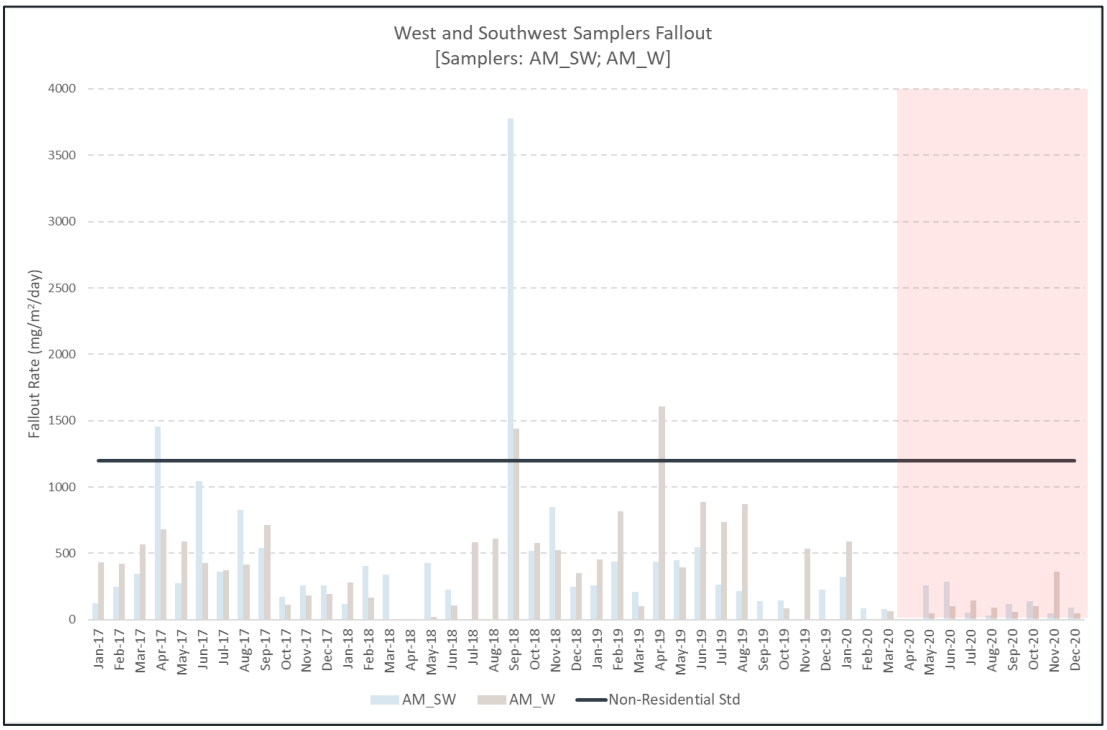


Figure 5-3: Saldanha Steel west and southwest samplers fallout rates, Jan'17 – Dec'20

6. KEY SOURCES OF DUST EMISSIONS

Various sources of dust emissions are associated with the steelmaking process at Saldanha Steel, although currently no operations are occurring at Saldanha Steel. Additionally, the proposed Logistics Hub comprises various activities that have the potential to produce dust. The following section highlights key sources of dust emissions associated with steelmaking operations (despite being in C&M) and the Logistics Hub.

6.1. STEELMAKING OPERATIONS

6.1.1. STACK EMISSIONS

Although stack emissions (point sources) are not recognised as a fugitive source of emissions, for the purposes of this FDMP, stack emissions and the management thereof are included ensuring all sources of dust emissions are addressed within this FDMP.

The stacks contributing to overall dust emissions, as illustrated in **Figure 6-1**, include:

- Coal Drier
- Coal Transport
- Coal Blending and Screening
- Corex Cast House
- Coal Stock House
- Ore Stock House
- Midrex Metallised Fines
- Midrex Product Dedusting
- Conarc
- Roller Hearth Furnace Stack #1
- Roller Hearth Furnace Stack #2
- Midrex Gas Heater Stack
- VOD Boiler
- Furnace Dedusting (Midrex)
- Iron Granulation Plant (IGP)
- Alloy Store Dedusting Unit

Stacks not considered as sources of dust emissions include:

- Flare – emergency release only.
- Granulation Plant – wet process, therefore no particulate emissions.
- Caster Stack – Steam stack, therefore no particulate emissions.

Figure 6-1: Saldanha Steel point source locations

6.1.2. VOLUME SOURCES OF EMISSIONS

Operations at Saldanha Steel comprise several volume sources relating to material handling activities occurring within buildings or structures, as well as fugitive releases from buildings due to furnace operations. Key volume source locations, as illustrated in **Figure 6-2**, include:

- Stock House
- Transfer Station 1
- Transfer Station 2
- Transfer Station 3
- Transfer Station 4
- Transfer Station 5
- Transfer Station 6
- Transfer Station 8
- Coal Screen House
- Coal Blending Station
- Coal Drying Plant
- Side Tippler
- Tapping Aisle North Building
- Tapping Aisle South Building
- Conarc North Building
- Conarc South Building

Ref	Description	Ref	Description
1	Transfer Station 1	10	Rotary Tippler
2	Transfer Station 2	11	Coal Screen Station
3	Transfer Station 3	12	Coal Blending Station
4	Transfer Station 4	13	Coal Drying Plant
5	Transfer Station 5	14	Stockhouse (224-1)
6	Transfer Station 6	15	Tapping Isle South (Corex)
7	Transfer Station 7	16	Tapping Isle North (Corex)
8	Transfer Station 8	17	Conarc South
9	Side Tippler	18	Conarc North

Figure 6-2: Saldanha Steel volume source locations

6.1.3. AREA SOURCES OF EMISSIONS

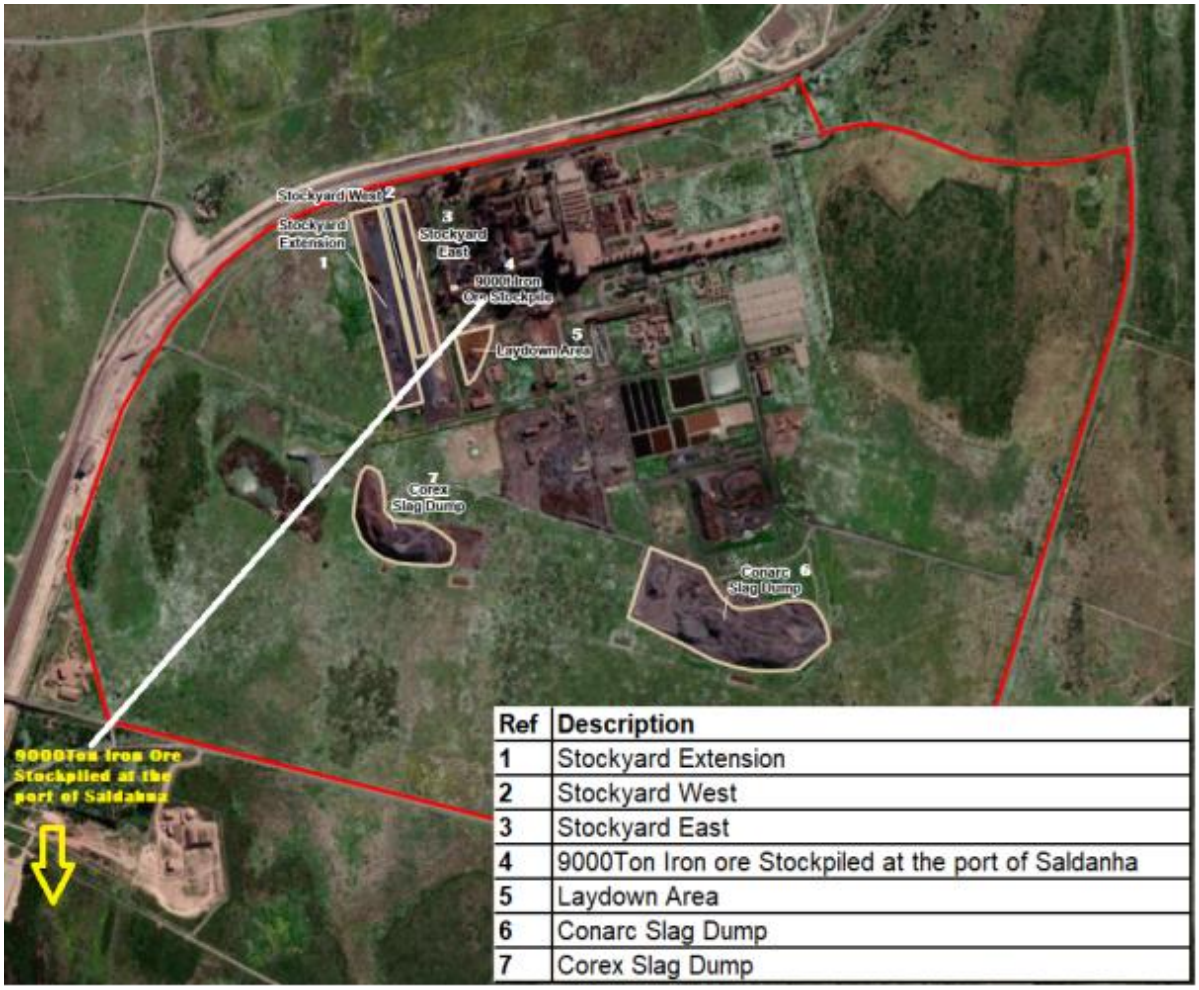
Operations at Saldanha Steel comprise several area sources relating to open air material handling activities, including impacts of wind entrainment on these sources. Key area source specifications are presented in **Table 6-1**, while **Figure 6-3** presents the source locations.

Table 6-1: Area source dimensions

Source Description	Height (m)	Length (m)	Width (m)	Diameter (m)
Corex slag dump	30	208	352	-
Conarc slag dump	30	208	352	-
9000t iron ore stockpile	5	62	55	-
Briquetting plant	4.3	22	12	-
VDD Coal Stockpile	20	132	24	-

Source Description	Height (m)	Length (m)	Width (m)	Diameter (m)
Coal stockpile 1	20	137	24	-
Coal stockpile 2	20	127	24	-
VDD Coal Stockpile	20	123	24	-
Limestone stockpile	20	-	-	12
Coke (STP 20) stockpile	20	-	-	12
Limestone stockpile	20	-	-	12
Coke stockpile	20	115	24	-
Pellets stockpile	20	115	24	-
Pellets stockpile	20	115	24	-
Iron Ore stockpile	20	70	42	-
Iron Ore stockpile	20	70	42	-
Dolomite stockpile	20	24	24	-
Dolomite stockpile	20	24	24	-
Coke (STP 17) stockpile	20	-	-	12
Coke stockpile	20	-	-	12
Limestone stockpile	20	70	24	-
DRI stockpile	10	-	-	12
Coke Chinese stockpile	10	207	24	-
Limestone stockpile	10	-	-	12
DRI stockpile	10	-	-	12
DRI stockpile	10	-	-	12
DRI/Pellet fines stockpile	10	-	-	12
Pellet (black) stockpile	10	-	-	12
DRI Clusters stockpile	10	-	-	12
99% dolomite fines + 1% coal mix stockpile	10	-	-	12
Pellets stockpile	20	-	-	12

Source Description	Height (m)	Length (m)	Width (m)	Diameter (m)
Coke Fines stockpile	10	-	-	12
Oxide waste stockpile	10	-	-	12
Caster Scale stockpile	10	-	-	12
Waste mix 10 stockpile	10	-	-	12
RHF scale stockpile	10	-	-	12
Screened Classifier Sands stockpile	10	-	-	12
Coke Chinese stockpile	20	-	-	12
Screened Shaft Cleaning mat stockpile	10	-	-	12
Screened RHF Scale stockpile	10	-	-	12
Classifier sand stockpile	10	-	-	12
Medium ore (6-12mm) stockpile	20	-	-	12
Iron ore fines (6-8mm) stockpile	10	-	-	12
Iron ore fines (red square) stockpile	10	-	-	12
Iron ore fines (red square) stockpile	10	-	-	12
Iron ore fines (6-8mm) stockpile	10	-	-	12
Iron ore fines (<6mm) stockpile	10	-	-	12



Ref	Description
1	Stockyard Extension
2	Stockyard West
3	Stockyard East
4	9000Ton Iron ore Stockpiled at the port of Saldanha
5	Laydown Area
6	Conarc Slag Dump
7	Corex Slag Dump

Figure 6-3: Saldanha Steel area source locations

6.1.4. CONVEYOR EMISSION SOURCES

Saldanha Steel operations require the use of various conveyor (CV) systems onsite, comprising partially enclosed, fully enclosed, and underground conveyors. For the purposes of this FDMP, only partially enclosed conveyors are considered as underground and fully enclosed conveyors will not contribute to overall dust emissions. Partially enclosed conveyors are illustrated in **Figure 6-4**, comprising:

- CV101
- CV102
- CV103
- CV105
- CV107
- CV108
- CV112
- 143F01
- 145F11
- 145F01

Figure 6-4: Saldanha Steel conveyors

6.1.5. ROAD EMISSION SOURCES

The Saldanha Steel facility makes use of a road network, as illustrated in **Figure 6-5**, predominantly for the export of final product from site, however, in some cases for the delivery of raw materials to site, for e.g. coke. Only one, key unpaved road is currently in use, which is the truck entrance leading to the truck weighbridge. **Table 6-2** presents the unpaved road dimensions, with estimated truck activities.

Table 6-2: Unpaved road specifications

Unpaved Road Name	Length (m)	Vehicles / Year	Vehicles / Day	Trips / Day	Total VKT* / Day	Total VKT / Year
Truck Entrance (to weighbridge)	1,036	4,000	11	22	23	8,285

*VKT = vehicle kilometres travelled

Figure 6-5: Saldanha Steel main roads

6.1.6. STEELMAKING SOURCE APPORTIONMENT

The following section highlights the portions of dust emissions associated with each source activity. The data presented below is extracted from the emissions inventory compiled by WSP and presented within the Atmospheric Impact Report (AIR) compiled for the AEL amendment application for the proposed Logistics Hub (WSP, 2021).

Table 6-3 presents the total emissions for each group of sources, as well as the contribution of these sources to overall total suspended particulates (TSP), PM_{10} and $PM_{2.5}$ emissions. The largest source of emissions at Saldanha Steel are the volume sources, contributing 72% of total TSP, 73% of total PM_{10} and 70% of total $PM_{2.5}$ emissions. Within this group, the largest sources are the Corex and Conarc building emissions due to the furnaces. The second largest contributor to emissions is the point source group, followed by the area sources, although these emissions constitute a small portion of total emissions when compared to contributions from volume sources.

Given these findings, volume sources, and specifically fugitive emissions associated with the furnaces, require specific management focus to control emissions.

Table 6-3: Source Contributions

Description	TSP Emissions (tpa)	TSP Source Contribution (%)	PM_{10} Emissions (tpa)	PM_{10} Source Contribution (%)	$PM_{2.5}$ Emissions (tpa)	$PM_{2.5}$ Source Contribution (%)
Point Source Emissions	127.3	7.7%	59.7	7.3%	36.6	9.8%
Volume Source Emissions	613.2	71.5%	304.2	72.8%	128.8	69.5%
Area Source Emissions	75.9	4.6%	37.7	4.6%	17.2	4.6%
Line Source Emissions	28.4	1.7%	13.4	1.6%	2.0	0.5%
Road Source Emissions	12.9	0.8%	2.6	0.3%	0.7	0.2%
TOTAL EMISSIONS	**857.8**	**100%**	**417.6**	**100%**	**185.2**	**100%**

6.2. LOGISTICS HUB OPERATIONS

The following section presents the Logistics Hub operations. Key sources of emissions are illustrated in **Figure 6-6**.

Figure 6-6: Logistics Hub source layout

6.2.1. VOLUME SOURCES OF EMISSIONS

Logistics Hub operations will comprise several volume sources relating to material handling activities occurring within buildings or structures.

Key volume sources include:

- Transfer Station 1
- Warehouse
- Rotary Tippler

6.2.2. CONVEYOR EMISSION SOURCES

The Logistics Hub will require the use of existing conveyor systems onsite with only partially enclosed conveyors considered in this FDMP i.e. underground or fully enclosed conveyors are excluded given they will not contribute to emissions. Conveyors associated with the Logistics Hub include:

- CV111
- New Conveyor

6.2.3. ROAD EMISSION SOURCES

The proposed Logistics Hub will make use of the existing road network for the export of material commodities from site to the terminal. 50% of the total Mn ore delivered and all other bulk material commodities delivered to the Logistics Hub will be via the existing truck entrance road and weighbridge. Importantly, once the export trucks have been loaded with bulk material within the warehouse, all truck bins will be covered with heavy-duty tarpaulin covers to ensure no dust emissions will occur from the truck bins during transit to the terminal. **Table 6-4** presents the unpaved road dimensions, with estimated truck activities.

Table 6-4: Unpaved road specifications

Unpaved Road Name	Length (m)	Trips / Day	Total VKT / Day	Total VKT / Year
Truck Entrance (to warehouse)	3,481	241	838	305,970
Truck Road Exit	1,630	241	393	143,272

6.2.4. SOURCE APPORTIONMENT

The following section highlights the portions of dust emissions associated with each source activity. The data presented below is extracted from the emissions inventory compiled by WSP and presented within the Atmospheric Impact Report (AIR) compiled for the AEL amendment application for the proposed Logistics Hub (WSP, 2024).

Table 6-5 presents the total emissions for each group of sources, as well as the contribution of these sources to overall emissions associated with the proposed Logistics Hub. The largest source of emissions associated with the Logistics Hub operations are road emissions (including vehicle exhaust emissions), contributing 99% of total TSP emissions, 98% of total PM_{10} emissions and 98% of total $PM_{2.5}$ emissions. The second largest contributor to emissions is the line sources (conveyors), although these emissions remain relatively low and constitute a small portion of total emissions. The road emissions contribute the largest portion of emissions estimated as the Logistics Hub activities will occur within an enclosed warehouse, therefore these contributions remain extremely low.

Table 6-5: Source Contributions

Description	TSP Emissions (tpa)	TSP Source Contribution (%)	PM_{10} Emissions (tpa)	PM_{10} Source Contribution (%)	$PM_{2.5}$ Emissions (tpa)	$PM_{2.5}$ Source Contribution (%)
Volume Sources	0.18	0.2%	0.07	0.3%	0.01	0.3%
Roads (incl. exhaust)	113.55	99.2%	20.05	98.0%	3.01	98.0%
Line Sources	0.72	0.6%	0.34	1.7%	0.05	1.7%
TOTAL EMISSIONS	**114.45**	**100.00%**	**20.46**	**100.00%**	**3.07**	**100.00%**

7. FUGITIVE DUST MANAGEMENT PLAN

The following section presents the Fugitive Dust Management Plan, with the key components comprising:

- The aim and objective of the plan.
- Line management responsible for the management of dust sources and implementation of mitigation measures.
- Recommended mitigation measures for key sources of emissions.
- An implementation schedule.

7.1. AIM

The overall aim of the Fugitive Dust Management Plan (FDMP) is to:

Identify all significant sources of fugitive dust, existing controls applied on these sources, and proposed improvements in controls to further reduce dust emissions and the impact thereof on the receiving environment.

It is envisaged the above aim will be achieved through:

- Goal 1: Reduction of dust emissions.
- Goal 2: Monitoring of dust emissions to determine effectiveness of controls and impacts on the receiving environment.
- Goal 3: Effective internal and external communications, inclusive of management of a complaints register.

7.2. LINE MANAGEMENT AND RESPONSIBILITY

The successful implementation of the FDMP requires a clear structure of responsibility. Importantly, the structure presented herein relates only to the team responsible for the successful implementation of the FDMP. However, this successful implementation relies on all employees at AMSA, ensuring the required mitigation measures are appropriately implemented and tracked. **Table 7-1** presents the roles and responsibilities to ensure the successful implementation of the FDMP.

Table 7-1: Roles and responsibilities of FDMP

Role	Responsibility
Accounting Officer (ACO): Aldrich Louis	▪ Final approval of information shared externally, e.g. submissions to the Licensing Authority (LA). ▪ Air quality performance feedback to the broader Saldanha Steel / AMSA business, inclusive of EXCO. ▪ Ensuring the FDMP is implemented accordingly.
Emission Control Officer (ECO): Shoenay Siebritz	▪ Reporting of ambient monitoring data to ACO, specifically identifying areas of concern. ▪ Reporting of the FDMP performance and compliance to the ACO. ▪ Review of complaints investigations, and provision of feedback to complainants, following approval of ACO. ▪ Sharing complaints within the Saldanha Steel team raising awareness of impacts on the receiving environment. ▪ Engagement with the LA, ensuring communication channels are always open and LA informed of any changes onsite. ▪ Management of subcontractors relating to provision of air quality services. ▪ Ensure the FDMP remains relevant to operations onsite. Any changes onsite, or increases in measured data, must trigger the need for a review of the FDMP. ▪ Provision of training / awareness campaigns to be rolled out ensuring all employees are aware of dust generating activities, and the expectations of controlling these sources. ▪ Should monitoring data indicate potential impacts on the receiving environment, ensure the FDMP is updated to address sources of concern e.g. any non-compliance with the National Dust Control Regulations standards requires the FDMP be updated.
Environmental Coordinator: Shoenay Siebritz	▪ Day to day implementation of the FDMP, ensuring each operational area is implementing applicable control measures. ▪ Completion of weekly inspections of key sources of emissions. ▪ Undertake complaints investigations aligned with AEL requirements. ▪ Continuous communication with operational areas ensuring raised awareness of the FDMP requirements and addressing shortcomings in implementation. ▪ Development of inspection sheets, log sheets etc and the database for saving of these to ensure availability for LA and / or independent AEL audits. ▪ Undertake routine reviews of inspection logs to ensure these are completed as required.
Process and Plant Managers	▪ Implementation of the FDMP controls applicable to their particular area of operation. ▪ Completion of all inspection sheets and / or implementation logs to be held as evidence of implementation of the FDMP.

7.3. DUST MANAGEMENT AND IMPLEMENTATION

The dust management plan defines specific objectives for each of the above goals, with specific actions defined for each key source of emissions. Each action is assigned an implementation timeframe and an implementation tracker assigned to assess and manage progress. Importantly, a log sheet must be completed and saved for all items, including for visible inspections, ensuring evidence of implementation and performance is available for auditing purposes. **Table 7-2** below provides mitigation measures and an implementation schedule for Saldanha Steel. **Table 7-3** and **Table 7-4** below provides details on dust monitoring, control effectiveness and effective communication measures.

Table 7-2: Goal 1 - Dust mitigation and implementation schedule

Source	Specific Measures	Timeframe	Implementation Tracker
Furnace Building Fugitives	Investigate and upgrade building dust extraction systems e.g, extraction fan and baghouse capacity.	Prior to re-commissioning	Records of investigation and upgrades
	Following upgrade, test building fugitive emissions to fully understand actual emissions from buildings.	Immediately following re-commissioning	Test reports
	Improve building enclosures to improve the containment of fugitive emissions.	Prior to re-commissioning	Maintenance records
	Improve efficiency of extraction hoods e.g. during Conarc tapping.	Prior to re-commissioning	Test reports and visual inspections
	Improve general housekeeping within buildings.	On re-commissioning	Weekly inspections
	Install abatement system specific to slag and metal pooling.	Prior to re-commissioning	Proof of installations, visual inspections relating to extraction performance
	Ensure all extraction equipment is maintained and serviced according to manufacturer's specifications, ensuring required extraction flow is maintained, as well as all leaks in extraction system are timeously repaired.	Prior to re-commissioning and ongoing	Maintenance logs and monthly inspections of extraction system
	Ensure baghouses are maintained according to manufacturer's specifications, with emission tests undertaken to confirm control efficiency remains high and emission standards (where applicable) are met.	Prior to re-commissioning and ongoing	Maintenance logs, monthly inspections and stack emissions tests
	Installation of rooftop cameras enabling operators to identify when rooftop emissions are excessive. These cameras must be fit for purpose and maintained regularly as per manufacturers recommendations.	Prior to re-commissioning and ongoing	Maintenance and inspections logs
	Ensure operational inefficiencies of the furnace are reduced e.g. blocking of the tap hole.	Ongoing	Monthly operational performance reviews

Source	Specific Measures	Timeframe	Implementation Tracker
Stock Houses (incl. drying plant, blending plant & screen house)	Ensure all extraction equipment is maintained and serviced according to manufacturer's specifications, ensuring required extraction flow is maintained, as well as all leaks in extraction system are timeously repaired.	Prior to re-commissioning and ongoing	Maintenance logs and monthly inspections of extraction system
	Ensure baghouses are maintained according to manufacturer's specifications, with emission tests undertaken to confirm control efficiency remains high and emission standards (where applicable) are met.	Prior to re-commissioning and ongoing	Maintenance logs, monthly inspections and stack emissions tests
	General inspections of all activities within the furnace buildings identifying any activity contributing to fugitive dust and reporting this accordingly to ensure timely resolution.	Ongoing	Weekly inspections
Transfer Stations and Surge Bin	Ensure chemical additive sprayer on Transfer Station 3 (TS3) is always operational and maintained accordingly. Operations to stop if sprayer is not operational. Do inspections of all sprayers to confirm operational status.	Prior to re-commissioning and ongoing	Maintenance logs and weekly inspections
	Where possible, add strip curtains to transfer stations and / or improve station enclosures to contain fugitive emissions. Inspections to identify leaks / substantial emissions from transfer stations.	Prior to re-commissioning and ongoing	Weekly inspections
Side and Rotary Tipplers	Where possible, add strip curtains to reduce fugitive emissions from tipplers, especially from the main openings. During off-loading, undertake inspections of emissions identifying any substantial releases.	Prior to re-commissioning and ongoing	Inspections during off-loading
	Ensure all extraction equipment is maintained and serviced according to manufacturer's specifications, ensuring required extraction flow is maintained, as well as all leaks in extraction system are timeously repaired. Off-loading to only occur when extraction system is operational.	Prior to re-commissioning and ongoing	Maintenance logs and monthly inspections of extraction system
	Ensure chemical additive sprayer on the Rotary Tippler is always operational and maintained accordingly. Off-loading to stop if sprayer is not operational. Undertake inspections of all sprayers to confirm operational status.	Prior to re-commissioning and ongoing	Maintenance logs and weekly inspections

Source	Specific Measures	Timeframe	Implementation Tracker
	Ensure water sprayer on Side Tippler is always operational and maintained accordingly. Off-loading to stop if sprayer is not operational. Do inspections of all sprayers to confirm operational status.	Prior to re-commissioning and ongoing	Maintenance logs and weekly inspections
Stockpiles / Dumps and Exposed Areas	Identify exposed areas, not used for operations, and revegetate to reduce the amount of dust available for wind entrainment. Ensure vehicles cannot access these areas.	Prior to re-commissioning and ongoing	Quarterly inspections of exposed areas
	Install sprayers within stockpile areas focusing on those stockpiles prone to wind entrainment. This will only apply to materials that do not react to water.	Ongoing	Weekly inspection of sprayer systems
	Implement front end loader (FEL) operational improvements, such as reduced drop heights of materials, reduced FEL speeds, and reduced disturbance of stockpiles.	Ongoing	FEL operator training, weekly inspections.
	Implement access restrictions at stockpile yards reducing the number of vehicles within the areas e.g. light vehicles using the stockpile yards as thoroughfares.	Ongoing	Permission system for stockpile yard access
	Where vehicles are permitted to access the stockpile yards, ensure speed controls are implemented and enforced.	Ongoing	Implement speed control protocol, and reporting system
	Where possible, do not undertake material handling activities during windy conditions. Conditions exceeding 10 m/s, and blowing directly towards the nearest receptors, should be considered as windy.	Ongoing	Visible inspections
	Where material will not be required for the foreseeable future, and the stockpile is of a size that allows covering, cover the stockpile with hessian sheets to reduce the impact of wind on the stockpile.	Ongoing	Visible inspections
	Where possible, and relating to fine material stockpiles, install barriers around the stockpiles to reduce the impact of winds on stockpiles.	Prior to re-commissioning and ongoing	Quarterly inspections of stockpiles

Source	Specific Measures	Timeframe	Implementation Tracker
	Install cameras in stockyard enabling control rooms to identify events of high dust emissions resulting in either water tankers being directed to the area of emissions, or instruction to stop operations until windy conditions subsided.	Prior to re-commissioning and ongoing	Maintenance and inspections as per manufacturers recommendations
	Ensure water tanker deployed to stockyard during windy events.	Ongoing	Log sheets maintained, and routes clearly captured for auditing purposes.
	Establish vehicle routes within stockyards allowing dust control measures to be focused on these areas.	Prior to re-commissioning	Operator training and implementation of access-controlled areas
	Recommend use of chemical dust suppressant on stockyard roads and open areas. Prior to application, ensure all loose material is collected allowing the chemical suppressant to work effectively, e.g. road sweeping.	Ongoing	Weekly inspections
Reclaimer and Stacker	Ensure water sprayer on reclaimer is always operational and maintained accordingly. Operations to stop if sprayers are not operational. Do inspections of sprayer to confirm operational status.	Prior to re-commissioning and ongoing	Maintenance logs and weekly inspections
	Where possible, reduce drop heights of stacker, and cease operations during windy conditions.	Ongoing	Visible inspections
Conveyors	Ensure all conveyor enclosures are maintained and any leaks from enclosures sealed.	Ongoing	Visible inspections
	Ensure all longitudinal sprayers on CV102, CV103, CV105 and CV112 are operational at all times, and maintained accordingly. Conveyor operations to cease when these are not operational.	Prior to re-commissioning and ongoing	Maintenance logs and weekly inspections
	Ensure conveyor belts are maintained to reduce spillages.	Prior to re-commissioning and ongoing	Maintenance logs and weekly inspections

Source	Specific Measures	Timeframe	Implementation Tracker
Paved and Unpaved Roads	Implement and enforce speed limits and controls onsite.	Ongoing	Personnel training, visible inspections, and reporting program
	Implement access control for areas that are out of operation.	Ongoing	Quarterly review
	Conduct road sweeping and spillage collections, applicable to both paved and unpaved roads.	Ongoing	Visible inspections, and setup of reporting program for spillages
	Application of chemical dust suppressants to all unpaved roads, inclusive of stockyard roads for FEL operations.	Ongoing	Weekly inspections and application logs
	Frequent maintenance of vehicle fleet, inclusive of FELs, ensuring vehicle exhaust emissions are controlled.	Ongoing	Maintenance schedules, visible inspections and reporting system
Truck Loading Gantry and Hoppers	Install chutes on the truck loading gantry's reducing the impact of wind during loading.	Prior to re-commissioning and ongoing	Records of investigation and upgrades
	Reduce drop heights when FEL loading iron ore into hoppers	Ongoing	Visible inspections
	Ensure water sprayers on the hoppers are always operational and maintained accordingly. Cease operations if the sprayers are not operational.	Prior to re-commissioning and ongoing	Maintenance logs and weekly inspections
Logistics Hub	Ensure all material that has the potential to generate fugitive dust or is regarded as a hazardous material is stored and handled within a fully enclosed warehouse.	Prior to commissioning and ongoing	Visible inspections
	Conduct loading and off-loading of trucks to be conducted within a fully enclosed warehouse.	Prior to commissioning and ongoing	Visible inspections
	Ensure all enclosures are maintained and any leaks from enclosures sealed.	Prior to commissioning and ongoing	Visible inspections. Maintenance logs and weekly inspections

Source	Specific Measures	Timeframe	Implementation Tracker
	Ensure water sprayers within enclosure are always operational and maintained accordingly. Operations to stop if sprayers are not operational. Undertake weekly inspections of sprayer to confirm operational status.	Prior to re-commissioning and ongoing	Maintenance logs and weekly inspections
	Ensure skips and trucks are clean of material dust, spillages, and other material obtained from destination while in transit returning to site. Including tyres, wheel arches and undercarriages.	Prior to commissioning and ongoing	Visible inspections by security when trucks are entering / leaving premises, with logs kept
	Ensure skips and trucks are clean of material dust, spillages, and other material prior to exiting the warehouse and while on route to TPT. Including tyres, wheel arches and undercarriages.	Prior to commissioning and ongoing	Visible inspections by security when trucks are entering / leaving premises, with logs kept
	Ensure that skips and trucks are always covered while in transit, when empty and/or containing commodity.	Prior to commissioning and ongoing	Visible inspections by security when trucks are entering / leaving premises, with logs kept
	Ensure that skips and trucks are kept in a manner to prevent windblown fugitive dust even when empty and/or while in storage.	Prior to commissioning and ongoing	Personnel training, visible inspections, and reporting program
	Compile and implement a cleaning procedure for the cleaning of skips, trucks, and warehouses.	Prior to commissioning and ongoing	Training program
	Conduct road sweeping and spillage collections, applicable to the warehouse, and its entrance, and both paved and unpaved roads.	Prior to commissioning and ongoing	Visible inspections, and setup of reporting program for spillages
General	Improve general housekeeping, specifically focusing on the collection of all spilled material e.g. within furnace buildings, transfer stations, tipplers, around conveyors, logistics hub warehouse, spilled materials along roads, and spilled materials within stockpile yards etc.	On re-commissioning	Weekly inspections, with establishment of a clear reporting system when spillages are identified

Source	Specific Measures	Timeframe	Implementation Tracker
	General inspections of all activities onsite, including within buildings, e.g. furnace buildings, identifying any activity contributing to fugitive dust and reporting this accordingly to ensure timely resolution.	Ongoing	Weekly inspections, with establishment of a clear reporting system when spillages are identified
	Ensure all abatement equipment e.g. baghouses and scrubbers, are maintained according to manufacturer's specifications, with emission tests undertaken to confirm control efficiency remains high and emission standards (where applicable) are met.	Prior to re-commissioning and ongoing	Maintenance logs, monthly inspections and stack emissions tests
	Installation and maintenance of a weather station, capable of providing live data and alerts enabling operators to stop operations during windy conditions e.g. within the stockpile yards.	Ongoing	Monthly maintenance, and establishing training and reporting program for weather conditions
	Installation of a windsock within the stockpile yard providing operators with immediate information relating to wind direction and wind speed.	On re-commissioning	N/A
	Ensure spare parts are available for all dust suppression systems. Where possible, should dust suppression systems fail, operations to cease until repairs have been completed.	Ongoing	N/A
	Employee training and awareness raising ensuring e.g. visible fugitive emissions, spillages, or poor operator behaviour, are immediately reported to relevant personnel for addressing.	Ongoing	Training program

Table 7-3: Goal 2 – Dust monitoring and control effectiveness

Description	Action	Timeframe	Performance Indicator
Control Inspections	Inspection logs to be developed and training provided to all relevant personnel, applicable to all control measures where inspections are required. Ensure systems are developed for storing of logs to ensure availability for future audits.	On commissioning and ongoing	Review of inspection logs
	Ensure all equipment maintenance logs are compiled and saved, inclusive of all calibrations of equipment.	Ongoing	Review of maintenance records
Dust Fallout Monitoring	Continue monitoring existing sampling locations according to the National Dust Control Regulations (NDCR). Ensure monthly reports are compiled meeting the NDCR requirements.	Ongoing	Review of monitoring reports
	Submit monthly monitoring reports to the WCDM according to the agreed schedule.	Ongoing	Proof of submissions
	Immediately notify the WCDM when non-compliance occurs and implement a review of the FDMP and submit the revised plan to the WCDM for approval.	On occurrence of non-compliance	Review of dust fallout rates
	As mentioned previously, installation and maintenance of an onsite meteorological station, recognising the NDCR requires site representative data to be presented in dust fallout reports.	Ongoing	N/A
Ambient Continuous Monitoring	Install and commission a new continuous monitoring station, or re-commission the existing continuous monitoring station. Importantly, consider relocating the existing station to an area representative of ambient conditions i.e. offsite.	Prior to startup of steelmaking	N/A
	Ensure all monitors are maintained and calibrated according to supplier's specifications.	Ongoing	Maintenance and calibration certificates

Table 7-4: Goal 3 – Effective internal and external communications

Description	Action	Timeframe	Performance Indicator
Internal Communications	Ensure all personnel are trained appropriately to identify fugitive sources of dust emissions and understand the requirements to report elevated emissions.	Ongoing	Evidence of training and reporting structure
	Report to plant / process managers occurrences where the FDMP and its requirements or not being implemented.	Ongoing	Establish formal reporting structure / process
	Report to plant / process managers, Saldanha Steel EXCO and AMSA, dust monitoring performance and compliance status.	Ongoing	Establish formal reporting structure / process
	Report to plant / process managers, Saldanha Steel EXCO and AMSA, complaints received and findings of complaints investigations.	Ongoing	Establish formal reporting structure / process
External Communications	Ensure all reporting to the WCDM is conducted according to legislation, the AEL, or the WCDM requirements.	Ongoing	Evidence of submissions
	Ensure all reporting, such as to NAEIS, is undertaken as per the requirements of the AEL and relevant regulations.	Ongoing (annual)	Evidence of submissions
	Ensure a clear process / platform is available for complainants to log complaints.	Ongoing (review)	N/A
	Ensure all complaints are investigated timeously and according to the requirements of the AEL. Ensure all investigations are saved for future review.	Ongoing	Complaints investigations
	Provide feedback to complainants on findings of complaints investigations.	Ongoing	Evidence of feedback
	Where the complaints investigation identifies the cause occurred from onsite activities, ensure that relevant personnel are made aware and identify any deficiencies with the prescribed control measures, and revise accordingly.	Ongoing	Evidence of internal reporting

Description	Action	Timeframe	Performance Indicator
	Schedule routine meetings with the WCDM representatives to provide updates on operations onsite, future plans, and overall air quality performance. This will foster a strong relationship with the WCDM.	Ongoing	Recommend quarterly, or biannual
	Raise awareness of air quality performance, such as sharing of compliance status, fostering a strong relationship with stakeholders. Annual stakeholder engagement meetings should be considered or similar initiatives.	Ongoing	Annual sharing of summarised air quality data and status of operations.

8. MONITORING, EVALUATION AND REVIEW

This Fugitive Dust Management Plan must be viewed as a live, working document, with revisions occurring:

- At a minimum, the plan should be reviewed annually, ensuring it remains representative of activities occurring onsite, or
- Where deficiencies in control measures are identified, or where a new source of fugitive emissions is identified, this plan must be reviewed and updated accordingly, or
- When non-compliance with the dust fallout regulations occur.

Importantly, when the plan is revised:

- The revised plan must be submitted to the LA notifying of the amendments and requesting approval of the plan.
- Following receipt of the approved plan, revisions must be implemented onsite.
- All relevant onsite personnel must be made aware of the revisions, and especially important that training is provided to those who may be impacted by the changes.

9. REFERENCES

- Department of Environmental Affairs (2000): *Integrated Pollution and Waste Management Policy for South Africa.* Government Gazette (No. R 227 of 2000), 17 March 2000 (No. 20978)
- Department of Environmental Affairs (2009): National Ambient Air Quality Standards. Government Gazette (No. R 1210 of 2009), 24 December 2009 (No. 32816)
- Department of Environmental Affairs (2012): National Ambient Air Quality Standard for Particulate Matter with Aerodynamic Diameter less than 2.5 Micro Metres ($PM_{2.5}$). Government Gazette (No. R 486 of 2012), 29 June 2012 (No. 35463)
- Department of Environmental Affairs (2013): National Dust Control Regulations. Government Gazette (No. R 827 of 2013), 01 November 2013 (No. 36974)
- Department of Environmental Affairs: (2013): List of Activities which result in Atmospheric Emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage (No. R. 893), Government Gazette, 22 November 2013, (No. 37054), as amended by GN 551 in 2015 and GN 1207 in 2018.
- Department of Environmental Affairs (2018*): The 2017 National Framework for Air Quality Management in the Republic of South Africa* (No.R.1144 of 2018) Government Gazette, 26 October 2018 (No. 41996)
- South Africa (2005): *National Environmental Management: Air Quality Act* (No. R. 39 of 2004) Government Gazette, 24 February 2005 (No. 27318)
- WSP (2021): *Logistics Hub Atmospheric Impact Report (No 41103219, 1 of 1)*, 29 October 2021

Building 1, Maxwell Office Park
Magwa Crescent West, Waterfall City
Midrand, 1685
South Africa

wsp.com