Our reference: SO-ENV-1344

29 November 2024

Your Ref: EA nr E/02/06

Department of Economic, Small Business Development, Tourism and Environmental Affairs
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9301

Free State

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Attention: Deputy Director: Environmental Impact Assessment

**ENVIRONMENTAL AUTHORISATION EXTERNAL REPORT SUBMISSION**

The Environmental Authorisation applicable for Sasol South Africa Limited, Sasolburg Operations was externally audited during November 2022. The external audit was conducted to comply to the requirement contained in Chapter 5 part 3 of the Environmental Impact Assessment Regulations.

Sub regulation 34 (6) of the regulations also requires the holder of the environmental authorisation to notify all potential and registered interested and affected parties of the submission of the report and make the report available on request to anyone and on a publicly accessible website, where available.

The external audit reports will be available on https://www.sasol.com/esg/environmental-audit-reports.

Sasolburg Operations appointed WSP to conduct the external audits on all Environmental Authorisations and accompanying Environmental Management Programs.

Attached, please find the compliance audit report for the Hydrogen Rich Gas to Impala (upgrading of new PSA unit at ammonia plant E/02/06 dated May 2023.

**Sasolburg and Ekandustria Operations**
1 Klasie Havenga Street Sasolburg 1947
Telephone +27 (0)16 960 9111 www.sasol.com

The Audit report noted sufficient mitigation of environmental impacts and level of compliance to the Environmental Authorisation and Environmental Management Program (EMPr) therefore no recommendations for improvement were made.

Further, in alignment with Chapter 5 Part 4 of the regulation, regulation 36 allows amendment to the impact management action of an EMPr to be affected immediately by the holder of the environmental authorisation and reflect it in the next environmental audit report. Annexure B contains the mitigations measures identified during the environmental impact assessment, for the operational phase of the project, defining the impact management outcome and impact management actions to enable compliance to this regulation.

No impact management outcome or impact management action requires amendment for the Hydrogen Rich Gas to Impala (upgrading of new PSA unit at ammonia plant.

Yours faithfully
Signed by: Johann Van Wyk
Signed at:2024-11-29 13:00:59 +02:00
Reason:I approve

Johann Van Wyk

**Johann van Wyk**
**Senior Manager Environment and Product Stewardship (acting)**

Tel: +27 16 960 2398
Email: johann.vanwyk1@sasol.com

**Annexure A**

**Audit report.**

**Hydrogen Rich Gas to Impala (upgrading of new PSA unit at ammonia plant ) E/02/06**

Sasol South Africa Ltd

# PRESSURE SWING ADSORPTION ENVIRONMENTAL AUTHORISATION – REF. NO.: E/02/06 AND EMPR

## Compliance Audit Report: November 2019 - November 2022

MAY 2023

CONFIDENTIAL

Sasol South Africa Ltd

# PRESSURE SWING ADSORPTION ENVIRONMENTAL AUTHORISATION – REF. NO.: E/02/06 AND EMPR

## Compliance Audit Report: November 2019 - November 2022

**TYPE OF DOCUMENT (VERSION) CONFIDENTIAL**

**PROJECT NO. 41104347**

**DATE: MAY 2023**

Sasol South Africa Ltd

# PRESSURE SWING ADSORPTION ENVIRONMENTAL AUTHORISATION – REF. NO.: E/02/06 AND EMPR

## Compliance Audit Report: November 2019 - November 2022

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# QUALITY CONTROL

| Issue/revision | First issue | Revision 1 | Revision 2 | Revision 3 |
|---|---|---|---|---|
| Remarks | Final EA and EMPr Audit Report | | | |
| Date | May 2023 | | | |
| Prepared by | Matilda Mbazo | | | |
| Signature | | | | |
| Checked by | Ian Malloy | | | |
| Signature | | | | |
| Authorised by | Anri Scheepers | | | |
| Signature | | | | |
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# SIGNATURES

PREPARED BY

Matilda Mbazo

Assistant Consultant

REVIEWED BY

Ian Malloy
Senior Environmental Consultant

This Environmental Authorisation Audit report (Report) has been prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf and at the request of Sasol South Africa (Client), to comply with the environmental audit requirements provided for in Regulation 34 of the EIA Regulations, 2014.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report, except where otherwise indicated in the Report.

# PRODUCTION TEAM

## SASOL SASOLBURG

| | |
|---|---|
| SHE: Environment Specialist | Suyen Van Zyl |
| Area Manager | Carel Watkins |
| Area Operator | Frans Radebe |

## WSP

| | |
|---|---|
| Auditor | Takadzani Takalani |
| Auditor | Matilda Mbazo |
| Lead Auditor | Ian Malloy |
| Project Director/ Quality Assurance | Anri Scheepers |

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AUDIT TEAM CVS

# 1 INTRODUCTION

## 1.1 TERMS OF REFERENCE

WSP Group Africa (Pty) Ltd (WSP) as an independent environmental consultant was appointed by Sasol Chemicals, a division of Sasol South Africa Limited, to undertake an external environmental compliance audit of the commitments contained in the Environmental Authorisation (EA) of the installation of the booster Pressure Swing Adsorption (PSA) Unit at the Ammonia Plant – (EA reference number: E/02/06) and to compile an audit report according to the requirements of the National Environmental Management Act (No. 107 of 1998), as amended (NEMA).

The details of the EA (initially Record of Decision (RoD)) and the EMPr audited for compliance of the PSA Unit at the Sasol One Site are provided below:

- EA for the PSA Unit located at the Ammonia Plant at the Sasol One site in Sasolburg (reference number: [E/02/06]), dated 18 July 2002 and issued to Sasol Chemical Industries (SCI) by the Department of Tourism, Environmental and Economic Affairs, now the Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA); and the
- EMPr for the second booster PSA Unit at the Ammonia Plant at Sasol One Site, Sasolburg, dated 24 May 2002.

The EA included the following installations of the proposed PSA Unit:

- Pressure Swing Adsorption (PSA) Unit
- A heat exchanger
- Pipeline to connect new unit to the existing infrastructure.

The external audit was undertaken in accordance with Regulation 34 of the Environmental Impact Assessment (EIA) Regulations, 2014 published in terms of the National Environmental Management Act 107 of 1998 (NEMA).

## 1.2 SASOL SASOLBURG – PSA UNITS OPERATIONS

Sasol Ammonia acquires feed gas from the Sasol One reformers. The gas must be purified before it is fit for distribution to its customers. Two existing PSA units are used for this purpose. Previously, two PSA units were used, but were however not be sufficient for the increased hydrogen capacity. An additional PSA unit was required and installed on site.

The PSA unit purifies the gas by exposing it to a series of adsorption mediums such as activated carbon and mol sieve. These adsorbents extract impurities such as carbon monoxide (CO), carbon dioxide ($CO_2$), and water ($H_2O$) from the gas. The extracted impurities are routed back to Sasol Gas that ties into the gas network.

The feed gas is also at a higher than desired temperature. Consequently, it must be cooled down before it can by processed by the PSA unit. For this reason, the installation of a heat exchanger is required. There are two PSA Units, labelled unit 14 and unit 15, located next to each other. This compliance audit is for the second PSA Unit that was constructed and operated, labelled unit 15.

A network of pipelines were installed to transport the gas. These lines connect the PSA unit with the existing infrastructure of the plant and ties into the existing pipeline to Air Products. The system was

designed to cater for a maximum pressure flow rate of approximately 8 300 $Nm^3/h$. The two PSA units are not owned by Sasol but by another organisation and Sasol is paid a fee to maintain and operate these units. Sasol was not part of the design phase of the PSA unit. In addition, when the unit is offline it is does not affect Sasol's operations.

The PSA is within the existing (authorised) Sasol One Site. Refer to **Figure 1-1** and **Figure 1-2** for the locality of the plant.


**Figure 1-1 - Sasol Sasolburg site layout**

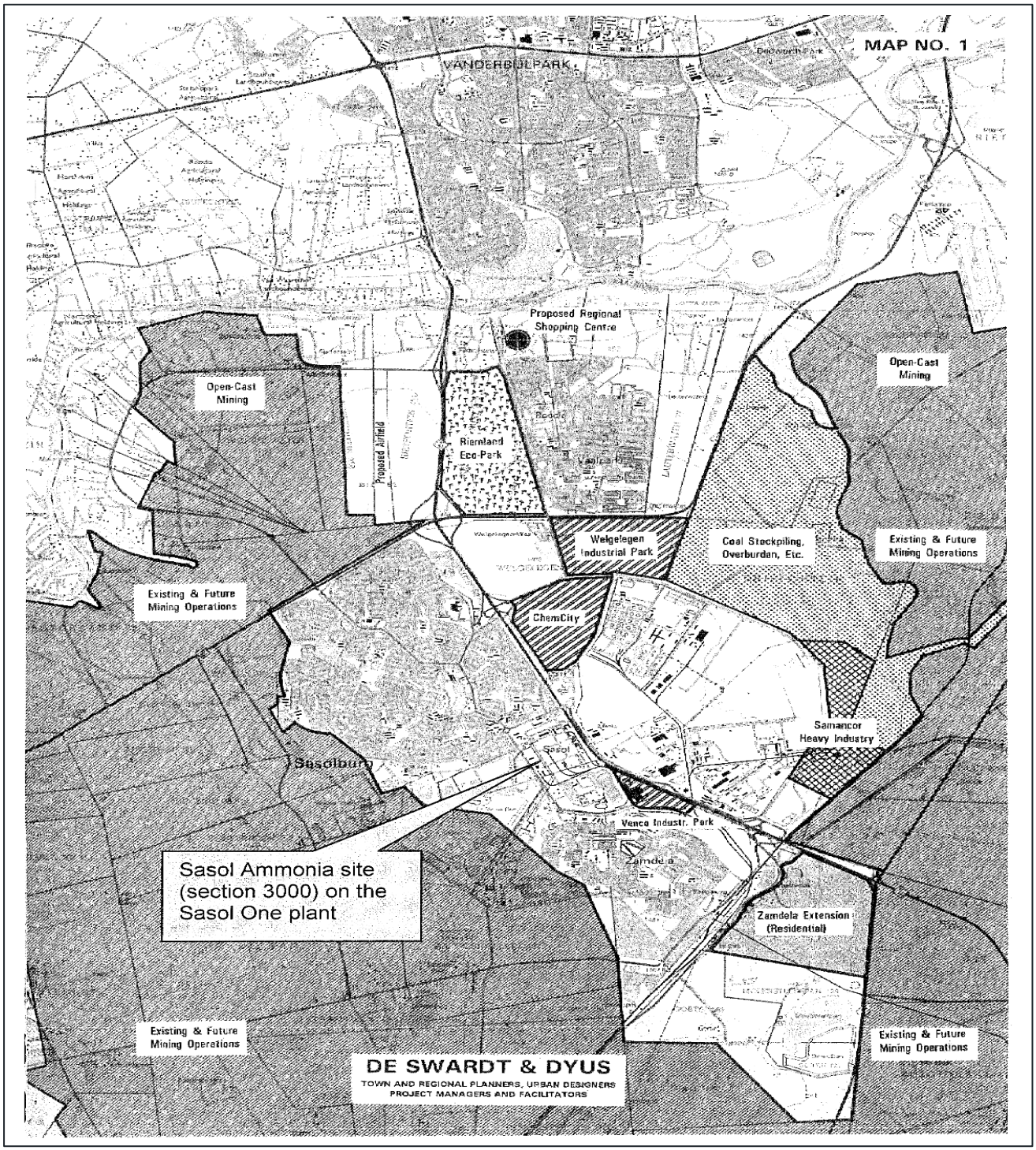


**Figure 1-2 - Location of the site involved in the Sasolburg region**

## 1.3 PROJECT TEAM

Takadzani Takalani and Matilda Mbazo completed a site inspection of the PSA Unit against the EA conditions (ROD E/02/06) at the ammonia plant on 09 November 2022.

The draft external audit report was compiled in December 2022 and finalised in February 2023. This report will be submitted to the DETSEA by Sasol in 2023.

Quality assurance is a critically important part of WSP's consulting services which aim to ensure both delivery of high-quality work and provide legal and commercial protection to the company. Quality assurance of this audit report was undertaken by Anri Scheepers.

The project team is summarised in **Table 1-1** and Curricula Vitae are included as **Appendix A.**

**Table 1-1 - Details of the Audit Team**

| Audit Team | Role | Experience |
|---|---|---|
| Takadzani Takalani | Auditor | MSc Environmental and Geographical Sciences |
| | | 9 Years' Experience |
| | | Takadzani Takalani graduated from the University of Cape Town with a BSc in Environmental and Geographical Science in 2005 and completed her MSc in the same field in 2012. Takadzani is a Senior Consultant in the Environmental Planning and Advisory Division of WSP based in the Cape Town office. She has worked on BAs, EIAs and ESIAs in South Africa, Uganda, Ethiopia, Namibia and Tanzania as an environmentalist and a social scientist. Takadzani has been mainly involved in projects in the mining sector as well as oil and gas. |
| Matilda Mbazo | Auditor | Bsc (Hons) Geography |
| | | Matilda graduated from the University of Wits with a BSc honours in Geography in 2023 and is currently completing her Master's in Environmental Science. She has 1 year experience in environmental management and currently provides technical and strategic input on a diverse range project in environmental management and environmental compliance audits. |
| Anri Scheepers | Review | BA (Hons) Geography |
| | | 15 Years' Experience |
| | | Anri graduated from the University of Johannesburg with a BA honours in Geography in 2007 and has 15 years' work experience. Anri is qualified as a Lead Auditor and has undertaken legal compliance auditing, including environmental authorisations, waste management licences, water use licences and EMPs. In addition, she has undertaken general site assessments to determine compliance against local, provincial and national environmental legislation. |

# 2 AUDIT SCOPE

WSP was appointed by Sasol to conduct the environmental compliance audit for the booster PSA Unit at the Ammonia Plant. This report provides an overview of the level of compliance with the conditions contained in the EA and EMPr as indicated in section 1.1. The site audit was undertaken on 09 November 2022 at the Sasol One Site, Sasolburg Plant.

The objective of the audit was to:

- Assess the level of compliance with the commitments of the EA for the PSA unit;
- Assess the level of compliance with the commitments of the EMPr that was submitted part of the Scoping Report for the licencing of the PSA unit;
- Assess the extent to which the avoidance, management and mitigation measures provided for in the EMPr for the operation of the PSA unit were implemented;
- Identify and assess any new impacts and risks that result from undertaking the activity;
- Critically evaluate the effectiveness of the EA;
- Identify shortcomings in the EA and EMPr; and
- Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EA.

The EIA Regulations are considered applicable to the PSA Unit Operations. Regulation 34, of the EIA Regulations, provides for the auditing of an environmental authorisation, EMPr and closure plan. Furthermore, Appendix 7 of Government Notice Regulation (GNR) 982 outlines the required audit report content. The 2014 Regulations, as amended, refer to a minimum audit frequency of five years. This audit is designed to meet the requirements of Regulation 34 of the EIA Regulations, 2014. **Table 2-1** indicates where the requirements of Section 34 and Appendix 7 are met within this audit report.

**Table 2-1 - Regulation 34 and Appendix 7 of the EIA Regulations (2014)**

| Sub-Section | Requirement | Report Section Reference |
|---|---|---|
| 34 (2)a | The environmental audit report must be prepared by an independent person with the relevant environmental auditing expertise. | **Sub-section 1.3**<br>CVs provided in **Appendix A** |
| 34(2)b | The environmental audit report must provide verifiable findings, in a structured and systematic manner, on:<br>(i) the level of performance against and compliance of an organisation or project with the provisions of the requisite environmental authorisation or EMPr and, where applicable, the closure plan; and<br>(ii) the ability of the measures contained in the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity; | Audit checklist tables provided in **Section 4** |
| 3(a) | The environmental audit report must determine | **Section 4** |

| | | |
|---|---|---|
| | (a) the ability of the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an ongoing basis and to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and | |
| 3(b) | The environmental audit report must determine the level of compliance with the provisions of environmental authorisation, EMPr and where applicable, the closure plan. | **Section 4** |
| 4(a) | Where the findings of the environmental audit report indicate:<br>(a) insufficient mitigation of environmental impacts associated with the undertaking of the activity<br>(b) insufficient levels of compliance with the environmental authorisation or EMPr<br>the holder must, when submitting the environmental audit report to the competent authority submit recommendations to amend the EMPr or closure plan in order to rectify the shortcomings identified in the environmental audit report | **Section 4** |
| a | Details of-<br>(i) the independent person who prepared the environmental audit report; and<br>(ii) the expertise of independent person that compiled the environmental audit report. | **Sub-section 1.3**<br>CVs provided in Appendix A |
| b | A declaration that the independent auditor is independent in a form as may be specified by the competent authority. | **Sub-section 8** |
| c | An indication of the scope of, and the purpose for which, the environmental audit report was prepared. | **Sub-section 1.1** and **Section 2** |
| d | A description of the methodology adopted in preparing the environmental audit report. | **Section 3** |
| e | An indication of the ability of the EMPr, and where applicable, the closure plan to-<br>(i) sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis;<br>(ii) sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and<br>(iii) ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan. | **Section 4** and **Sub-section 4.3** |
| f | A description of any assumptions made, and any uncertainties or gaps in knowledge. | **Sub-sections 2.1** and **2.2** |

| | | |
|---|---|---|
| g | A description of any consultation process that was undertaken during the course of carrying out the environmental audit report. | **Sub-section 3.2** |
| j | A summary and copies of any comments that were received during any consultation process. | Comments received during the consultation process were included as comments in the audit checklist tables in **Section 4** |
| k | Any other information requested by the competent authority. | None requested |

## 2.1 DISCLAIMER

This Report has been prepared by WSP on behalf and at the request of Sasol in terms of Regulation 34 of the EIA Regulations.

Unless otherwise agreed by us in writing, we do not accept responsibility or legal liability to any person other than the Client for the contents of, or any omissions from, this Report.

To prepare this Report, we have reviewed only the documents and information provided to us by the Client or any third parties directed to provide information and documents to us by the Client. We have not reviewed any other documents in relation to this Report and except where otherwise indicated in the Report.

The findings, recommendations and conclusions given in this report are based on the author's best scientific and professional knowledge, as well as available information. This report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken; WSP and its staff reserve the right to modify aspects of the report including the recommendations if and when new information may become available from on-going research or further work in this field or pertaining to this investigation.

Although WSP exercises due care and diligence in rendering services and preparing documents, WSP accepts no liability, and Sasol, by receiving this document, indemnifies WSP and its directors, managers, agents and employees against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with the services rendered, directly or indirectly by the use of the information contained in this document.

This report must not be altered or added to without the prior written consent of the author. This also refers to electronic copies of this report which are supplied for the purposes of inclusion as part of other reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If this report is used as part of a main report, the report in its entirety must be included as an appendix or separate section to the main report.

## 2.2 ASSUMPTIONS AND LIMITATIONS

WSP noted the following assumptions and limitations during the audit:

- The information provided by Sasol is up to date and accurately represents the Sasol Sasolburg operations;
- WSP viewed as much of the operational area as possible given the timeframe and access limitations;
- Findings made within the previous audit Reports are correct.

This Report has been prepared by WSP at the request of Sasol and the Terms of Reference as detailed in Section 1.1.

# 3 AUDIT METHODOLOGY

The International Organisation of Standardisation (ISO) 14010, ISO 14011 and ISO 14012 guideline documents were utilised as a template during the compliance audit process. This methodology ensures that the compliance audit was conducted in a systematic and independent manner that was documented and objectively evaluated to determine compliance to the EA commitments.

The audit process comprised the following:

- Confirmation of the audit checklist;
- Site inspection (09 November 2022);
- Review of documentation relevant to the commitments of the EA and EMPr (e.g. records, permits, certificates, maintenance logs, monitoring results, previous audit reports, specialist reports (where available and applicable), etc.); and
- Compilation of an audit report.

## 3.1 AUDIT CHECKLIST

WSP compiled a checklist of the EA and EMPr commitments, which was used as an auditing compliance tool. Refer to **Table 4-1**, and **Table 4-2** for the audit checklist.

## 3.2 SITE INSPECTION AND INTERVIEWS

An onsite inspection was conducted on 09 November 2022, where findings and observations were recorded and are summarised in **Section 4**. Key personnel interviewed included:

- Suyen Van Zyl
- Carel Watkins
- Frans Radebe

## 3.3 INFORMATION CONSIDERED

Information related to the following categorises was reviewed, where required, and used to evaluate compliance:

- Final Audit Report- External Audit of EAS/RODS/EMPS/EMPrs: Air Products: Hydrogen Rich Gas to Impala (Upgrading of New PSA Units at Ammonia Plant) (NWU, Centre of Environmental Management, July 2019)
- EIA (Scoping Report) of the Hydrogen Rich Gas to Impala Project (Environmental & Risk Engineering Sasol Technology, May 2002),
- Air Emissions Licence (AEL) (reference number: FDDM-MET-2013-24-R1);
- Sasolburg and Ekandustria Operations Annual Emission Report (August 2022) to ensure compliance with the AEL conditions;
- Water Use Licence (WUL) (reference number: 14/C22K/FG/4958);
- Groundwater Quality Monitoring Report: WUL Compliance, Sasolburg Operations: February 2022 (WSP, May 2022)
- Integrated Water and Waste Management Plan (IWWMP) Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021) that includes the:
    - Stormwater Management Plan (SWMP);

- Rehabilitation Strategy and Implementation Plan (RSIP);
- Water Conservation and demand Management (WC/DM);
- Malfunctions register;
- Water management;
- Groundwater management;
- Waste management;
- Contaminated Water and Wastewater Management;
- Effluent Management; and
- Land management.

- Procedure for the management of waste on the Sasolburg Operations' Sites (document number: SSP-S-014) (Sasolburg Operations, January 2020)
- Storm Water management Plan Sasolburg Operations (File no: 27/2/2C222/6/4) (Sasolburg Operations, December 2021);
- The reporting, investigation and recording of environmental incidents (document number: SSP-S-013, revision 08) (Sasolburg Operations, July 2019)
- Sasolburg and Ekandustria Operations ISO 45001:2018, ISO 9001:2015 and ISO 14001:2015 Recertification Audit Report (DQS Management Systems Solutions, November 2021);
- Waste Management and Disposal Registers;
- Environmental Standards;
- Health and Safety Standards and Audits;
- Amendment letters; and
- Various email correspondence

## 3.4 ASSESSMENT EVALUATION METHODOLOGY

The consolidated report contains all commitments, which were formulated as part of the EA and EMPr conditions. Each commitment contained in the audit checklist was assessed by reviewing site documentation, interviewing employees, and undertaking a site inspection. The application of the EMPr was assessed and the level of compliance rated (compliance categories contained in **Table 3-1**). The compliance of the operations listed in **Section 1.1** and **Section 1.2** was assessed.

**Table 3-1 Levels of Compliance**

| Compliance Level | Definition |
|---|---|
| Compliant (C) | When an activity or commitment has been implemented, completed, is on-schedule or is maintained on an ongoing basis.<br>Condition/mitigation measure/commitment has been achieved with evidence provided in the form of a document or site verification. |
| Non-compliant (NC) | When an activity or commitment has not been complied with in its entirety/certain aspects thereof have not been addressed.<br>When a commitment has not been undertaken, not been completed according to plan, or where any unlawful actions have been identified. |
| Not applicable (N/A) | The condition, commitment and/or mitigation measure is not applicable or is to be revised in accordance with current practice. |

| | |
|---|---|
| | A “Not Applicable” finding is also noted in event where such condition, commitment and/or mitigation measure is not yet relevant but is still relevant for future activities. |

.

# 4 AUDIT FINDINGS

## 4.1 ENVIRONMENTAL AUTHORISATION

**Table 4-1** below provides the compliance of Sasol with the conditions within the EA and amendments to the EA.

**Table 4-1 - Environmental Authorisation (ROD E/02/06 dated 18/07/02): Audit Findings**

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person |
|---|---|---|---|---|
| **1. Activity** | | | | |
| 1.1 | Sasol Ammonia acquires feed hydrogen gas from Sasol One reformers. The gas has to be purified before it is fit for distribution to the customers. The PSA purifies the impurities in the hydrogen through exposing it to adsorption mediums. Two PSA units already exist on the site and are not sufficient to cater the growing demand in hydrogen Thus, due to the demand in the hydrogen gas supply, Sasol Ammonia proposes to install (Scoping Report of Hydrogen Rich Gas to Impala Project, compiled by Sasol Technology):<br>▪ Pressure Swing Adsorption (PSA) Unit;<br>▪ A heat exchanger;<br>▪ Pipelines to connect new unit to the existing infrastructure | **N/A** | Noted. | None. |
| **Location** | | | | |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person |
|---|---|---|---|---|
| 2.1 | The site is located in a built-up industrial environment of Sasol One in Sasolburg. This is situated within the Sasol Ammonia site referred to as Section 3000 | C | The site is located in an existing built-out industrial sector on the Sasol Ammonia site (section 3000).<br>*Evidence*:<br>▪ Site Observation | None. |
| **Applicant** | | | | |
| 3.1 | Mr. Rightwell Laxa<br>Senior Vice President (SVP) - Sasolburg Operations<br>P.O. Box 1 Sasolburg 1947<br>Contact details changed to the following:<br>Tel: + 27 16 960 8001<br>Cell: +27 82 414 1281<br>E-mail: rightwell.laxa@sasol.com<br>Fax: + 27 11 522 3972 | C | Details of applicant amended on 22/08/2019. | None. |
| **1. Specific Conditions** | | | | |
| i. | This authorisation has been granted solely for the purposes of undertaking the specified activity referred to above. | N/A | Noted. The specified and authorised activity was noted on site. | None. |
| ii. | An integrated waste management approach must be used that is based on best practices and should incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste should be disposed of at a landfill, licensed in terms of section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989). | C | The adsorbents used in the PSA unit have a life expectancy of approximately 20 years. The disposal of absorbents has not yet been required as there was no degradation on the performance of the PSA unit (i.e. absorbers still operating effectively). When required, a reputable waste removal company will collect and dispose of the adsorbents. | None. |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person |
|---|---|---|---|---|
| | | | General waste generated at the Ammonia plant is collected by a waste service provider and disposed at a licenced landfill site.<br>*Evidence*<br>▪ Site observations<br>▪ Waste register and manifests<br>▪ General waste is disposed of by EnviroServ Waste Management (Pty) Ltd. (Licence number: 12/9/11/L957/3) and Interwaste.<br>▪ Waste management procedure (document no.: SSP-S-014). | |
| iii. | The development should be strictly to the designated areas. | **C** | The development of the PSA Unit was located within the designated area.<br>*Evidence*:<br>▪ Site Observation | None. |
| iv. | There should be proper warning signage to caution unauthorised people near the unit | **C** | All warning signage were in place and visible.<br>*Evidence*:<br>▪ Site Observation | None. |
| v. | Within six (6) months of the facility ceasing to be functional for the purpose for which it is now authorised, the facility must be removed at the expense of the applicant, and the site including all infrastructure must be rehabilitated to the satisfaction of this Department. | **N/A** | This condition was not audited as there are no immediate plans to close the PSA facility. | None. |
| **2. Standard conditions** | | | | |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person |
|---|---|---|---|---|
| 1. | The applicant must advertise this record of decision. | N/A | This condition is outside the audit period and therefore was not audited. | None. |
| 2. | This authorisation is granted only in terms of Section 28A of the Environmental Conservation Act (Act No. 73 of 1989). It therefore does not exempt any person from the requirements of any other controlling authority or from any provision of any other law and does not purport to interfere with the rights of any person who may have an interest in the property. | N/A | Noted. This audit scope did not cover a legal review of compliance of the PSA Unit and SSO with all statutory requirements and whether they were in possession and compliance of all the necessary permits, authorisations or any other official documents. | None. |
| 3. | Changes in the proposal resulting in significant environmental impacts are only permissible if approved in writing by the Department. | N/A | Noted. No changes were made that resulted in significant environmental impacts. | None. |
| 4. | The Department reserves the right to amend and review the conditions of this authorisation every 5 years | N/A | Noted. | None. |
| 5. | The Department must be notified, within 30 days of change of ownership/project developer. Conditions established in the authorisation must be made known to the new owner/developer and are binding on the new owner/developer | C | The applicant representative was amended to Mr Rightwell Laxa. The contact details of the applicant representative was amended as well. This amendment was authorised on 22 August 2019. There was no change of ownership. | None. |
| 6. | The Department must be notified of any change of address of the owner/developer | N/A | Noted. There was no change to the address of owner or developer. | None. |
| 7. | Proof of compliance with the conditions described in the authorisation must be forwarded to the | N/A | No proof of compliance submitted to the Department was provided. This condition was however outside the audit period and therefore was not audited. This activity is in the | There is no historical proof provided that the notification to |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person |
|---|---|---|---|---|
| | Department one month prior to the commencement of operation of the development (as appropriate) | | operational phase and this condition should have been implemented pre-operation. | operate the PSA unit was sent to the Department. The condition cannot be closed out as it is not rectifiable. |
| 8. | One month's notice must be given to the Department before the commencement of operation. | **N/A** | No proof of the notice submitted to the Department was provided. This condition was however outside the audit period and therefore was not audited. This activity is in the operational phase and this condition should have been implemented pre-operation. | There is no historical proof provided that the notification to operate the PSA units were sent to the Department. The condition cannot be closed out as it is not rectifiable. |
| 9. | The owner/developer must notify the authority within 24 hours if any condition of the exemption is not adhered to | **N/A** | Noted. Sasol strives to adhere to all the conditions in the exemption and to notify the Department when any condition cannot be adhered to. Minor incidents that occur on site were addressed internally Sasol. No significant incidents or emergencies occurred on site that were reported to the Department.<br>Evidence:<br>■ Incident register<br>■ Sasol online incident management system reviewed. | None. |
| 10. | Records relating to the compliance/non-compliance with the conditions of the exemption must be kept in good order. Such records must be made available to | **C** | Noted. Records of compliance and non-compliance were retained by Sasol and made available to the Department within 7 days upon request. No condition was exempted. | None. |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person |
|---|---|---|---|---|
| | the Department within 7 days of written request by the Department for such records | | *Evidence:*<br>■ Site observation<br>■ Sasol document and online system review. Available documents listed in Section 3.3. | |
| 11. | Non-compliance with, or any deviation from, the conditions set out in the authorisation documentation constitutes a failure in compliance. Under such conditions, the authorisation from the regulations as laid out in the documentation will be revoked | **N/A** | Noted. No set conditions were deviated from. | None. |
| **H. Key factors in Decision** | | | | |
| 1. | The site is located in the built-up industrial environment of Sasol Chemical Industry. | **N/A** | Noted. The site is located in a built-up industrial environment of Sasol One in Sasolburg<br>*Evidence:*<br>■ Site observation | None. |
| 2. | No historical, archaeological features or cultural sites were identified on or near the site. | **N/A** | No historical, archaeological features or cultural sites noted onsite.<br>*Evidence*:<br>■ Site Observation | None. |
| 3. | There is no fauna on the premises since the area is already disturbed and within the industrial environment | **N/A** | The units have a concrete paved environment and was within the Sasol One Complex.<br>*Evidence*: | None. |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person |
|---|---|---|---|---|
| | | | ▪ Site Observation | |
| 4. | There are no red data or other protected plant and animal species. | **N/A** | No presence of red data or protected animal and plant species.<br>*Evidence*:<br>▪ Site Observation | None. |
| 5. | There were no concerns raised during the public participation. | **N/A** | Noted. The condition is applicable for the pre-construction phase; therefore, this condition was outside the audit period and was not audited. | None. |
| 6. | The new PSA unit will supplement and help to provide sufficient hydrogen to the vast customers. | **N/A** | Noted. This condition was a motivation to the installation of the booster PSA unit. | None. |
| 7. | There is an existing infrastructure at the site. | **N/A** | There was existing infrastructure onsite before the new PSA unit was constructed and set for operation.<br>*Evidence*:<br>▪ Site Observation.<br>▪ Review of available documents listed in Section 3.3. | None. |
| 8. | The applicant has met the requirements of the Department of Tourism, Environmental & Economic Affairs | **C** | No set conditions were deviated from; therefore, the Department deemed all requirements as fulfilled/ met. | None. |
| 9. | There will be no effect on surface and groundwater. | **C** | Storm water was routed to existing storm water sewers. There was no liquid effluent from the PSA unit and the unit was constructed within a bunded area. Therefore, there would be no contamination of the surface and groundwater. | None. |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person |
|---|---|---|---|---|
| | | | *Evidence*:<br>▪ Site observation.<br>▪ Integrated Water and Waste Management Plan (IWWMP) Rev 1 – report number: SO-env-929<br>▪ Storm Water management Plan Sasolburg Operations (File no: 27/2/2C222/6/4). | |
| 10. | Exposure to hazardous materials is minimal. | C | Sasol ensured that engineering controls were operating and that protective equipment requirements and personal hygiene measures were being followed should there be physical contact with the PSA units. People working with this gas undertook training regarding its hazards and its safe use. All staff were issued with PPE to ensure their safety when working near the PSA unit.<br>*Evidence*:<br>▪ Site observation.<br>▪ Staff confirmation of operating engineering controls.<br>▪ Staff training material and registers.<br>▪ Emergency response plan. | None. |
| **I. Duration and date of expiry** | | | | |
| 1. | This authorisation shall lapse if the activity does not commence within two years of the date of issue of this authorisation | N/A | Noted. The activity has already commenced. | None. |
| **J. Appeal** | | | | |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person |
|---|---|---|---|---|
| 1. | Section 35 of the Environment Conservation Act, 1989 (Act No. 73 of 1989), makes provision for appeal by any person who feels aggravated by a decision made by a relevant authority in terms of these regulations. "Any person", therefore includes the applicant, interested party or member of the public. An appeal to the MEG of the Department of Tourism, Environmental & Economic Affairs under section 35 (3) of the Environment Conservation Act, 1989 (Act No. 73 of 1989), must be done in writing within 30 days from the date on which the Record of Decision was issued to the applicant in terms of regulation 10(1) of the Environmental Impact Assessment Regulations, (Government Notice No R1182 and 1183 of 5 September 1997) and should be directed to:<br>The<br>MEC:<br>Department of Environmental Affairs and Tourism<br>Free State Province<br>P.O Box 264<br>Bloemfontein<br>9300 | **N/A** | Noted. | None. |

## 4.2 ENVIRONMENTAL MANAGEMENT PROGRAMME

**Table 4-2** below provides the compliance of Sasol with the conditions within the EMPr and amendments to the EMPr.

**Table 4-2 - Environmental Management Programme: Audit Findings**

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| **Evaluation of environmental aspects and mitigations:** | | | | | | | | |
| **1. Land and soil** | | | | | | | | |
| 1.1 | The development will take place on the Sasol Ammonia site (section 3000) on an already developed industrial area. | **C** | The development was in an industrial area (section 3000 of Sasol One site). The PSA unit was surrounded by a concrete bund wall.<br>*Evidence*:<br>▪ Site Observation | None. | - | - | - | - |
| 1.2 | Excavation will be required during construction for foundations. Excavated soil will be used as backfill as far as possible. Excess soil and building rubble will be disposed of at a recognised disposal site. | **N/A** | This condition is outside the audit period and therefore was not audited. | None. | - | - | - | - |
| 1.3 | The impact on the land in soil is therefore minimal. | **N/A** | This condition is not auditable. | None. | - | - | - | - |
| **2. Surface water and ground water** | | | | | | | | |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| 2.1 | During construction the new equipment will be cleaned with water. This is done to remove dust from<br>the equipment. This does not pose any threat to the environment, since the new equipment is not exposed to any contaminants at this stage. Since no contamination can occur, this water will go to the existing storm water sewers. | **N/A** | This condition is outside the audit period and therefore was not audited. | None. | - | - | - | - |
| 2.2 | Storm water will also be routed to existing storm water sewers. There will be no liquid effluent from the proposed project. Therefore, there will be no contamination of the surface and groundwater. | **C** | Stormwater from the site travels through stormwater sewers to the Sasol effluent facility, Bioworks. There was no contamination of the surface water or groundwater.<br>*Evidence*:<br>▪ Site Observation<br>▪ Groundwater Quality Monitoring Report: WUL Compliance, Sasolburg Operations<br>▪ Integrated Water and Waste Management Plan (IWWMP) Rev 1<br>▪ Storm Water management Plan Sasolburg Operations<br>▪ Sasolburg and Ekandustria Operations ISO 45001:2018, ISO | None. | - | - | - | - |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| | | | 9001:2015 and ISO 14001:2015 Recertification Audit Report. | | | | | |
| **3. Air quality** | | | | | | | | |
| 3.1 | During commissioning the pipeline will be pressure tested with nitrogen, which will be vented to atmosphere. | **N/A** | This condition is outside the audit period and therefore was not audited. | None. | - | - | - | - |
| 3.2 | Under normal operating conditions no air emissions are expected. In the event of upset conditions some of the hydrogen may be flared, but it will be kept to the utmost minimum since this will result in a waste of viable product. | **C** | No air emissions were present during the site observation. The process tail gas (impurities removed by the PSA unit) is routed to the Sasol gas network. The impact of air emissions on the environment are therefore very low. An Annual Emissions Report dated 29 August 2022 for the Fezile Dabi District Municipality stated all emission units proved to follow the requirements of Air Emission License FDDM- MET-2013-20-R1.<br>*Evidence*:<br>■ Site Observation<br>■ Air Emissions Licence (AEL) (reference number: FDDM-MET-2013-24-R1);<br>■ Sasolburg and Ekandustria Operations Annual Emission Report (August 2022) | None. | - | - | - | - |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| 3.3 | The process tail gas (impurities removed by the PSA unit) will be routed to the Sasol gas network. The impact of air emissions on the environment will therefore be very low. | C | No air emissions were present during the site observation. The process tail gas (impurities removed by the PSA unit) is routed to the Sasol gas network. The impact of air emissions on the environment are therefore very low. An Annual Emissions Report dated 29 August 2022 for the Fezile Dabi District Municipality stated all emission units proved to follow the requirements of Air Emission License FDDM- MET-2013-20-R1.<br>*Evidence*:<br>▪ Site Observation<br>▪ Air Emissions Licence (AEL) (reference number: FDDM-MET-2013-24-R1);<br>▪ Sasolburg and Ekandustria Operations Annual Emission Report (August 2022) | None. | - | - | - | - |
| **4. Liquid effluent** | | | | | | | | |
| 4.1 | Water may be used to wash and pressure test the pipelines during the pre-commissioning phase of the project. This water will be handled by the existing storm water system, as no contamination is expected. | N/A | This condition is outside the audit period and therefore was not audited. | None. | - | - | - | - |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| 4.2 | Used potable water will be routed to the existing treatment facilities. Firewater will be routed to the existing drains. | C | Used potable water is routed to the Sasol effluent facility, Bioworks. Infrastructure and equipment is in place and constructed to ensure that firewater is drained to the existing.<br>*Evidence*:<br>▪ Site Observation<br>▪ Integrated Water and Waste Management Plan (IWWMP) Rev 1<br>▪ Storm Water management Plan Sasolburg Operations<br>▪ Sasolburg and Ekandustria Operations ISO 45001:2018, ISO 9001:2015 and ISO 14001:2015 Recertification Audit Report | None. | - | - | - | - |
| 4.3 | Very small amounts of effluent (<1 litre per month) may be generated by the guard bed. This will manually be disposed of at an appropriate site as per existing procedure. Therefore, there is no impact expected. | C | Effluent is routed to the Sasol effluent facility, Bioworks. Infrastructure and equipment is in place and constructed to ensure that effluent is drained to the existing effluent management system.<br>*Evidence*:<br>▪ Site Observation<br>▪ Integrated Water and Waste Management Plan (IWWMP) Rev 1<br>▪ Storm Water management Plan Sasolburg Operations | None. | - | - | - | - |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| **5. Solid Effluent** | | | | | | | | |
| 5.1 | Solid waste generated during construction will be handled by existing disposal routes. As per existing procedure, most of the excavated soil will be used for backfilling on the site. | **N/A** | This condition is outside the audit period and therefore was not audited. | None. | - | - | - | - |
| 5.2 | No solid effluent will be produced by the process and therefore no significant impact on the environment is expected. The adsorbents used in the PSA unit have a life expectancy of +/-20 years. | **C** | The PSA unit adsorbents have a life expectancy of approximately 20 years. The disposal of absorbents has not yet been required. When required, a reputable waste removal company will remove and dispose of the adsorbents.<br>General waste generated at the Ammonia Plant is collected by a waste service provider and disposed at a licenced landfill site.<br>*Evidence*<br>▪ Site observations<br>▪ Waste register and manifests<br>▪ Waste management procedure (document no.: SSP-S-014) | None. | - | - | - | - |
| 5.3 | Domestic waste will, as per current procedure, be disposed of at the | **C** | General waste generated at the Ammonia plant is collected by a | | | | | |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| | Metsimaholo Local Council landfill site. No solid effluent will be produced by the process and therefore no significant impact on the environment is expected. | | waste service provider and disposed at a licenced landfill site.<br>*Evidence*<br>▪ Site observations<br>▪ Waste register and manifests<br>▪ Waste management procedure (SSP-S-014) | | | | | |
| **6. Fauna and Flora** | | | | | | | | |
| 6.1 | There will be no significant effect on the biological environment as the proposed project is within an existing industrial site, with little or no existing flora and fauna. | **N/A** | This was a statement in the EMPr and not an auditable condition. | None. | - | - | - | - |
| **7.Visual** | | | | | | | | |
| 7.1 | The proposed project is placed within an established industrial area and will therefore not result in any additional visual impact. | **N/A** | This was a statement in the EMPr and not an auditable condition. | None. | - | - | - | - |
| **8. Noise** | | | | | | | | |
| 8.1 | Construction activities are usually, for certain periods, characterised with | **N/A** | This condition is outside the audit period and therefore was not audited. | None. | - | - | - | - |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| | limited noise pollution. This will however be limited to the construction sites. | | | | | | | |
| **9.Socio-economy** | | | | | | | | |
| 9.1 | +/- 10 temporary jobs may be created during construction. | **N/A** | This condition is outside the audit period and therefore was not audited. | None. | - | - | - | - |
| **10. Health, Safety and Risk Assessment** | | | | | | | | |
| 10.1 | An internal SASOL's risk study, namely FMEA (Failure Mode Effect Analysis) will be conducted on the proposed project. This is a study where the whole project and all the equipment involved is reviewed in detail by the engineering design and operation team, and potential failures or departures in the normal mode of operation are assessed. Safety procedures are developed to cancel or ameliorate the effects of such equipment malfunctions I operator error(s). | **N/A** | This condition is outside the audit period and therefore was not audited. This condition was applicable during pre-construction and construction to inform the design of the PSA units. Safety procedures and standard operating procedures were developed for the operations of the PSA Unit. | None. | - | - | - | - |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| 10.2 | During the construction phase, strict safety rules will apply for welding / grinding. All contractors working on the site will undergo safety training as per SASOL existing procedure. Each contracting company would have a safety representative who will undertake regular inspections of the workplace, to enforce the wearing of protective clothing and to ensure compliance with all relevant safety rules.All contractors and employees would furthermore be made aware of the existing emergency<br>procedures and responsibilities where applicable. | **N/A** | This condition is outside the audit period and was therefore not audited. | None. | - | - | - | - |
| 10.3 | Before handling, it will be ensured that engineering controls are operating and that protective equipment requirements and personal hygiene measures are being followed. People | **N/A** | This condition is outside the audit period and was therefore not audited. Sasol has ensured that all staff working at the PSA Unit received induction training that include H&S and Environmental Management training. | None. | - | - | - | - |

| Ref | Condition | Compliance Status | Findings | Recommendation, Timeframe & Responsible Person | Measures Implemented to Address Non-Compliance | Practicality of the EMPR Commitments | Is the Non-Compliance Administrative or will it have an impact | Historical/New Non-Compliance (Administrative measures) |
|---|---|---|---|---|---|---|---|---|
| | working with this gas should be properly trained regarding its hazards and its safe use. | | *Evidence:*<br>▪ Site observation<br>Staff induction and training registers | | | | | |

# 5 PROGRESS AGAINST PREVIOUS AUDIT FINDINGS

The previous compliance audit report against the consolidated EA and EMPr was compiled by the Northwest University CEM in 2019. A comparison in the change of compliance rating from the 2019 and 2022 audits are provided in **Figure 5-1** and **Table 5-1** below with an explanation, and provides a summary of the audit findings for the previous and current audits (2019 and 2022). The 2022 audit identified zero non-compliant conditions.

**Figure 5-1 – Percentage comparison of Environmental Authorisation compliance levels from 2019 to 2022**

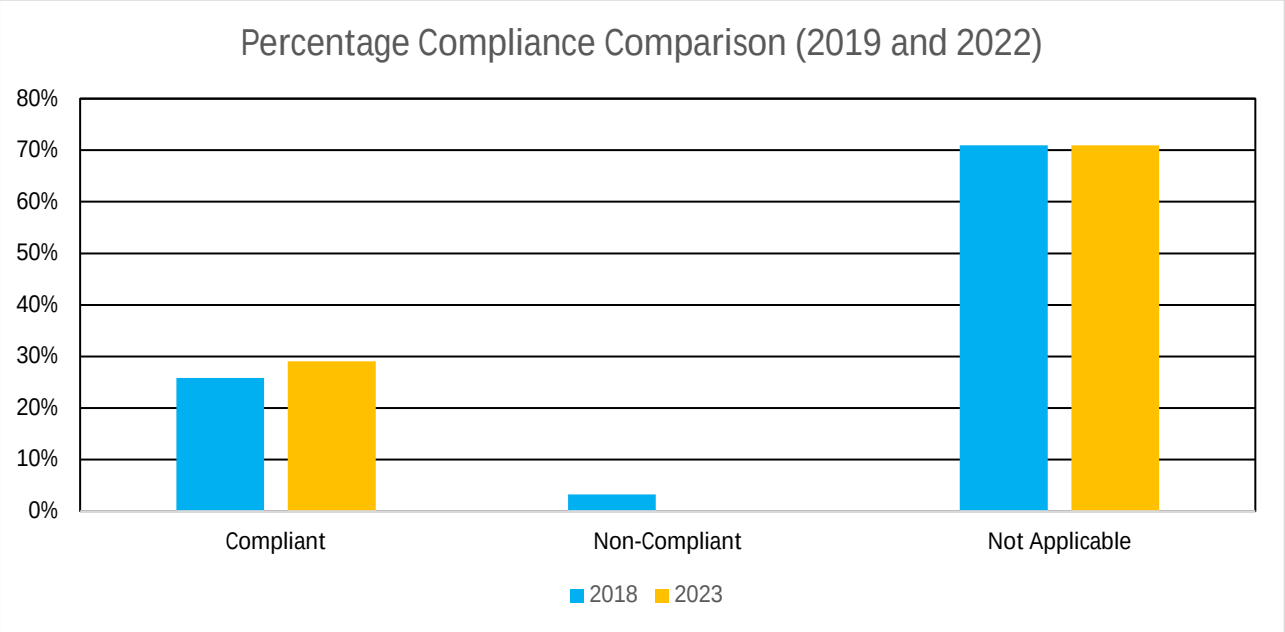


**Table 5-1 – Progress against previous findings**

| Ref | Commitment | 2019 Status | 2019 Finding | 2022 Status | 2022 Finding |
|---|---|---|---|---|---|
| | **EA Conditions** | | | | |
| v | The Department must be notified, within 30 days of change of ownership/project developer. Conditions established in the authorisation must be made known to the new owner/developer and are binding on the new owner/developer | NC | At the time of the audit, no evidence could be found that the department has been notified of the change of ownership of this development. Evidence was found that the ROD was amended in 2015 to read: Applicant: Mr Holger Maul, Sasol Rosebank, 1 Sturdee Avenue Rosebank, 2196. Evidence was also found that Sasol notified the DESTEA on 16 January 2019 (Letter SO-env-450) that Mr Rightwell Laxa, have been | C | The applicant representative was amended to Mr Rightwell Laxa. The contact details of the applicant representative was amended as well. This amendment was authorised on 22 August 2019. There was no change of ownership. |

| | | | | | |
|---|---|---|---|---|---|
| | | | appointed as Senior Vice President Sasolburg Operations, with effect from 1 February 2019 and that he will assume all responsibilities and accountabilities associated with the EAs that were issued by the DESTEA, including this exemption. However, the 2014 EIA regulations (GNR 982) require a Part 1amendment to the Environmental Authorisation (including exemptions), where the amendment relate to a change of ownership or transfer of rights and obligations. A formal Part 1 amendment application had not been submitted for this change at the time of the audit. | | |

# 6 SUMMARY OF THE AUDIT FINDINGS

## 6.1 SASOL SASOLBURG PSA EA

The audit findings have been summarised into the following categories: compliance, non-compliance and not applicable. The overall audit findings concerning compliance to the EA conditions are as listed in **Table 6.1** below.

**Table 6-1 - Summary of EA Compliance Audit Findings**

| Section of the EA | No. Commitments | C | NC | N/A |
|---|---|---|---|---|
| **Activity** | 1 | 0 | 0 | 1 |
| **Location** | 1 | 1 | 0 | 0 |
| **Applicant** | 1 | 1 | 0 | 0 |
| **Specific Conditions** | 5 | 3 | 0 | 2 |
| **Standard Conditions** | 11 | 2 | 0 | 9 |
| **Key factors in Decision** | 10 | 3 | 0 | 7 |
| **Duration of Activity** | 1 | 0 | 0 | 1 |
| **Appeal** | 1 | 0 | 0 | 1 |
| **Total** | **31** | 10 | 0 | **21** |
| **Total Percentage** | | **32%** | **0%** | **68%** |
| **Percentage Compliance with Applicable Conditions** | **100%** | | | |

**Figure 6-1** illustrates the number/count contribution of the findings of the EA conditions per section while **Figure 6-2** presents the total proportion of compliance for the EA conditions.

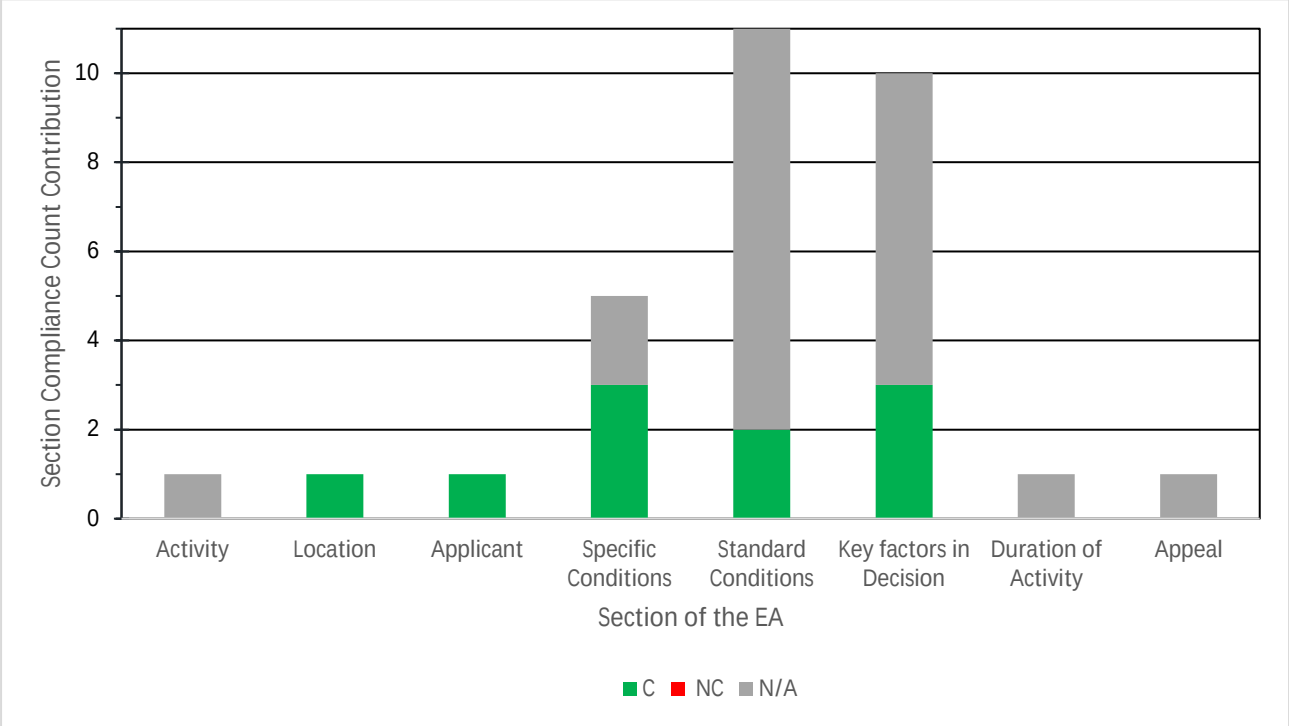


**Figure 6-1 - Number/Count contribution of findings made to the expansion projects EA conditions per section.**

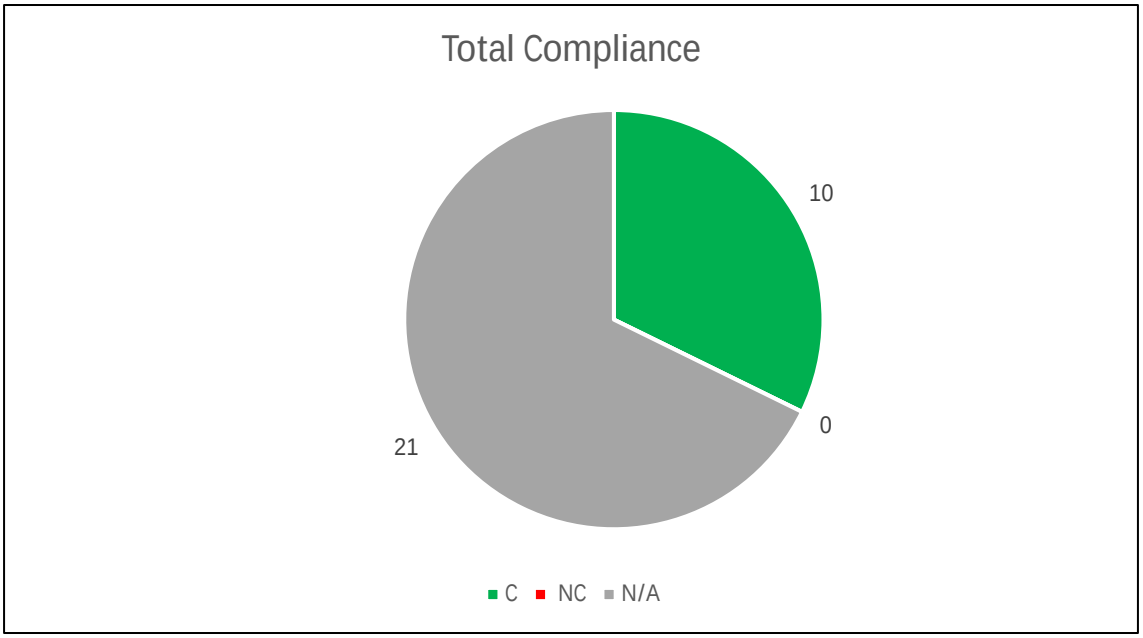


**Figure 6-2 - Overall count findings on compliance to the expansion projects EA conditions**

**Figure 6-3** illustrates the percentage contribution of the findings of the EA commitments per section and **Figure 6-4** presents the total percentage compliance for the PSA unit.

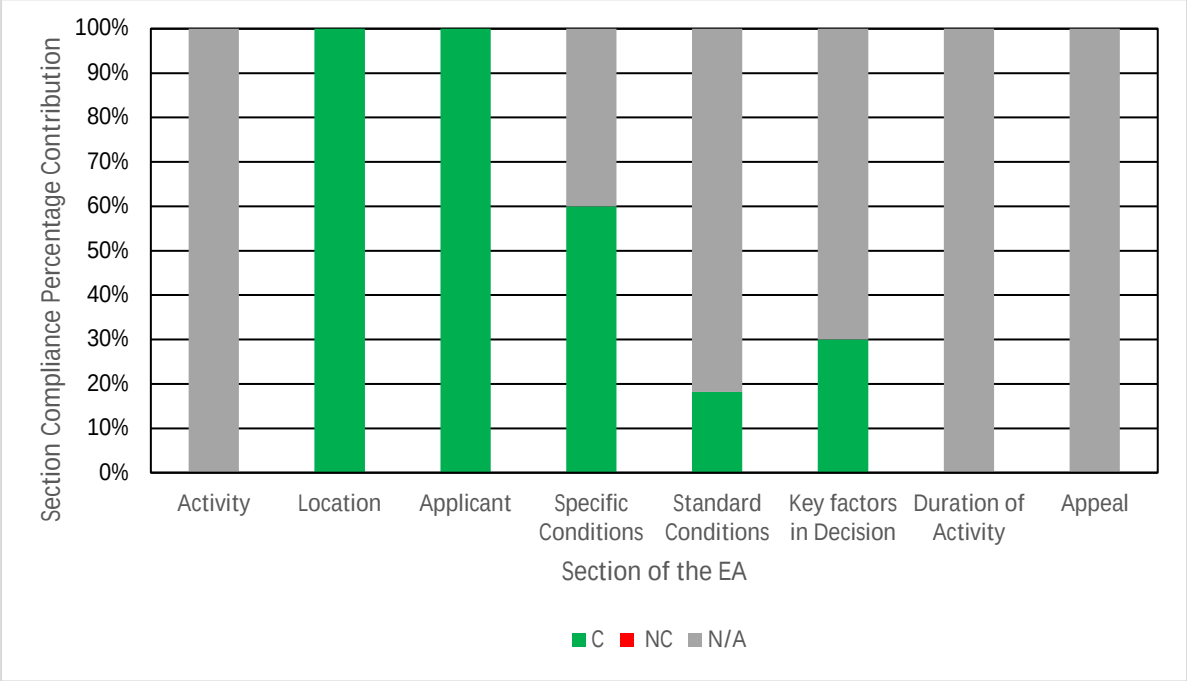


**Figure 6-3 - Percentage contribution of findings made to the EA Commitments per Section**

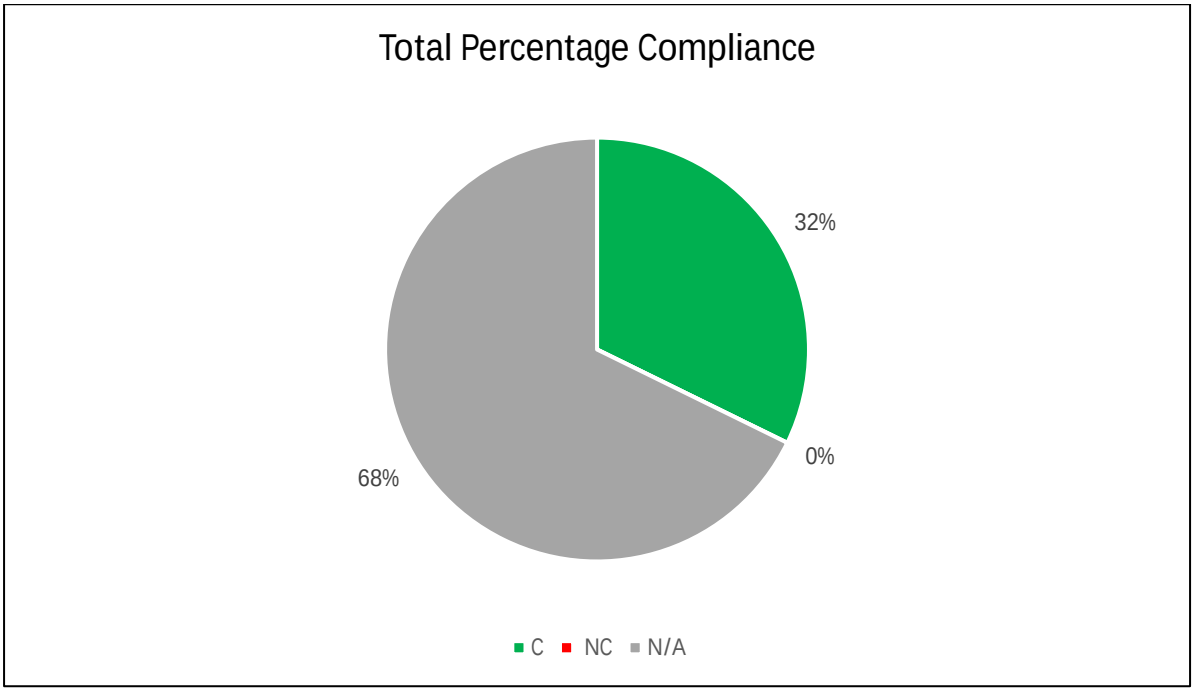


**Figure 6-4 - Overall percentage findings on compliance to the EA Commitments**

## 6.2 SASOL SASOLBURG PSA EMPR

The EMPr audit findings have been summarised into the following categories: compliance, non-compliance and not applicable. The overall audit findings concerning compliance to the EMPr conditions are as listed in **Table 6-2** below.

**Table 6-2 - Summary of EMPr Compliance Audit Findings**

| Section of the EMPr | No. Commitments | C | NC | N/A |
|---|---|---|---|---|
| Land and Soil | 3 | 1 | 0 | 2 |
| Surface water and ground water | 2 | 1 | 0 | 1 |
| Air Quality | 3 | 2 | 0 | 1 |
| Liquid Effluent | 3 | 2 | 0 | 1 |
| Solid Effluent | 3 | 2 | 0 | 1 |
| Fauna and Flora | 1 | 0 | 0 | 1 |
| Visual | 1 | 0 | 0 | 1 |
| Noise | 1 | 0 | 0 | 1 |
| Socio-economic impacts | 1 | 0 | 0 | 1 |
| Health, Safety and Risk Assessment | 3 | 0 | 0 | 3 |
| Total | 21 | 8 | 0 | 13 |
| **Total Percentage** | | **38%** | **0%** | **62%** |
| **Percentage Compliance with Applicable Conditions** | 100% | | | |

**Figure 6-5** presents the total proportion of compliance for the facility and **Figure 6-6** illustrates the number/count contribution of the findings of the EMPr per section.

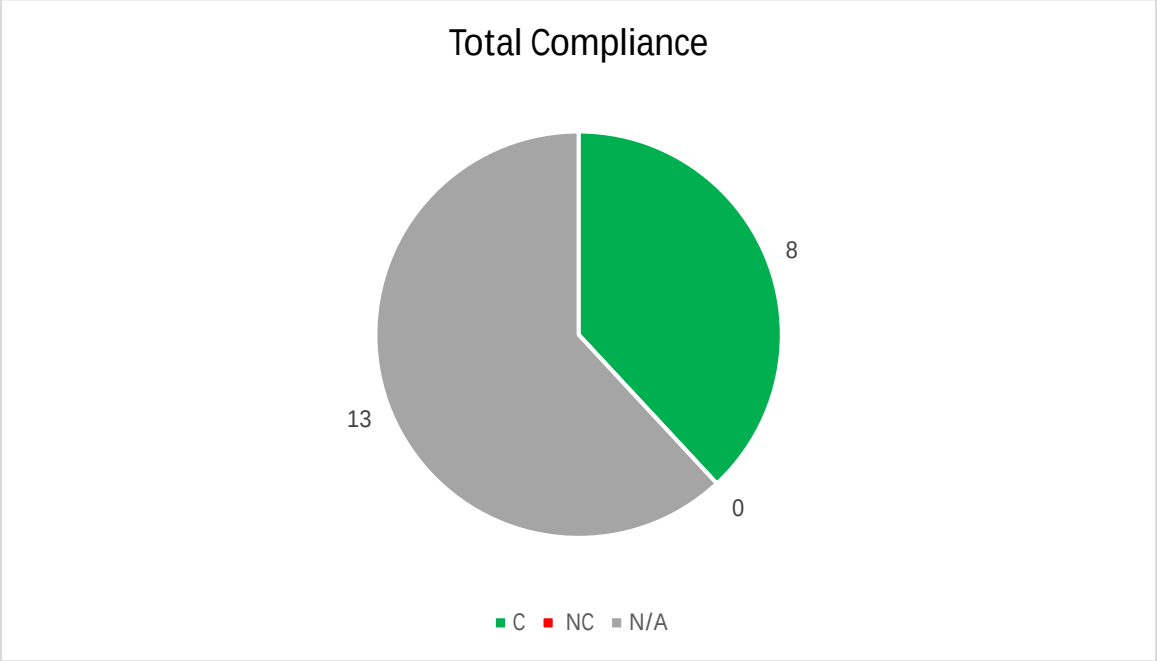


**Figure 6-5 - Overall count findings on compliance to the EMPr Commitments**

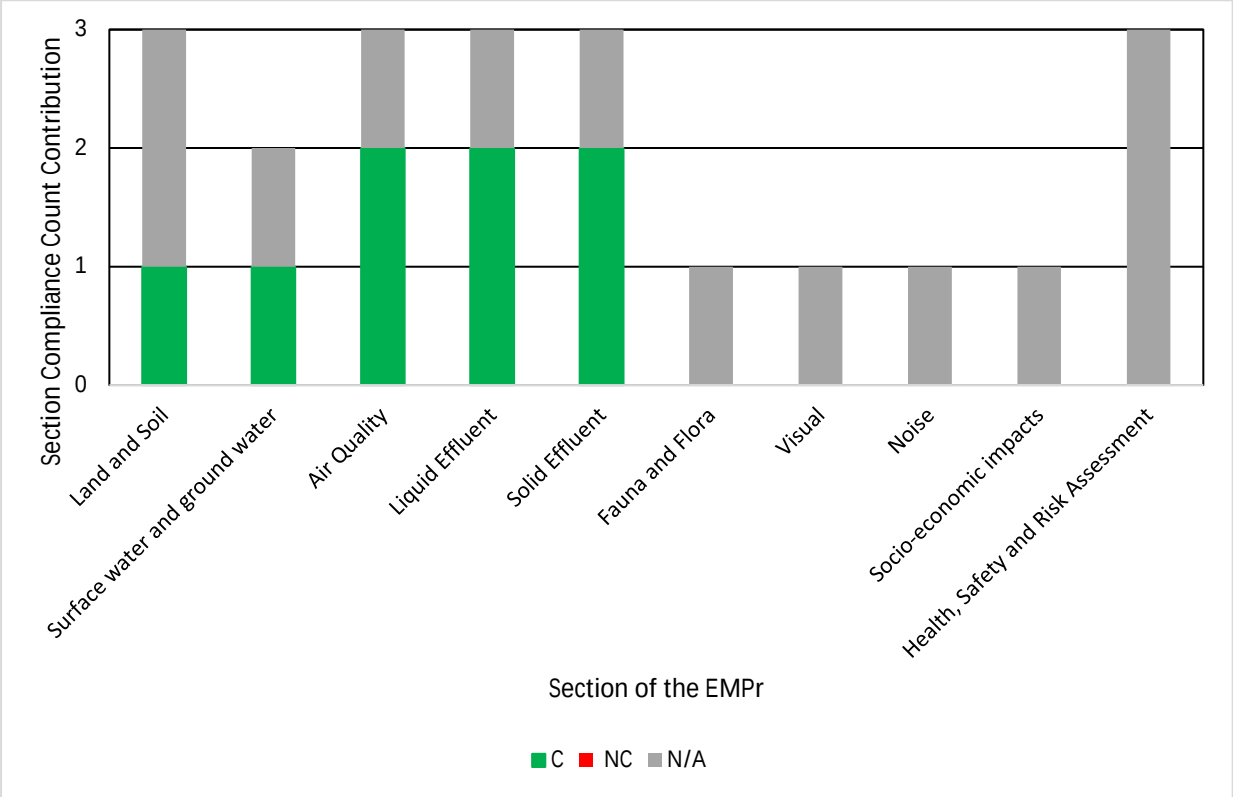


**Figure 6-6 - Number/Count contribution of findings made to the EMPr Commitments per Section**

**Figure 6-7** presents the total percentage compliance for the facility. **Figure 6-8** illustrates the percentage contribution of the findings of the EMPr commitments.

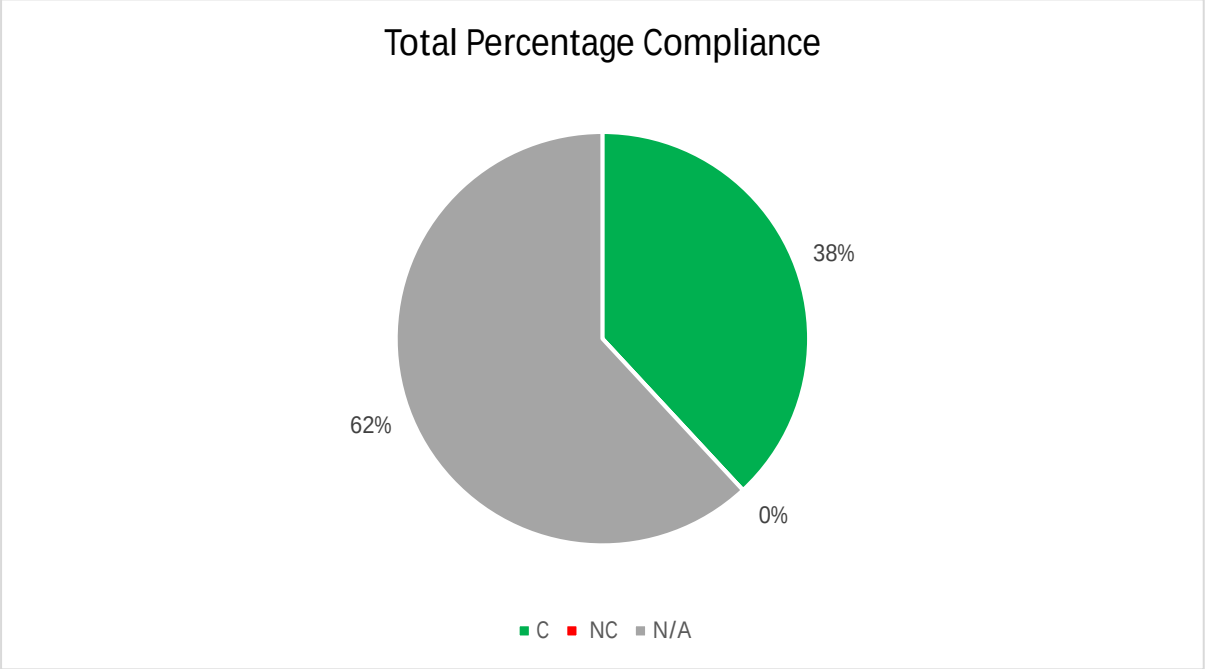


**Figure 6-7 - Overall percentage findings on compliance to the EMPr Commitments**

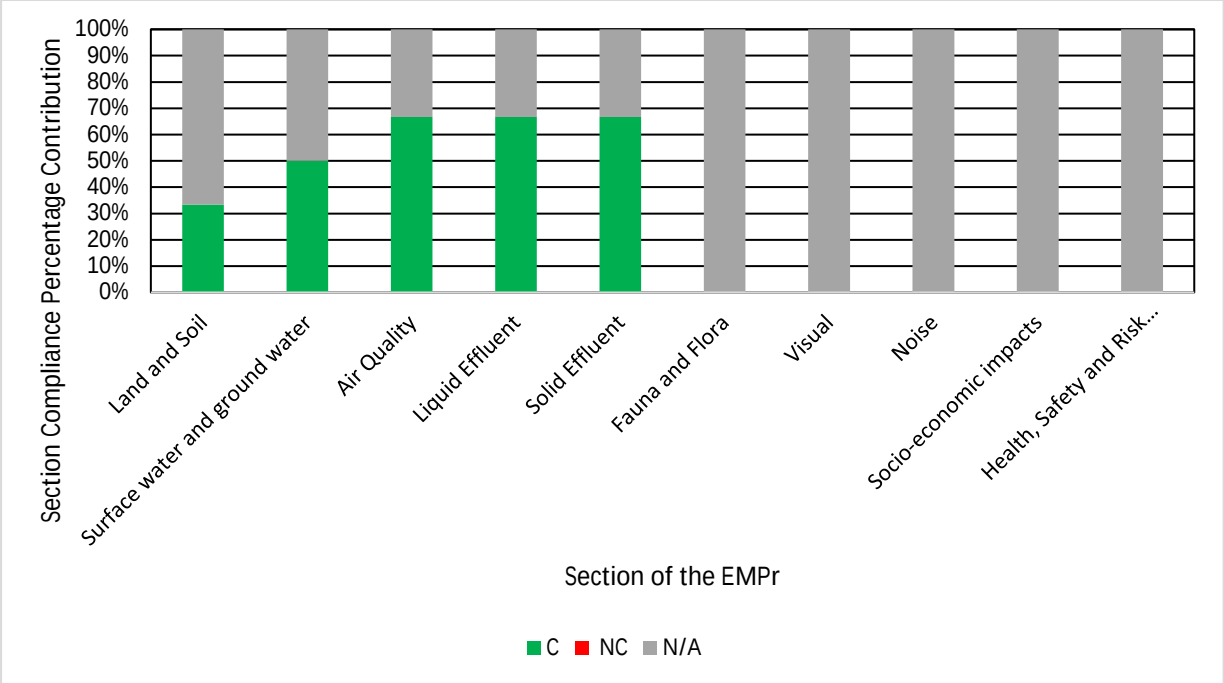


**Figure 6-8 - Percentage contribution of findings made to the EMPr Commitments per Section**

# 7 RECOMMANDATIONS

Sasol is commended for achieving 100% compliance for the EA and EMPr audit and is urged to continue to implement the environmental mitigation measures within the EA and EMPr. In addition, Sasol should continue to implement their EMS for the Sasol One Complex that includes the PSA unit and to identify new environmental risks and to address these when identified on site.

Sasol should continue with their comprehensive strategy for detecting and resolving incidents, complaints and environmental risks and to utilize the audit report as an indicator of all areas that need attention.

# 8 CONCLUSION

Regulation 34 and Appendix 7 of the EIA Regulations 2014 (as amended) requires an assessment of the adequacy and effectiveness of the EA as part of the audit scope, as follows:

- Assess the level of compliance with the conditions of the EA.

The EA compliance audit has identified that the majority of the EA commitments remain applicable, and the EA is considered effective. As such, WSP does not recommend any amendment of the EA as it is sufficient in managing environmental impacts. The ROD was issued on the 18 July 2002 to govern the construction phase as well as the operational phase impacts.

WSP do acknowledge that Sasol has systems in place which are considered to be more robust for monitoring compliance and implementing changes than through the EA audit; including the annual audit of each business unit to meeting the ISO 14001 standards.

New impacts and risks are continually identified and assessed by Sasol by its Environmental Department, which assesses environmental risks and drives improvement implementation. This Department facilitates Environmental Risk Assessments per business entity to ensure that gaps are addressed through implementation of mitigation measures via the Integrated Management System.

In conclusion, WSP recommends that Sasol continues to operate each business unit under an Environmental Management System and meet licence compliance (EMPr, WUL, EA, etc). This is effective as mitigation against any gaps in the EMPr and as a means to regularly identify new environmental impacts and risks.

# 9 DECLARATIONS

## INDEPENDENT AUDITOR DECLARATION

Appendix 7 of GNR 982 refers to the need for the independent auditor to declare his/her independence of the holder of the EA.

NAME OF INDEPENDENT AUDITOR: Ian Malloy

UNDERTAKING

I, Ian Malloy, the undersigned and duly authorized thereto, by WSP, have studied Sasol PSA Unit Operations and compared the operations to the approved EMPr and compiled this report to the best of my knowledge. This section should be read with **Sub-section 2.1**.

Signed at Cape Town on this the 06 June 2023.

**SIGNATURE OF INDEPENDENT AUDITOR**

SIGNED IN LINE WITH THE REQUIREMENTS OF NEMA, GNR 982, APPENDIX 7, AS PUBLISHED UNDER THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO. 107 OF 1998), AS AMENDED,

# Appendix A

## AUDIT TEAM CVS

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

**wsp.com**

# Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

## CAREER SUMMARY

Ian has ten years of working experience as an Environmental Consultant focussing on environmental management and auditing, waste planning, and environmental engineering. His key career and academic development are in the field of environmental management and engineering with a focus on waste, wastewater and water. The projects completed include Water Use Licence (WUL) and Waste Management Licence (WML) Applications, Environmental Impact Assessments (EIAs), Basic Assessments (BAs) and developing Environmental Management Programmes (EMPrs), developing IWMPs for District and Local Municipalities, WMPs for industry, conducting environmental compliance audits and GRAP 17 and 19 assessments of landfill sites.

***<1 year with WSP***

***9 years of experience***

***Area of expertise***

Waste Management and Planning

Environmental Management

Waste Management Licencing (WML)

Water Use Licencing (WUL)

Basic Assessment (BA)

Environmental Impact Assessment (EIA)

Development of Environmental Management Programmes (EMPr)

Compliance Auditing (EA, EMPr, WML, WUL)

Development of municipal Integrated Waste Management Plans (IWMPs)

Environmental Engineering (Wastewater Treatment and Waste Management)

GRAP 17 and 19 Assessments of Landfill Sites

Surface and Groundwater Monitoring

***Language***

English and Afrikaans

## EDUCATION

| | |
|---|---|
| Master of Water Engineering, University of Cape Town | 2020 – 2023 (in progress) |
| Bachelor of Engineering (Honours), Environmental Engineering, University of Pretoria | 2019 |
| Bachelor of Chemical Engineering, Stellenbosch University | 2016 |

## ADDITIONAL TRAINING

# Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

ISO 9001:2015 SAATCA registered lead auditor training course (Quality Management Systems) 2015

## PROFESSIONAL MEMBERSHIPS

Registered as a Candidate Engineer: Engineering Council of South Africa (ECSA), Registration No: 2021204206 2020

Member of the Institute of Waste Management Southern Africa (IWMSA), Registration No: 30120185, Western Cape Branch Committee Member 2020

## PROFESSIONAL HISTORY

| | |
|---|---|
| WSP Group Africa (Pty) Ltd | November 2022 - present |
| GIBB Environmental (Pty) Ltd | 2019 – 2022 |
| GIBB (Pty) Ltd | 2013 – 2019 |

## PROFESSIONAL EXPERIENCE

### Waste Management and Planning

### District and Municipal Integrated Waste Management Plans and Waste Minimisation Plans

**Garden Route District Municipality, Garden Route District Municipality Waste Minimisation Strategy, South Africa**
**2020 to 2021**
**Environmental and Waste Consultant**
Develop waste minimisation strategies for the Garden Route District Municipality and the seven local municipalities.

**Midvaal Local Municipality, Midvaal Local Municipality Integrated Waste Management Plan Review, South Africa**
**2020 to 2021**
**Environmental and Waste Consultant**
Revision of the Midvaal Local Municipality Integrated Waste Management Plan (IWMP).

**Vuthela iLembe LED Programme, Ilembe District Municipality IWMP, South Africa**
**2018 to 2020**
**Environmental and Waste Consultant**
Development of the iLembe District IWMP and the revision of the KwaDukuza and Mandeni Local Municipality IWMPs.

Scoping Assessment for a regional landfill site for the iLembe District Municipality.

**Ingquza Hill Local Municipality, Ingquza Hill Local Municipality IWMP, South Africa**
**2020 to 2021**
**Environmental and Waste Consultant**
Development of the Ingquza Hill Local Municipality IWMP

**Elundi Local Municipality, Elundi Local Municipality IWMP, South Africa**
**2015 to 2016**
**Junior Environmental and Waste Consultant**
Development of the Elundini Local Municipality IWMP

**Dr Ruth S Mompati District Municipality, Dr Ruth S Mompati District Municipality IMWP, South Africa**
**2015 to 2016**

# Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

**Junior Environmental and Waste Consultant**
Development of the Dr Ruth S Mompati District Municipality and the five Local Municipality IWMPs (Naledi, Mamusa, Greater Taung, Lewkwa-Teemane and Kagisano Molopo Local Municipalities)

**Development Bank of South Africa, DBSA Material Recovery Facility Feasibility Assessment, South Africa**
**2020 to 2021**
**Environmental and Waste Consultant**
Feasibility assessment for the development of small material recovery facilities across four Provinces (Eastern Cape, Northern Cape, Limpopo and Mpumalanga)

**ECDC Hazardous Waste Facility Feasibility Study Phase 2, South Africa**
**2017**
**Environmental and Waste Consultant**
Hazardous waste survey, feasibility study and cost analysis for the development of a hazardous waste facility in the Eastern Cape, south Africa

**Landfill GRAP 17 and 19 Assessments**

**Kannaland Local Municipality, Kannaland Local Municipality GRAP 17 And 19 Assessments, South Africa**
**2019 to 2019**
**Environmental and Waste Consultant**
GRAP 17 and GRAP 19 assessments of 4 landfill sites in municipality (Ladismith, Calitzdorp, Zoar and Van Wyksdorp Landfill Sites).

**Nyandeni Local Municipality, Nyandeni Local Municipality GRAP 17 And 19 Assessments, South Africa**
**2019 to 2019**
**Environmental and Waste Consultant**
GRAP 17 and GRAP 19 assessments of 1 landfill site and 1 transfer station in municipality.

**Environmental Impact Assessment and Basic Assessment Process**

**Stellenbosch Local Municipality, Devon Valley Landfill Site (New Cell 4), South Africa**
**2021 to 2022**
**Environmental Consultant**
Basic Assessment Process for the amendment of the Waste Management Licence for the development of a new cell at the Devon Valley Landfill Site in Stellenbosch, Western Cape, South Africa

**Department of Forestry, Fisheries and Environment, Waste Management Licence Applications for Five Unlicenced Waste Disposal Facilities, North West, Mpumalanga and Eastern Cape, South Africa**
**2021 to 2022**
**Environmental Consultant**
Environmental Impact Assessment and Basic Assessment Processes for the licencing of five (5) unlicenced Waste Disposal Facilities in the North West, Mpumalanga and Eastern Cape provinces, South Africa**.** Four (4) applications for operation Waste Management Licences (WMLs) and one (1) application for an operation to decommissioning WML.

**Centurion Aerospace Village (CAV), CAV Sewer Pipeline, , South Africa**
**2021 to 2022**
**Environmental Consultant**
Basic Assessment for the installation of a sewer pipeline to be connected to the existing municipality sewer services network, Centurion, City of Tshwane Metropolitan Municipality, Gauteng, South Africa.

**Environmental Compliance Audits**

**Orion Engineered Carbons (Pty) Ltd, NUP and EMPr Audit for the storage of CBO in tanks at the Dom Pedro Facility at the Port of Port Elizabeth, South Africa**

# Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

**2022 - 2023**
**Environmental Auditor**
External compliance audit of the NUP (Noxious Use Permit) and EMPr for the storage of carbon black oil (CBO) in tanks at the Dom Pedro facility at the Port of Port Elizabeth.

**Dekro Paints (Pty) Ltd, Dekro WML External Compliance Audit, Cape Town, South Africa**
**2023 to 2023**
**Environmental Auditor**
External compliance audit of the waste management licence for the solvent recovery facility at the Dekro Paints facility in Kuilsriver, Cape Town.

**Sasol Pipeline Operations, Sasol SNI and GNP Pipeline Audits, South Africa**
**2022 to 2022**
**Environmental Auditor**
External compliance audit of the SNI and GNP pipeline against the EA, EMPr and WUL conditions

**Sasol South Africa Limited, Sasol Sasolburg EA Audits, South Africa**
**2022 to 2022**
**Environmental Auditor**
External compliance audit of nine unit operations against their EA and EMPr conditions at the Sasol One Complex in Sasolburg.

**Langeberg Local Municipality, Langeberg Local Municipality Landfill External Audits, South Africa**
**2019 to 2022**
**Environmental Auditor**
External annual audits of 3 landfill sites (Ashton, Bonnievale and Montagu) according to their waste management licence conditions

**Kannaland Local Municipality, Kannaland Local Municipality Landfill External Audits, South Africa**
**2019 to 2019**
**Environmental Auditor**
External audit of 4 landfill sites in the municipality according to waste management licence conditions

**Environmental Management Plans and Environmental Control Officer**

**Orion Engineered Carbons (Pty) Ltd, Operational Environmental Management Programme (OEMPr) for the OEC Tanks Farms at Latita Tank Farm, Zone 7, Coega SEZ, Port of Ngqura, South Africa**
**2022 - 2023**
**Project Manager**
Develop the OEMPr for the development of the OEC Tank Farm within the Latita Tank Farm in Zone 7, Coega SEZ, Port of Ngqura, Gqeberha, South Africa.

**Eskom, Eskom Hotazel-Mothibistad 132 kV Power Line Installation with Associated Substations, South Africa**
**2017 to 2019**
**External Environmental Control Office**
Monthly ECO audits for the construction of 132 kV power lines and substations in Hotazel and Kuruman in the Northern Cape.

**Mott MacDonald, R61 Road Upgrade from Majola Tea to Tombo, South Africa**
**2015 to 2019**
**External Environmental Control Officer**
Monthly ECO audits for the road upgrade and construction of the R61 road from Majola Tea to Tombo, Eastern Cape.

**OR Tambo District Municipality and Amatole Water, King Sabata Dalinyebo Local Municipality Presidential Intervention Bulk Water Supply Infrastructure Upgrade Project title, South Africa**

# Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

**2013 to 2019**
**External Environmental Control Officer**
Coordinate all environmental management and auditing of all related bulk water supply projects. Undertake monthly ECO audits for the upgrade of the bulk water infrastructure within the King Sabata Dalinyebo Local Municipality. Projects included the construction of numerous reservoirs and installation of pipelines within the municipal area.

**Eskom, Eskom Hombe and Taweni Substation with Associated 132 kV Power Lines, South Africa**
**2013 to 2016**
**External Environmental Control Officer**
Monthly ECO audits for the construction of two 132 kV power lines and the Hombe and Taweni substations in the Eastern Cape.

**Eskom, ESKOM GREATER MTHATHA POWER LINE, South Africa**
**2013 to 2014**
**External Environmental Control Officer**
Monthly ECO audits for the construction of a 132 kV power line in Mthatha, Eastern Cape.

**PD Naidoo & Associates, R61 Road Upgrade in Engcobo, South Africa**
**2013 to 2016**
**External Environmental Control Officer**
Monthly ECO audits for the road upgrade and construction of the R61 road in Engcobo, Eastern Cape.

## Dissertations and Research Projects

**Department of Civil Engineering, University of Cape Town, Master of Engineering Dissertation.**

**2023**

Utilisation of the Biomath protocol for calibration of a model based on biological sulfate reduction (BSR) for the treatment of coal mine drainage and Fischer-Tropsch Reaction Water. Conduct a global sensitivity analysis (GSA) and uncertainty analysis to calibrate the model, determine the most sensitive parameters in the prototype CSTR-BSR model developed by Dr. T. Harding and reduce the uncertainty of the results during the simulations (with the use of DHI West®).

**Department of Chemical Engineering, Stellenbosch University, Bachelor of Engineering, Research Project**

**2016**

Conduct laboratory experiments to investigate the factors that influence elution of gold from and adsorption of gold onto activated carbon. This was done to determine if gold can be transferred from fine to coarse activated carbon in solution during or after the carbon adsorption process to extract gold stored on fine activated carbon.

# Matilda Mbazo

Earth and Environment, Environmental Planning & Advisory, Intern

## CAREER SUMMARY

Matilda Mbazo graduated from Monash South Africa with a BSc in Social Sciences (cum laude) in 2021 and completed her BSc Hons in Geography at University of Witwatersrand in 2022. Matilda is currently pursuing her MSc in Environmental Sciences at University of Witwatersrand. Matilda is an Intern in the Environmental Planning and Advisory Division of WSP Group Africa based in the Waterfall office. Matilda has less than a year experience in the environmental field and currently provides technical and strategic input on a diverse range project in the environmental management field, including environmental audits.

***1 < years with WSP***

***Language***

Afrikaans, English, Tswana, Ndebele, and Zulu

## EDUCATION

| | |
|---|---|
| Monash South Africa – Bachelor's degree in Social Sciences | 3 years |
| University of Witwatersrand - Bachelor of Science Honours (Geography) | 1 year |
| University of Witwatersrand – Master of Science (Environmental Sciences) | current |

## PROFESSIONAL HISTORY

| | |
|---|---|
| WSP – Intern | present |
| WSP - Vacation Student | 2021 - 2022 |
| IIE MSA – Administration Assistant | 2020 - 2021 |
| Cotton On Group – Sales Associate | 2020 - 2021 |

## PROFESSIONAL EXPERIENCE

**FFS Chloorkop Fired Heater**

July 2022 to June 2023

**ECO**: EA and EMPR Compliance Audit

**Sasol South Africa Limited, Sasol Sasolburg EA Audits, South Africa**

October 2022 to June 2023

**Environmental Auditor**

At the Sasol One Complex in Sasolburg, six unit operations were subject to an external compliance audit against their EA and EMPr criteria.

## Dissertations and Research Projects

**Department of Geography, Archaeology and Environmental Studies, University of Witwatersrand, Master of Science Dissertation.**

**2023**

To quatify the interactive effects of extreme drought, fire frequency, and mega-herbivory on tree density in a Marula-Knobthorn savanna using Geographic Information Systems and Remote Sensing.

**Department of Geography, Archaeology and Environmental Studies, University of Witwatersrand, Bachelor of Science (Geography), Research Project**

**2022**

Assessment of flood impact at the Hennops river, streaming from Tembisa to Centurion, using Remote Sensing and Geographic Information System.

**Annexure B – Hydrogen Rich Gas to Impala (upgrading of new PSA unit at ammonia plant) E/02/06**

Environmental Management Programme Operational Phase

Mitigations measures identified during the environmental impact assessment, for the operational phase of the project, defining the impact management outcome and impact management actions to enable compliance to this regulation.

| Impact management outcome | Impact management action |
|---|---|
| 1. Land and soil | 1.1 The development will take place on the Sasol Ammonia site (section 3000) on an already developed industrial area. The impact on the land in soil is therefore minimal. |
| 2. surface and ground water | 2.1 Storm water will also be routed to existing storm water sewers. There will be no liquid effluent from the proposed project. Therefore there will be no contamination of the surface and groundwater. |
| 3. Air quality impact | 3.1Under normal operating conditions no air emissions are expected. In the event of upset conditions some of the hydrogen may be flared, but it will be kept to the utmost minimum since this will result in a waste of viable product. |
| | 3.2 The process tail gas (impurities removed by the PSA unit) will be routed to the Sasol gas network. The impact of air emissions on the environment will therefore be very low |
| 4 Liquid effluent | 4.1 Used potable water will be routed to the existing treatment facilities. |
| | 4.2 Very small amounts of effluent (<1 litre per month) may be generated by the guard bed. This will manually be disposed of at an appropriate site as per existing procedure. |
| 5. Solid waste | 5.1 The adsorbents used in the PSA unit have a life expectancy of +/-20years.When it is required to replace the adsorbent materia it will be disposed of by a recognised waste disposal company. |
| | 5.2 Domestic waste will, as per current procedure, be disposed of at the Licences disposal site. No solid effluent will be produced by the process and therefore no significant impact on the environment is expected. |