

**APPLICATIONS FOR THE POSTPONEMENT OF COMPLIANCE  
TIMEFRAMES TO ACHIEVE THE MINIMUM EMISSION STANDARDS AND  
ALTERNATIVE PLANT STANDARDS FOR CERTAIN PLANTS AT THE  
VANDERBIJLPARK WORKS, EMFULENI LOCAL MUNICIPALITY, GAUTENG**

***PUBLIC MEETING***

19 February 2019



**ArcelorMittal**

# AGENDA

- Conduct of the Meeting
- Purpose of the Meeting
- Introduction of the Team Members
- Technical Background of the Project
- Public Participation Process
- Discussion
- Way Forward

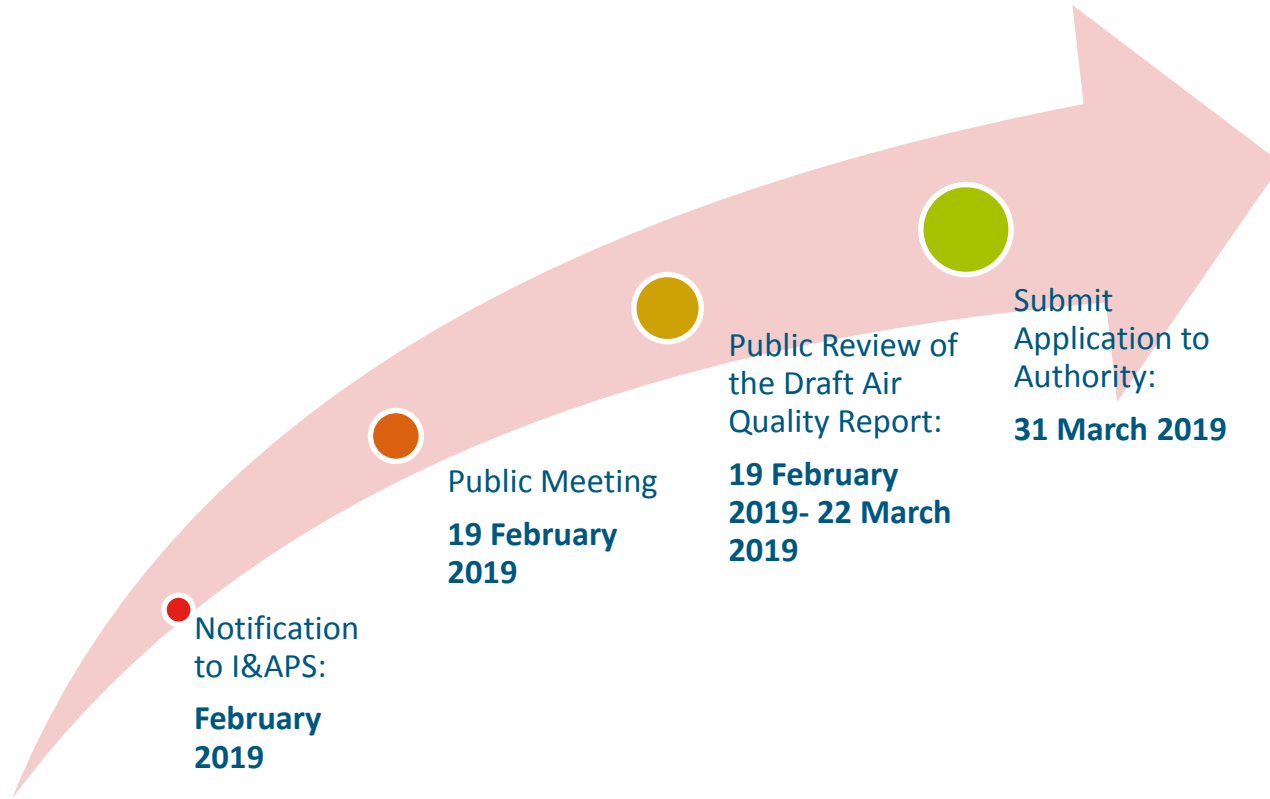
# CONDUCT OF THE MEETING

- Focus on Project Issues
- Equal Participation from all Parties
- Wait for discussion session for questions
- Identify yourself prior asking the question for minute taking purposes

# PURPOSE OF THE MEETING

- Provide Interested and Affected Parties (I&APs) with information regarding the proposed project
- Provide an overview of the Public Participation Process (PPP)
- Present the finding of the draft Air Quality Impact Assessment
- Provide an opportunity for I&APs to seek clarity and provide input into the project
- To record comments raised and include them in the final application
- Interact with the project team

# Timeframes

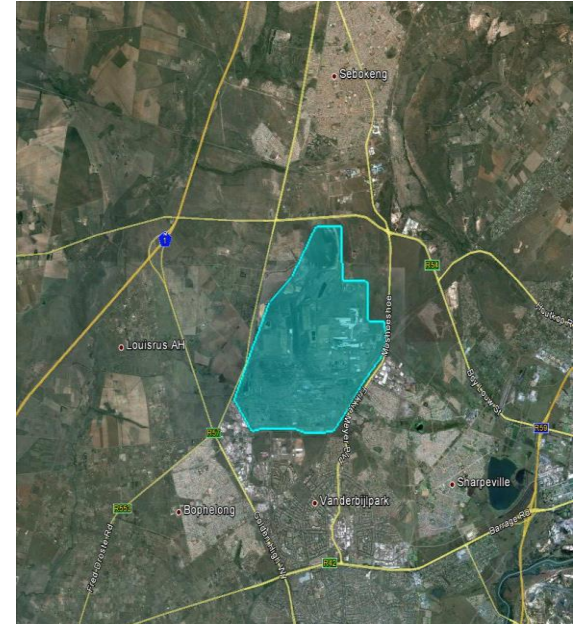


# TECHNICAL PRESENTATION

*Air Quality Impact Assessment*

# TECHNICAL PRESENTATION

- ArcelorMittal South Africa, Vanderbijlpark Works is an integrated steel works, which first makes iron and then converts the iron to steel and thereafter produces flat steel products. Vanderbijlpark Works consists of iron-making, steel making and rolling facilities
- Currently hold an Atmospheric Emissions Licence
- 17 Listed Activities
  - Category 1 – Combustion Installations
  - Category 3 – Carbonisation and Coal Gasification
  - Category 4 – Metallurgical Industry
  - Category 5 – Mineral Processing, Storage and Handling
  - Category 7 – Inorganic Chemicals Industry



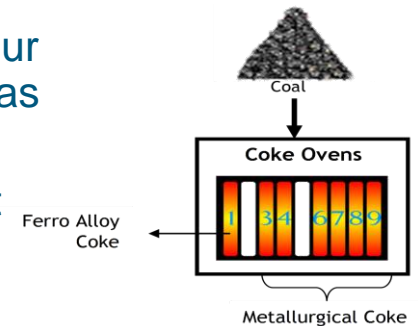
# TECHNICAL PRESENTATION

- In response to Section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (as amended in 2018), ArcelorMittal intends to apply for a postponement of the compliance timeframes to achieve the minimum emissions standards for certain plants at the Vanderbijlpark Works, Emfuleni Local Municipality, Gauteng Province.
- Compliance timeframe - 1 April 2020
- Three aspects
  - Coke Ovens – H<sub>2</sub>S
  - DR Kilns – SO<sub>2</sub>
  - Lurgi Plants - HCl



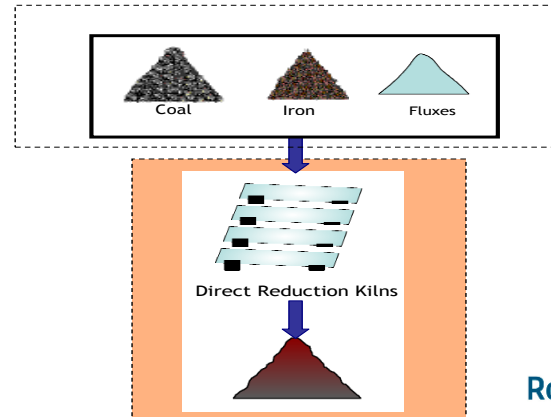
# Coke Ovens

- Postponement application is required for the special arrangement stipulated under Sub-category 3.1: Combustion Installations
- Which prescribes the recovery of sulphur-containing compounds from gases to be used for combustion with a recovery efficiency of not less than 90%, measured as hydrogen sulphide.
- Although a project has already been initiated to, amongst others, revive sulphur recovery from the coke oven gas
- Deadline will not be achievable owing to the complexity of the intended upgrades to the gas cleaning facilities.
- Despite numerous attempts to ensure operations of the current sulphur recovery facilities, the long-term operation of this failing equipment was no longer feasible.
- Hence the decision to invest in the installation of new, state-of-the-art equipment for the cleaning and recirculation of by-product coke oven gas for utilisation as a fuel source on site.



# Direct Reduction Kilns

- Postponement for the Direct Reduction kilns (3 in operation) to achieve the new plant emission standard for  $\text{SO}_2$  of  $500 \text{ mg/Nm}^3$  (Sub-category 4.12: Pre-reduction and Direct Reduction).
- It is not economically feasible to achieve this standard for the direct reduction kilns at Vanderbijlpark Works as the  $\text{SO}_2$  emissions from the kilns are dependent on the sulphur content in the coal which is utilised as the reducing agent in the kilns on site.
- For this reason, an application for an alternative emission standard of  $1700 \text{ mg/Nm}^3$ , aligned with the existing plant standard, is proposed to be submitted



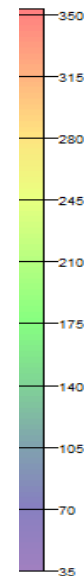
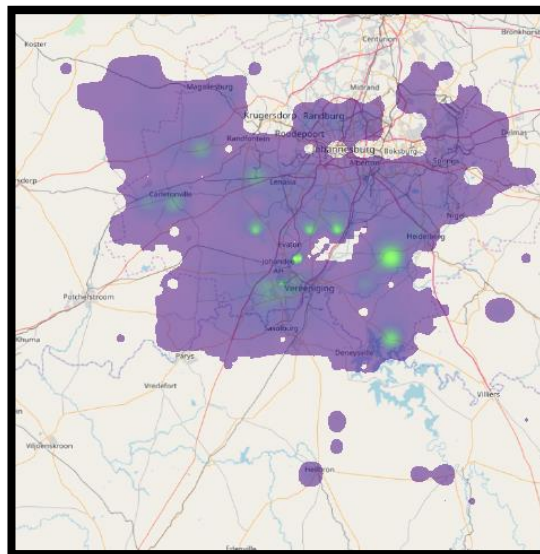
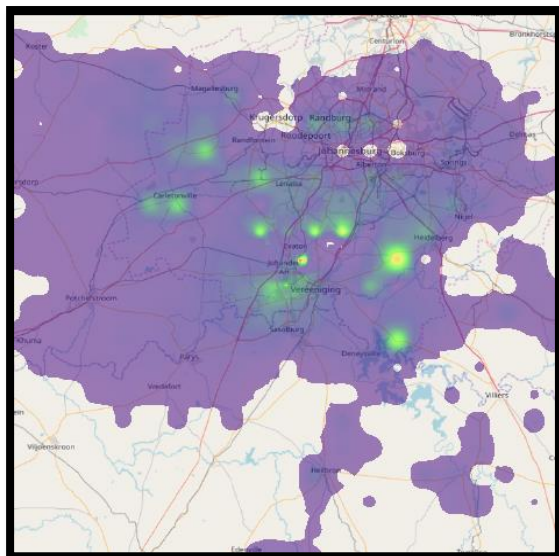
# Lurgi Plants

- Postponement application is required for the Lurgi Plants (3 units) (Sub-category 7.2: Production of Acids) for the regeneration of Hydrochloric Acid at the Works.
- This postponement is anticipated as the planned upgrades to the scrubbing facilities at the Lurgi Plant, to reduce and sustain the HCl emissions from these stacks below the new plant standard of 30 mg/Nm<sup>3</sup>, may not be completed or fully efficient by 1 April 2020.
- Pending the outcome of the upgrade trials scheduled for February/March 2019, a postponement of compliance timeframes to achieve the new plant standard may be necessary, should the standard not be achievable with the upgraded plant. A final decision on this matter can only be made subsequent to the trials.

# Modelling Scenarios

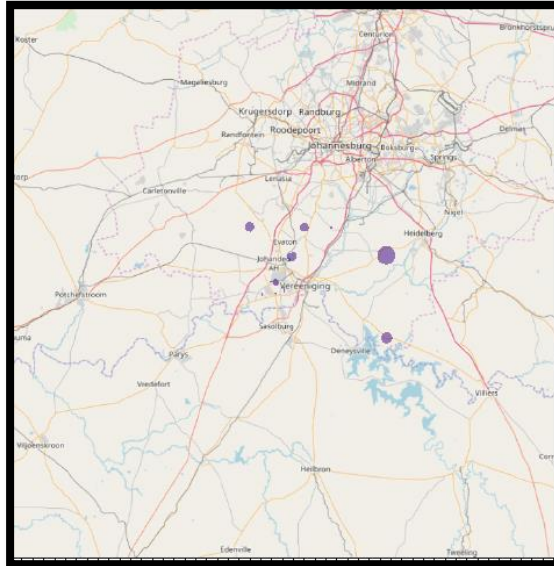
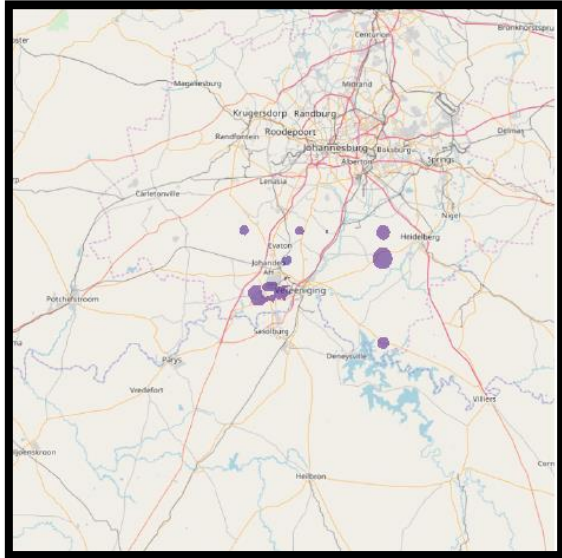
1. Current routine operations (status-quo),
2. Authorised emission releases as per AEL (emission ceiling),
3. The future performance based on current emissions with alternative coke battery standard for H<sub>2</sub>S (150 mg/Nm<sup>3</sup>) and kiln standard for SO<sub>2</sub> (1 700 mg/Nm<sup>3</sup>), whilst also taking into account the proposed postponements.
  - This is the scenario AMSAVW are asking approval for.
4. Future performance based on current emissions with achievement of new plant standards for the coke batteries, direct reduction kilns and lurgi units; and

# Sulphur dioxide



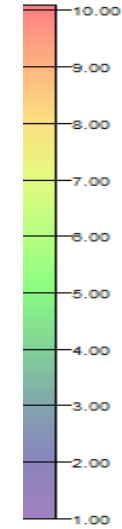
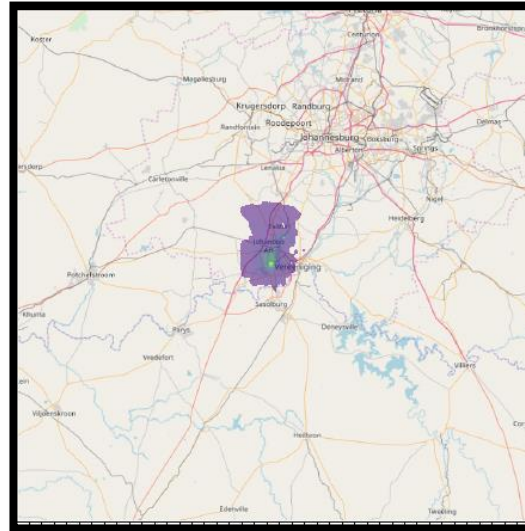
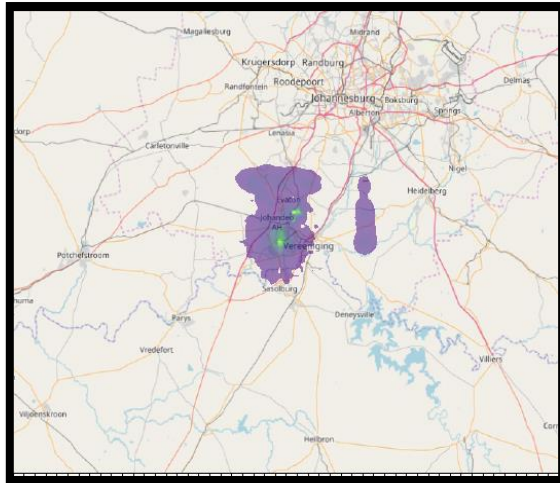
	1-Hour Modelled	24-Hour Modelled	Annual Modelled	Exceedences
Status Quo	471.85	64.71	21.69	8
AEL Authorisation	564.92	116.92	28.99	23
Postponement Application	326.02	52.09	16.74	<1%
2020 New Plant Standard	326.02	52.09	16.74	
Standard (RSA)	350	125	50	88

# Hydrogen sulphide



	1-Hour Modelled	24-Hour modelled	Annual Modelled	Exceedences
Status Quo	9.74	1.58	0.6	
AEI Authorisation	20.99	2.56	0.55	
Postponement Application	6.26	0.91	0.3	5%
2020 New Plant Standard	6.26	0.87	0.28	
Standard	14 (WHO)			

# Hydrogen chloride



	1-Hour Modelled	24-Hour modelled	Annual Modelled	Exceedences
Status Quo	8.26	1.54	0.29	
AEL Authorisation	8.62	2.67	0.29	
Postponement Application	8.02	1.51	0.26	
2020 New Plant Standard	8.02	1.48	0.25	2%
Standard	20 (EPA)			

PROJECT DESCRIPTION (FROM 2007 TO 2018)	COMMENCEMENT DATE	EMISSION STATUS Reductions Achieved		UNITS TO THE REDUCTION OF POLLUTANTS	
PROJECTS IMPLEMENTED		Emission status before interventions	Emission status after interventions	TONS PER ANNUM	INVESTMENT / OPPORTUNITY COST
Secondary Dust Extraction System at EAF - Install secondary dust/fume extraction with its own bag filter system. This system would have mitigated fumes and dust escaping through the openings in the roof. This project was not economically feasible to be implemented, thus the EAF plant was switched off.	2013	Fugitive particulate emissions	Fugitive particulate emission reduction	646 t/a dust roof emissions - From point sources 28 t/a reduction for works and SO2 reduction of 136 t/a achieved	Capital constraints
Battery 1 mothballed due to end-of-life and environmental compliance (duty of care) concerns	2009 – Battery 1	Fugitive and point source emissions	Point source and H <sub>2</sub> S/SO <sub>2</sub> emission reduction	PM reduction of 17 t/a with 58 t/a SO <sub>2</sub> reduction and 13.4 t/a H <sub>2</sub> S reduction	Associated finances and R1.1 billion/annum loss on market coke sales revenue
Battery 3 mothballed due to end-of-life and environmental compliance (duty of care) concerns	2013 – Battery 3	Fugitive and point source emissions	Point source and H <sub>2</sub> S/SO <sub>2</sub> emission reduction	PM reduction of 17 t/a with 58 t/a SO <sub>2</sub> reduction and 13.4 t/a H <sub>2</sub> S reduction	R167 million/annum loss on replacing local coke production with import coke
Coke Oven Clean Gas and Water Project  The Coke Oven Clean Gas and Water Project was commissioned to, amongst others, remove a significant portion of sulphur from the coke oven gas which is generated as a by-product in the coke making process, and utilised as a fuel source at the batteries and other down-stream facilities such as reheating furnaces. The relevant gas cleaning facilities (Elemental Sulphur Plant) were effective in reducing the H <sub>2</sub> S content in the coke oven gas from in excess of 6 g/Nm <sup>3</sup> to below 1.5 g/Nm <sup>3</sup> . During the combustion process, the H <sub>2</sub> S in the gas is converted to SO <sub>2</sub> .  This reduction translated into a cumulative SO <sub>2</sub> reduction at the Works of 3400 t/annum.  Unfortunately, during 2011 numerous challenges were encountered to sustain operations of the Elemental Sulphur Plant for various reasons. At the point where repairs were no longer viable, there was a change in strategy to ensure the long-term, sustainable operations of the gas cleaning facilities. Overseas experts were subsequently sourced to identify operational deficiencies and recommend corrective and preventative actions. A complete overhaul / refurbishment of the gas cleaning facilities was recommended at a cost of over R1 billion. The project timeline for this project is 2.5 years from order placement. AMSA is currently in the tender clarification stage and if all goes according to plan, manufacturing will commence in mid-2019.	2010	SO <sub>2</sub>	Reduce SO <sub>2</sub> , reduction	Cumulative SO <sub>2</sub> reduction at the Works of 3400 t/a	R350 million (excluding costs associated with the incumbent repairs in an attempt to sustain operations of the Claus reactor).  Committed future investment: R1.3 billion to reinstate, amongst others, sulphur removal from the coke oven gas (2019 – 2021).
Sinter Clean Gas Unit - Installation of emission abatement technology (bag filter system) to reduce particulate emissions from the entire Sinter Plant. The addition of lime-dosing facilities was also introduced to reduce SO <sub>2</sub> emissions.	2012	PM, SO <sub>2</sub>	PM, SO <sub>2</sub> reduction	PM reduction of 1 379 t/a SO <sub>2</sub> reduction of 743 t/a	R260 million
Mothballing of Kiln 1	2016	PM, SO <sub>2</sub> emissions	PM and SO <sub>2</sub> emission reduction	PM reduction of 12.5 t/a and SO <sub>2</sub> reduction of 619 t/a	Plant switched off
Mothballing of Kiln 2	2016	PM, SO <sub>2</sub> emissions	PM and SO <sub>2</sub> emission reduction	PM reduction of 12.5 t/a and SO <sub>2</sub> reduction of 619 t/a	Plant switched off
Mothballing of Kiln 4	2017	PM, SO <sub>2</sub> emissions	PM and SO <sub>2</sub> emission reduction	PM reduction of 12.5 t/a and SO <sub>2</sub> reduction of 619 t/a	Plant switched off



# Report Availability

- Royal HaskoningDHV Website:
  - <https://www.royalhaskoningdhv.com/en/south-africa/projects/environmental-reports>
- Vanderbijlpark Public Library: Klassie Havenga St, Vanderbijlpark

# Way Forward

- Please provide correct contact details including postal addresses
- Commenting Period: 11 February 2019 until 22 March 2019
- Incorporate all comments received from PPP
- Submit to Competent Authority: DEA

Comments and questions on the project can be forwarded to:

**Seshni Govender**

 **087 352 1592**

 **[seshni.govender@rhdhv.com](mailto:seshni.govender@rhdhv.com)**

THANK YOU