



Our reference: SO-ENV-1336

29 November 2024

Your Ref: EA nr [EM1/02/18]

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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 Upgrade N-base Removal Unit with reference [EM1/02/18] dated May 2023.

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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 Upgrade N-base Removal Unit.

Yours faithfully

Signed by: Johann Van Wyk
Signed at: 2024-11-29 12:44:01 +02:00
Reason: I approve

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Annexure A

Audit report.

Upgrade N-base Removal Unit (Merisol)– ref [EM1/02/18]



Sasol South Africa Ltd

N-BASE REMOVAL ENVIRONMENTAL AUTHORISATION (REFERENCE: EM1/02/18) AND ENVIRONMENTAL MANAGEMENT PROGRAMME

Compliance Audit Report: November 2018 - March
2023





Sasol South Africa Ltd

N-BASE REMOVAL ENVIRONMENTAL AUTHORISATION (REFERENCE: EM1/02/18) AND ENVIRONMENTAL MANAGEMENT PROGRAMME

Compliance Audit Report: November 2018 - March 2023

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Sasol South Africa Ltd

N-BASE REMOVAL ENVIRONMENTAL AUTHORISATION (REFERENCE: EM1/02/18) AND ENVIRONMENTAL MANAGEMENT PROGRAMME

Compliance Audit Report: November 2018 - March 2023

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QUALITY CONTROL

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Prepared by	Matilda Mbazo			
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Checked by	Ian Malloy			
Signature				
Authorised by	Anri Scheepers			
Signature				
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SIGNATURES

PREPARED BY

Matilda Mbazo
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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	Anushia Govender
Area Operator	Jerry Motloun

WSP

Auditor	Matilda Mbazo
Lead Auditor	Ian Malloy
Project Director/ Quality Assurance	Anri Scheepers

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AUDITOR CVS

1 INTRODUCTION

1.1 TERMS OF REFERENCE

WSP Group Africa (Pty) Ltd (WSP) as an independent environmental consultant was appointed by Sasol South Africa Ltd through its Sasol Operations to undertake an external environmental compliance audit of the commitments contained in the Environmental Authorisation (EA) (reference number EM1/02/18) of the Mersiol N-Base Removal Unit 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 N-Base Removal Unit at the Sasol One Site are provided below:

- EA for the Mersiol N-Base Removal Unit at the Sasol One site in Sasolburg (reference number: [EM1/02/18]), dated 09 January 2003 and issued to Sasol South Africa Ltd by the Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA);
- EMPr for the N-Base Removal Unit at the Merisol division (on the Sasol One site) in Sasolburg, dated 02 July 2002 that was included in the Environmental Impact Assessment (EIA) report that was submitted to the DESTEA.

Sasol Sasolburg applied to amend the EA (reference number: EM1/02/18) as per the terms of the National Environmental Management Act, 1998 (act 107 of 1998) and the 2014 Environmental Impact Assessment regulations as amended for the N-Base Removal Unit at Sasol, Sasolburg to:

- Change the applicant details on the EA (five amendments);
- Change of brief description of the activity (two amendments); and
- Change of Location (two amendments).

The latest amendments were included in the audit checklist in **section 4**.

1.2 SASOL SASOLBURG – N-BASE REMOVAL UNIT

The plant is an existing plant and forms part of the process in which hydrocarbons (main phenols and cresols) are extracted to produce a pure phenol product.

Previously, the Merisol N-Base Removal plant was processing Low Neutral Oil De-Pitched Tar Acid (LNO-DTA) at a rate of 10.6 t/h with most of the equipment running near full capacity. However, it was decided to include the processing of High Purity De-Pitched Tar Acid (HP-DTA) (a product from the Naphtha extraction plant (Secunda)) in the Merisol Unit. The HP-DTA feed is fed in a semi-continuous campaign mode with the current LNO-DTA feed stream. The amount of HP-DTA processed required a 28% capacity increase of the N-Based Removal unit.

PROCESS DESCRIPTION

The bottom stream of the Drying Column is cooled down from 210°C to about 90°C. Sulphuric acid is added in a ratio of approximately 3.8 mass % to the bottom stream. This is done to convert the N-bases to N-base salts. Currently excess dosing takes place to provide for the fluctuations of the N-base concentrations in the feed stream and thus to prevent a N-base break through. However, excess

sulphuric acid reacts with phenols, resulting in a loss of products. Thus, efficient dosing and mixing is of great importance.

The formed N-base salts are removed from the stream via the de-pitcher located in the bottom of the stream. This column operates under a vacuum of 1.5kPa abs. The product is extracted from the chimney tray trough, while off-gases leave the column through the top stream. The off gases are scrubbed in a scrubber with a 10% caustic solution, thereafter it goes through a vacuum system and is ultimately released into the atmosphere.

1.3 PROJECT TEAM

Ian Malloy and Matilda Mbazo completed a site inspection of the N-Base Removal Unit against the EA conditions (EM1/02/18) at the Cresol, Section 4300 that includes the N-Base Removal Unit on **29 March 2023**.

The draft external audit report was compiled and finalised in May 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
Ian Malloy	Auditor	BEng Chemical BEng (Hons) Environmental MEng Water Engineering (in progress)
		Nine Years' Experience
		Ian is a Senior Environmental Consultant at WSP with over 9 years' experience in the environmental management industry. Ian graduated from the University of Stellenbosch with a BEng in Chemical Engineering in 2016 and a BEng Hons in Environmental Engineering in 2019. He is currently completing a MEng in Water Engineering. Ian has specialised in waste planning, environmental management and auditing, and environmental engineering. Ian has been involved in numerous waste and water management, and construction related projects in South Africa. The projects completed include EIAs, Water Use Licence (WUL) and Waste Management Licence (WML) Applications, amendment processes, developing IWMPs for District and Local Municipalities, developing EMPs, conducting environmental compliance audits of EAs, EMPs, WULs, and WMLs, conducting GRAP 17 and 19 assessments of landfill sites, and sampling and monitoring of groundwater and marine water.
Matilda Mbazo	Auditor	BSc (Hons) Geography
		Matilda graduated from the University of Witwatersrand with a BSc honours in Geography in 2023 and is currently completing her MSc 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 N-Base Removal Unit at the Merisol 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 29 March 2023 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 N-Base Removal Unit;
- Assess the level of compliance with the commitments of the EMPr that was submitted part of the EIA report for the licencing of the N-Base Removal Unit, as agreed by DESTEA;
- Assess the extent to which the avoidance, management and mitigation measures provided for in the EMPr for the operation of the N-Base Removal 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 N-Base Removal 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 CV's provided in Appendix A
34(2)b	The environmental audit report must provide verifiable findings, in a structured and systematic manner, on: (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 (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

Sub-Section	Requirement	Report Section Reference
	(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: (a) insufficient mitigation of environmental impacts associated with the undertaking of the activity (b) insufficient levels of compliance with the environmental authorisation or EMPr 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- (i) the independent person who prepared the environmental audit report; and (ii) the expertise of independent person that compiled the environmental audit report.	Sub-section 1.3 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- (i) sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis; (ii) sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and (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

Sub-Section	Requirement	Report Section Reference
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; and
- Site photographs were not provided in the audit report due to the onsite Sasol Sasolburg policy that disallows any photographs being taken on site. Where conditions were deemed compliant, and the evidence provided was onsite observation and verbal confirmation to support the findings.; this was observed by the Auditors.

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 (29 March 2023);
- 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** below provides the compliance of Sasol with the conditions within the EA and amendments to the EA.

Table 4-1 and **Table 4-2** below provides the compliance of Sasol with the conditions within the EMPr that were included in the Environmental Impact Assessment Report for the upgrade of the N-base removal unit at the Merisol Plant within the Sasol One site in Sasolburg, dated 2 July 2002.

Table 4-2 for the audit checklist.

3.2 SITE INSPECTION AND INTERVIEWS

An onsite inspection was conducted on 29 March 2023, where findings and observations were recorded and are summarised in **Section 4**. Key personnel interviewed included:

- Suyen Van Zyl
- Anushia Govender
- Jerry Motloun

3.3 INFORMATION CONSIDERED

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

- Environmental Impact Assessment Report: N-Base Removal Plant, dated 02 July 2002;
- Sasolburg Operations: Area Emergency Action Plan Monomers (Reference no: MON-GEN-AEA-0002) dated 10 January 2022;
- Sasol Noise survey and impact assessment for hearing (Reference no: SO-152-2020-TM-N) dated 16 March 2021;
- Sasol South Africa Limited: Information regarding HSP Scrubber (Reference no: Exemption 53) dated 20 December 2017
- Sasol Noise exposure verification and assessment for hearing conservation purposes (reference no.: SEO-056-2021-TM-N) dated 07 April 2022;

- Sasolburg Operations Site: Procedure for the management of waste on the Sasolburg Operations Sites (Reference no: SSP-S-014) dated 20 October 2020;
- Sasol South Africa Limited, Sasolburg and Ekandustria Operations: Annual Emission Report (Ref no: FDDM-MET-2013-20-R1) dated 29 August 2022;
- Air Emissions Licence (AEL) (reference number: FDDM-MET-2013-24-R1);
- 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, 2021);
 - 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.
- Storm Water management Plan Sasolburg Operations (File no: 27/2/2C222/6/4) (Sasolburg Operations, December 2021) Waste Management and Disposal Registers;
- Sasolburg and Ekandustria Operations ISO 45001:2018, ISO 9001:2015 and ISO 14001:2015 Recertification Audit Report (DQS Management Systems Solutions, November 2021);
- The reporting, investigation and recording of environmental incidents (document number: SSP-S-013) (Sasolburg Operations, July 2019);
- Noise survey and impact assessment for hearing conservation purposes, Sasolburg Operations Wax, Solvents and Chemicals, Cresol, S4300 (Sasol Approved Inspection Authority for Occupational Hygiene, March 2021);
- Environmental Standards;
- Health and Safety Standards and Audits;
- Approved EMPs;
- Other related approvals; and
- Various email correspondence.

3.4 ASSESSMENT EVALUATION METHODOLOGY

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

Table 3-1 Levels of Compliance

Compliance Level	Definition
Compliant (C)	<p>When an activity or commitment has been implemented, completed, is on-schedule or is maintained on an ongoing basis.</p> <p>Condition/mitigation measure/commitment has been achieved with evidence provided in the form of a document or site verification.</p>
Non-compliant (NC)	<p>When an activity or commitment has not been complied with in its entirety/certain aspects thereof have not been addressed.</p> <p>When a commitment has not been undertaken, not been completed according to plan, or where any unlawful actions have been identified. Non-compliant conditions are given target completion dates as follows:</p> <ul style="list-style-type: none"> — Short term: 0 – 6 months. — Medium term: 6 – 12 months. — Long term: 12 - 18 months
Not applicable (N/A)	<p>The condition, commitment and/or mitigation measure is not applicable or is to be revised in accordance with current practice.</p> <p>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.</p>

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 (EM1/02/18 dated 09/01/03) and subsequent Amendments: Audit Findings

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
Brief Description of the Activity				
	<p>In their catalytic cracking, Sasol South Africa (Pty) Ltd uses its raw gas to produce petrol. The gas liquor separated into two streams viz. phenols and tar-oils. The streams are processed further to produce LNO-DTA, SD-DTA and HP-DTA. These products will serve as additional feed to the Merisol Plant, which produces phenols.</p> <p>The average feed rate will be increased from a current 10.6 t/h to 15.6 t/h. This increase in feed rate will necessitate a plant capacity up-rating as some process equipment is running at maximum capacity.</p> <p>Sasol South Africa (Pty) Ltd acting through its operation therefore intends to up-rate the Merisol N-Base Removal Unit by:-</p>	C	<p>Sasol One personnel confirmed that the stated description of the activity is the exact processes at Merisol N-Base Removal Plant. The EIA was provided as evidence that further explains the description of the activity.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Environmental Impact Assessment of the N-Base Removal Plant with details of the design, 02 July 2002 Onsite observation Verbal confirmation 	None.

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
	<ul style="list-style-type: none"> debottlenecking the Sulphuric Acid (H₂SO₄), dosing and mixing system; improving feed vaporisation; adding a primary flash vessel; and improving the vacuum system. 			
Location				
	The work will be done within Sasol site, on Sasol One Site on Farm Infrachem 465. The area on which work will be done is already being used for chemical processes.	C	<p>The Auditor observed that the work is executed within Sasol One site for chemical processes.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Onsite Observation 	None.
Applicant				
	<p>Mr Rightwell Laxa</p> <p>SVP Sasolburg Operations,</p> <p>Sasol South Africa Ltd acting through its Sasolburg Operations,</p> <p>P.O. Box 1,</p> <p>SASOLBURG</p> <p>1947</p> <p>Tel: (016) 960 8001</p>	C	<p>The applicant details were amended in 2019 by the DESTEA.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> EA amendment for the Mersiol N-Base Removal Unit at the Sasol One site in Sasolburg (reference number: [EM1/02/18]), dated 22 October 2019 Verbal confirmation 	None.
Consultant				

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
	Esca Weston SASOL TECHNOLOGY (Pty) Limited Private Bag X 1034 SECUNDA 2302 Tel: (017) 619 2617 Fax: (017) 6192860	N/A	Noted.	None
Decision				
	The scoping report for the above-mentioned development is accepted and permission, in terms of Section 22 of the Environment Conservation Act, 1989 (act No. 73 of 1989) for feed up rating and Merisel plant modification has been granted subject to the conditions of approval contained in this Record of Decision.	N/A	Noted.	None.
Conditions				
Special Conditions				
i.	Feed emanating from Secunda must have been tested in Secunda before transportation to Sasolburg to avert disposing of any out-of-specification material in Sasolburg.	C	The Sasol personnel confirmed that the feed emanating from Secunda was tested in Secunda before transportation to Sasolburg to avert out-of-specification material delivered to Sasolburg. <i>Evidence:</i>	None.

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
			<ul style="list-style-type: none"> Verbal Confirmation Daily sample register from 07 March – 16 March as example of LNO-DTA feed tested from Secunda 	
ii.	Sufficient precautionary measures, to either incinerated or dispose of sludge and other solid wastes at a licensed waste site, must be taken.	C	<p>The sludge was collected, handled and disposed of at licensed hazardous waste landfill site by EnviroServ, a third-party service provider.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Confirmation Waste manifests and disposal register 	None.
iii.	Environmental Management Plan (EMP) must be submitted to the Department of Tourism, Environmental and Economic Affairs (Free State) before commencement of construction.	N/A	This condition is applicable to the pre-construction phase and refers to a requirement prior to commencement and was therefore not audited.	None.
iv.	The Chief Air Pollution Control Officer (CA.PCO) from National Department of Environmental Affairs and Tourism must be consulted from revision of the existing air permit.	C	<p>The air permit was amended and replaced by the Air Emissions Licence (AEL). An annual compliance audit of the AEL was completed in August 2022.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> 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; 	None.

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
v.	The existing emergency plan must be revised to include the new equipment.	C	<p>Sasol Sasolburg Operations has an emergency plan for all plant units on site, and includes all machinery and equipment. The plan details the procedures and responsible personnel should an emergency occur on site.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Sasolburg Operations: Area Emergency Action Plan Monomers (Reference no: MON-GEN-AEA-0002) dated 10 January 2022. 	None.
vi.	Noise from plant equipment must not exceed 85 dB; where noise exceeds this limit, silencers to effectively reduce the noise levels to the required 85 dB, must be installed	C	<p>Sasol staff confirmed that the noise levels of the plant do not exceed 85dBA. Staff were required to wear ear plugs and ear protection equipment when in noisy environments. The Auditor observed that equipment F43165 has a silencer for noise suppression.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Sasol Noise survey and impact assessment for hearing (Reference no: SO-152-2020-TM-N) dated 16 March 2021) Sasol Noise exposure verification and assessment for hearing conservation purposes (Reference no: SO-056-2021-TM-N) dated 07 April 2022) Onsite Observation 	None.
vii.	Where less skill is required, employment opportunities must by preference, be given to local labour.	C	Sasol has contracted local labour from a third-party service provider consisting of 13 employees that assist	None.

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
			with offloading of sulphuric acid, loading of HSP and plant cleaning. <i>Evidence:</i> <ul style="list-style-type: none"> Verbal Confirmation 	
viii.	Safety standards will not be compromised to below current levels. The Health and Safety Act shall be observed.	C	General precautionary/safety signages were identified on N-Base Removal site. Sasol Sasolburg has a dedicated Health and Safety department that ensures compliance with the Health and Safety Act. Annual Health and Safety Audits are conducted by internal and external auditors. <i>Evidence:</i> <ul style="list-style-type: none"> Onsite Observation Verbal Confirmation Training registers PPE registers Health and Safety reports 	None.
Standard Conditions				
i.	The applicant must advertise the authorisation of this specific activity in terms of Section 22 of the Environment Conservation Act, 1989 (Act 73 of 1989) : Schedule 1 of the Government Gazette No.R1182, Proof of this advertisement must be submitted to his Department within 14 days from the date of this authorisation	N/A	Noted. The advertisement of the RoD was considered for the pre-construction and construction phase; therefore, this condition is outside the audit period and was not audited.	None

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
ii.	This record of decision 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 N-base removal 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.
iii.	The authorised activity, including site preparation, may not commence before the statutory appeal period expires. The 30 days appeal period starts from date of advertisement of this Record of Decision.	N/A	Noted. The condition is applicable for the pre-construction and construction phase; therefore, this condition was outside the audit period and was not audited.	None.
iv.	A copy of this authorisation and a copy of the relevant Scoping Report shall be available at the site office at all times. Staff members and contractors shall be conversant with its content.	C	A hardcopy of this authorisation and the relevant Scoping Report was readily available in the senior manager's office that managed the N-Base removal unit. An electronic copy of the EA and scoping report was available on the Sasol intranet that was available to staff within the Sasol SHE department. <i>Evidence:</i> <ul style="list-style-type: none"> Onsite Observation 	None
v.	The Department must be granted access to the property at any time to investigate any possible environmental impacts that may be caused by this development.	N/A	Noted. The department has not visited the N-base removal facility during the audit period.	None

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
vi.	The records of compliance /non-compliance with conditions of this authorisation must be kept in good order. Such records should be available to this Department within seven (7) days from the date of written request from this Department.	C	<p>Records of compliance/non-compliance with conditions of this authorisation were kept in good condition and were readily available, therefore, should be readily available should the Department require them. No request was made by the Department during the audit period for records or documents. In addition, the previous audit was provided with the records of compliance/non-compliance with conditions of this authorisation.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Onsite Observation External Audit of RoD/EMP: G&U, Installation of 2 High Sulphur Pitch (HSP) Storage Tanks at the Merisol Plant, document reference: CEM 2019/007 (July 2019) 	None
vii.	Non-compliance with, or any deviation from the conditions of this authorisation as set out in the Record of Decision, is regarded as an offence and will be dealt with in term of Section 29, 30 and/or 31 A of the Act	N/A	Noted. No deviations from the stated conditions within the EA were noted during this audit.	None
viii.	The Department may change, add or amend any of the conditions mentioned in this authorisation, if in the opinion of the Department, it is environmentally justifiable.	C	The Department authorised five amendments to the EA to date. The last amendment was authorised in October 2019.	None
Key Factors for the Decision				

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
i.	Environmental impacts will be minimal as the activity will be within active industrial area.	C	The Auditor identified that there was no effect on the environment as the site is within an industrial area. <i>Evidence:</i> <ul style="list-style-type: none"> Onsite Observation 	None
ii.	There is no evidence of items of historical or cultural importance in and around the proposed site.	C	The Auditor identified that there was no evidence of items of historical or cultural importance in and around the proposed site. In addition, the site is within an industrial area. <i>Evidence:</i> <ul style="list-style-type: none"> Onsite Observation 	None
iii.	There will be no negative socio-economic impacts.	C	Sasol personnel confirmed that there was no negative socio-economic impacts associated with the operations of the N-base removal. <i>Evidence:</i> <ul style="list-style-type: none"> Verbal Confirmation Onsite observation 	None
4. Duration and Date of Expiry				
i.	The permit is valid for as long as: - (a) Development shall have started within 3 years from the date of issue of the Record of Decision.	N/A	Noted. This condition is outside the audit period and refers to a requirement prior to commencement and was therefore not audited. The RoD was issued in 2003 and construction was finalised in 2004.	None.

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
ii.	The development does not pose an environmental hazard.	C	<p>The Auditor observed that the N-base Removal plant does not pose an environmental hazard.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Confirmation Onsite Observation Incident register Complaints register 	None.
5. Appeal				
	<p>Should this record of decision be queried, an appeal under section 35(3) of the Act, may be done in writing within 30 (thirty) days from the date on which this record of decision was advertised and must be directed to:</p> <p>The MEC: Department of Environmental Affairs and Tourism</p> <p>Free State Province</p> <p>P/Bag X20801</p> <p>Bloemfontein,</p> <p>9300</p>	N/A	Noted. This condition is outside the audit period and refers to a requirement prior to commencement and was therefore not audited. The facility was operational.	None.

4.2 ENVIRONMENTAL MANAGEMENT PROGRAMME

Table 4-2 below provides the compliance of Sasol with the conditions within the EMPr that were included in the Environmental Impact Assessment Report for the upgrade of the N-base removal unit at the Merisol Plant within the Sasol One site in Sasolburg, dated 2 July 2002.

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)
1. Transportation								
	Transportation of feed to plant: 1. New feed (HP-DTA) by train from Secunda	C	<p>Sasol staff confirmed the process overview indicates that feed was fed in a semi-continuous channel mode as the LNO-DTA feed stream from Secunda.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Environmental Impact Assessment Report: N-Base Removal Plant, dated 02 July 2002 Verbal Confirmation Daily sample register from 07 March – 16 March as example of LNO-DTA feed tested from Secunda 	None	None.	N/A	N/A	N/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)
	<p>Transportation of by-products and products: 2.</p> <p>The HSP waste is collected in the pitch tanks. From the pitch tank it is loaded into road tankers for incineration or offsite treatment with registered third parties.</p>	C	<p>The HSP waste is collected in the pitch tanks F4394A and F4394B and from the pitch tank it was loaded into road tankers for treatment and disposal by a 3rd party service provider.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Confirmation Onsite observation Wax, Chemical and Solvents waste inventory and register Waste manifests and disposal register. 	None	None.	N/A	N/A	N/A
	<p>Transportation of by-products and products: 3. Water is drained from the vacuum condensers (C-4346/4342) to a vacuum drum from where it flows into the phenolic water sewer. This water is treated in the Phenosolvan plant. Currently the stream is operating at 320 kg/h and is expected to increase to about 470kg/h</p>	C	<p>The Auditor noted that the activity is correct. Moreover, estimates of flow water was made during the EIA and are not required to be measured. WUL requires measurements on the outfall/outflow to ensure compliance and not the internal flow rate of units and processes. If there was a large contributor to outfall flow and characteristics, then monitoring is conducted on this specific unit flow.</p> <p><i>Evidence:</i></p>	<p><i>Of:</i></p> <p>Sasol should consider amending this condition in the EMPr as there is no need to measure the flow for compliance on the outfall – does not</p>	N/A	N/A	N/A	N/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)
			<ul style="list-style-type: none"> Verbal Confirmation 	trigger any other activity.				
2. Disposal and Routings								
	<p>Disposal/Routing of spent chemicals- for cleaning/pickling/ passivation and desiccants, solvents, catalysts.</p> <p>DIPE recycle back to recycle E- 4328 column, Caustic is drained into HOW water system and send to Phenolsolvan. Cleaning and pickling is performed by 3rd parties.</p>	C	<p>Caustic is drained into the HOW water system and thereafter sent to Phenosolvan. Thereafter is it is recycled back into the E-4328 column by DIPE. A third party handles the cleaning and pickling.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Confirmation Onsite observation 	None.	N/A	N/A	N/A	N/A
	<p>Disposal/Routing of off-spec feed 1.</p> <p>Feed to be tested in Secunda, there is no chance for off-spec feed</p>	C	<p>Sasol personnel confirmed that feed is tested in Secunda therefore no off-spec feed was received at Sasol One site.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Communication Onsite observation Environmental Impact Assessment Report: N-Base Removal Plant, dated 02 July 2002 	None.	N/A	N/A	N/A	N/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)
			<ul style="list-style-type: none"> Verbal Confirmation Daily sample register from 07 March – 16 March as example of LNO-DTA feed tested from Secunda 					
	<p>Disposal/Routing of off-spec by-products and products:</p> <p>Any off-spec product produced are recycled back to the feed tanks and re-circulated through the process</p>	C	<p>Sasol personnel confirmed that feed was tested in Secunda therefore no off-spec feed was received at Sasol One site.</p> <p>Off-spec product received that was produced was treated and dosed with sulphuric acid and fed to the feed tanks and re-entered the process.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Communication Onsite observation 	None.	N/A	N/A	N/A	N/A
Solid waste								
	Disposal of construction waste. To include wastes from spray painting, welding, grinding, cutting of pipes, storage of cement/grease, oils and paints and during the mixing of concrete.	N/A	This condition is outside the audit period and refers to a requirement prior to construction and was therefore not audited. The facility was operational.	None.	N/A	N/A	N/A	N/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)
	Disposal method will be specified in contract document. Disposal at a licenced site.							
	Disposal of packaging material. Disposal method will be specified in contract document. Disposal at a licenced site.	N/A	This condition is outside the audit period and refers to a requirement prior to construction and was therefore not audited. The facility was operational.	None.	N/A	N/A	N/A	N/A
	Routing/disposal/re-use/storage of excavated materials/soils. Routing/disposal/re-use/storage will be specified in contract document. Excavated soils will be disposed off at licenced landfill.	N/A	This condition is outside the audit period and refers to a requirement prior to construction and was therefore not audited. The facility was operational.	None.	N/A	N/A	N/A	N/A
	Disposal/re-use of building rubble and other construction waste. Disposal/re-use will be specified in contract	N/A	This condition is outside the audit period and refers to a requirement prior to construction and was therefore not audited. The facility was operational.	None.	N/A	N/A	N/A	N/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)
	document. Disposal at a licenced landfill site.							
	Handling and disposal of insulation material. Handling and disposal will be specified in contract document. Disposal at a licenced landfill site.	N/A	This condition is outside the audit period and refers to a requirement prior to construction and was therefore not audited. The facility was operational.	None.	N/A	N/A	N/A	N/A
	Handling/storage/disposal of redundant piping and equipment. Handling/storage/disposal will be specified in contract document. Disposal at a licenced site.	N/A	This condition is outside the audit period and refers to a requirement prior to construction and was therefore not audited. The facility was operational.	None.	N/A	N/A	N/A	N/A
	Disposal of sludge. No change to existing. Sludge to be recycled, re-use or disposed of at licensed site.	C	The sludge is recycled, re-used or disposed of at licensed site or handled and disposed of by a third party service provider. <i>Evidence:</i> ■ Verbal Confirmation	None.	N/A	N/A	N/A	N/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)
			<ul style="list-style-type: none"> Waste Manifests Wax, Chemical and Solvents waste inventory and register Waste manifests and disposal register. 					
	<p>Disposal of contaminated equipment.</p> <p>FeSO₄ contaminated filters and N-Base salts removed from proposed filter system to be incinerated. Existing incinerator load: +/- 35t/d. According to simulations done new incinerator load after changes will decrease to +/- 20 t/d.</p>	N/A	<p>This condition is outside the audit period as no FeSO₄ and N-Base salts were removed from the filter system since the previous external compliance audit and was therefore not audited.</p> <p>The Auditor noted that the HSP removal was not utilised. Metal with a sieve is currently the primary use. FeSO₄ contaminated filters were taken out in 2015 (8 years prior to audit).</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Confirmation 	<p><i>O/I:</i></p> <p>It is recommended that Sasol amends this EMPr to allow for waste removal or incineration to be applied when the filters are removed.</p>	N/A	N/A	N/A	N/A
Liquid Effluent								
	Spillage of fuel and oil during the use of electric generators.	N/A	This condition is outside the audit period and refers to a requirement prior to construction and was therefore not audited. The facility was operational.	None.	N/A	N/A	N/A	N/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)
	Slight possibility, will be specified in contract document.							
	Disposal used for flushing: Into phenolic sewer to phenosolvan plant to be treated	C	<p>The liquid effluent was directed into the phenolic sewer that directed into the phenosolvan plant to be treated.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> IWWMP Onsite Observation Verbal Confirmation 	None.	N/A	N/A	N/A	N/A
	<p>Storm water management (Routing of on-spec/contaminated storm water.</p> <p>Routed to Chemical sewer. Existing infrastructure</p>	C	<p>Water collected in the sump and bund were pumped to the HOW system and then to section 1900/phenosalvan plant for treatment.</p> <p>The phenosalvan unit then removes the tar acid and the organic water that was directed to wastewater treatment.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> IWWMP Onsite Observation 	None.	N/A	N/A	N/A	N/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)
			<ul style="list-style-type: none"> Verbal Confirmation 					
	Disposal/routing of water used for hydro testing. Condensate water used for hydro testing. Condensate to storm water sewer	C	The hydro testing (i.e. pressure testing) generates condensation that goes to the HOW system. <i>Evidence:</i> <ul style="list-style-type: none"> Onsite Observation Verbal Confirmation 	None.	N/A	N/A	N/A	N/A
	Disposal /routing of wash water for plant (cleaning of equipment) Steam to be used. Disposed off into existing chemical sewer.	C	The wash water is utilised to clean the equipment of the plant then it is disposed of into the HOW system. <i>Evidence:</i> <ul style="list-style-type: none"> IWWMP Onsite Observation Verbal Confirmation 	None.	N/A	N/A	N/A	N/A
	Disposal of used potable water. To existing clean sewer. Within existing bund area.	C	Sasol personnel confirmed that potable water was transported to Sasol One Complex clean sewer system.	None.	N/A	N/A	N/A	N/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)
			<i>Evidence:</i> <ul style="list-style-type: none"> IWWMP Onsite Observation Verbal Confirmation 					
	Disposal/routing of firewater. To storm water sewer.	C	<p>The firewater within Cresol goes to the HOW system. The firewater was not required to date.</p> <i>Evidence:</i> <ul style="list-style-type: none"> Onsite Observation Verbal Confirmation 	None.	N/A	N/A	N/A	N/A
	Routing/disposal of process effluent. Vacuum system water to phenolic sewer	C	<p>Sasol personnel confirmed that effluent water from then vacuum system is directed to the phenolic sewer.</p> <i>Evidence:</i> <ul style="list-style-type: none"> IWWMP Verbal Confirmation 	None.	N/A	N/A	N/A	N/A
	Measuring of effluent and method. Formal measurement on condenser line.	C	Measurements were taken on the condenser line and the to the HOW system.	None.	N/A	N/A	N/A	N/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)
			<p>When levels were at 80% or lower, it was pumped to Section 1900, the phenosalvan plant.</p> <p>If specs are not measured, the levels diluted and lowered to be within the spec.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> IWWMP Verbal Confirmation Onsite Observation 					
	<p>Liquid effluents generated during loading/off-loading of feed, chemicals, solvents, products and by-products.</p> <p>1. Caustic - Closed tanks within bunded area. To existing sewer system</p>	C	<p>Liquid effluents were generated during loading/off-loading of feed, chemicals, solvents, products and by-products.</p> <p>Caustic was stored and operated within closed tanks, which were stored within a bund and placed within a larger bunded area. The bund was designed to drain to the existing HOW system.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> IWWMP Verbal Confirmation Onsite Observation 	None.	N/A	N/A	N/A	N/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)
	Liquid effluents generated during loading/off-loading of feed, chemicals, solvents, products and by-products. 2. Sulphuric acid – N ₂ blanket within bunded area. To existing sewer system.	C	Sasol personnel stated that if there was any problem in the H ₂ SO ₄ tank in the plant it would be contained within the bund. Any leak of the H ₂ SO ₄ is neutralised with soda ash. Once neutralised and when the pH level was around 7, it was pumped to the HOW system. <i>Evidence:</i> <ul style="list-style-type: none">Verbal ConfirmationEmergency response plan	None.	N/A	N/A	N/A	N/A
	Liquid effluents generated during loading/off-loading of feed, chemicals, solvents, products and by-products. 3. DIPE - N ₂ blanket within bunded area. To existing sewer system.	C	The DIPE tank had its own N ₂ blanket system and was placed within the bunded area. The bund drains to the existing sewer to the HOW system. <i>Evidence:</i> <ul style="list-style-type: none">Onsite Observation	None.	N/A	N/A	N/A	N/A
Emissions								
	Emissions to flare. Use existing flare. Existing procedures.	C	The Auditor observed that all emissions are directed to the existing flare.	None.	N/A	N/A	N/A	N/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)
			<i>Evidence:</i> <ul style="list-style-type: none"> Onsite Observation Verbal Confirmation 					
	Venting of emissions. Through scrubber system to atmosphere	C	<p>All emissions are directed through a scrubber system then to the existing flare and then released into the atmosphere.</p> <i>Evidence:</i> <ul style="list-style-type: none"> Verbal Confirmation Onsite Observation 	None.	N/A	N/A	N/A	N/A
	Incinerator emissions. Waste streams sent to incinerator. Existing load to incinerator: +/-35t/d. According to simulations with new changes incinerator load will decrease to +/- 20 t/d	N/A	<p>Noted. Incineration processes of the HSP waste has seized therefore this condition is not applicable.</p> <i>Evidence:</i> <ul style="list-style-type: none"> Verbal Confirmation Onsite Observation Waste registers 	<p>OFI:</p> <p>It is recommended that Sasol amends condition to align the requirement to existing SO operational procedures.</p>	N/A	N/A	N/A	N/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)
	Emissions from tank breathers on storage tanks. All tanks are currently vented to atmosphere because of the low vapor pressure of the compounds. No new emissions streams are created in this project, as no new technology (except for the mixer system) is introduced to the area	C	As a result of the low vapour pressure of the compounds, storage tank breathers were vented to the atmosphere. <i>Evidence:</i> <ul style="list-style-type: none">Onsite ObservationVerbal Confirmation	None.	N/A	N/A	N/A	N/A
	Fugitive Emissions. If required vent to atmosphere	C	The N-base removal has a vent for vapour to be released into the atmosphere if required. <i>Evidence:</i> <ul style="list-style-type: none">Onsite ObservationVerbal Confirmation	None.	N/A	N/A	N/A	N/A
	Emissions from effluent from loading/off-loading/disposal of feed/chemicals etc. 1. Caustic - Tank within bunded area. Vent to atmosphere	C	The caustic tank was placed within a bund and had a vent to the atmosphere. <i>Evidence:</i> <ul style="list-style-type: none">Onsite ObservationVerbal Confirmation	None.	N/A	N/A	N/A	N/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)
	Emissions from effluent from loading/off-loading/disposal of feed/chemicals etc. 2. Sulphuric acid - N ₂ blanket within bunded area	C	The N-base removal has a sulphuric acid storage within the bunded area with a N ₂ blanket to control any potential spillage. <i>Evidence:</i> <ul style="list-style-type: none">Verbal ConfirmationOnsite Observation	None.	N/A	N/A	N/A	N/A
	Emissions from effluent from loading/off-loading/disposal of feed/chemicals etc. 3. DIPE - N ₂ blanket within bunded area.	C	The N-base removal has a DIPE storage within the bunded area with a N ₂ blanket to control any potential spillage. <i>Evidence:</i> <ul style="list-style-type: none">Verbal ConfirmationOnsite Observation	None.	N/A	N/A	N/A	N/A
	Venting of purge gas. 1. To flare. Existing procedures	C	The purge gas has a vent that sends the gas to the flare. <i>Evidence:</i> <ul style="list-style-type: none">Sasolburg Operations Site: Procedure for the management of waste on the Sasolburg Operations Sites (Reference no: SSP-S-014) dated 20 October 2020Verbal Communication	None.	N/A	N/A	N/A	N/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)
			<ul style="list-style-type: none"> Onsite Observation 					
	<p>Other emissions.</p> <p>1. De-pitcher column scrubbed off-gas. After the off-gas from the top of the De- pitcher column has been scrubbed and cooled via the vacuum system condensers, the remaining non-condensable vapours are released to the atmosphere 3m above working platform. The off-gases mainly consist of SOx's and NOx's. The composition of this stream will be finalized as soon as a sample was taken and analysed.</p>	C	<p>E4331 – Has a vent pipe but no measurements are done.</p> <p>The depitcher has nothing to do with tank scrubber unit.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Communication Onsite Observation Sasol South Africa Limited: Information regarding HSP Scrubber (Reference no: Exemption 53) dated 20 December 2017 Sasol South Africa Limited, Sasolburg and Ekandustria Operations: Annual Emission Report (Ref no: FDDM-MET-2013-20-R1) dated 29 August 2022 	None.	N/A	N/A	N/A	N/A
Social								
	Labour and employment required.	N/A	According to the EMPr, this condition was outside the audit period and refers to a requirement	None.	N/A	N/A	N/A	N/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)
	1. Will be included in contract document. No additional labour will be needed		<p>prior to and during the construction phase and was therefore not audited. The facility was operational.</p> <p>Sasol personnel confirmed that no additional labour was required.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Confirmation 					
	Noise. 1.Flare not continuously active. No additional noise impact.	C	<p>When steam leaks occur Sasol personnel is required to use double ear protection. Ear plugs and ear protection covers are mandatory before fixing the leaks.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Sasol Noise survey and impact assessment for hearing (Reference no: SO-152-2020-TM-N) dated 16 March 2021) Sasol Noise exposure verification and assessment for hearing conservation purposes (Reference no: SO-056-2021-TM-N) dated 07 April 2022) Onsite observation 	None.	N/A	N/A	N/A	N/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)
	Noise. 2. Very little noise is generated on this plant. The noise level from equipment and valves shall not exceed 85dBA from the sound-producing source.	C	<p>Sasol staff confirmed that the noise levels of the plant do not exceed 85dBA. Staff were required to wear ear plugs and ear protection equipment when in noisy environments.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Sasol Noise survey and impact assessment for hearing (Reference no: SO-152-2020-TM-N) dated 16 March 2021) Sasol Noise exposure verification and assessment for hearing conservation purposes (Reference no: SO-056-2021-TM-N) dated 07 April 2022) Onsite observation 	None.	N/A	N/A	N/A	N/A
	Additional sources of odour. Process stays the same. The changes to the plant will not increase odours.	C	<p>Sasol confirmed there were no changes to the plant therefore, no increase of odours has been recorded.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Verbal Confirmation Complaints register Onsite observation 	None.	N/A	N/A	N/A	N/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)
	Permit requirements for TLC/CAPCO/DWAF/ Transport/ Excavations. Existing Air permit will be revised & updated. CAPCO will be consulted.	C	<p>The AEL was updated and AEL compliance audits were conducted as required.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Sasol South Africa Limited, Sasolburg and Ekandustria Operations: Annual Emission Report (Ref no: FDDM-MET-2013-23-P3) dated 29 August 2022 	None.	N/A	N/A	N/A	N/A
Emergency Plans								
	<p>Does an emergency plan for major loss of containment in the plant exist?</p> <p>New equipment will be included in the existing emergency plan. Existing plan will be updated</p>	C	<p>An emergency response plan was developed and in place for the Sasol Sasolburg plant and the N-base removal unit was included in this plan. Sasol conducts credible scenarios emergency drills that are a mandatory. All new equipment are included in the emergency response plan every 12-months.</p> <p><i>Evidence:</i></p> <ul style="list-style-type: none"> Sasolburg Operations: Area Emergency Action Plan Monomers (Reference no: 	None.	N/A	N/A	N/A	N/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)
			MON-GEN-AEA-0002) dated 10 January 2022; ■ Verbal confirmation.					

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 2018. A comparison in the change of compliance rating from the 2018 and 2023 audits are provided in **Figure 5-1** and **Table 5-1** below, and provides a summary of the audit findings for the previous and current audits (2019 and 2023). The 2023 EA and EMPr audit identified zero non-compliant condition.

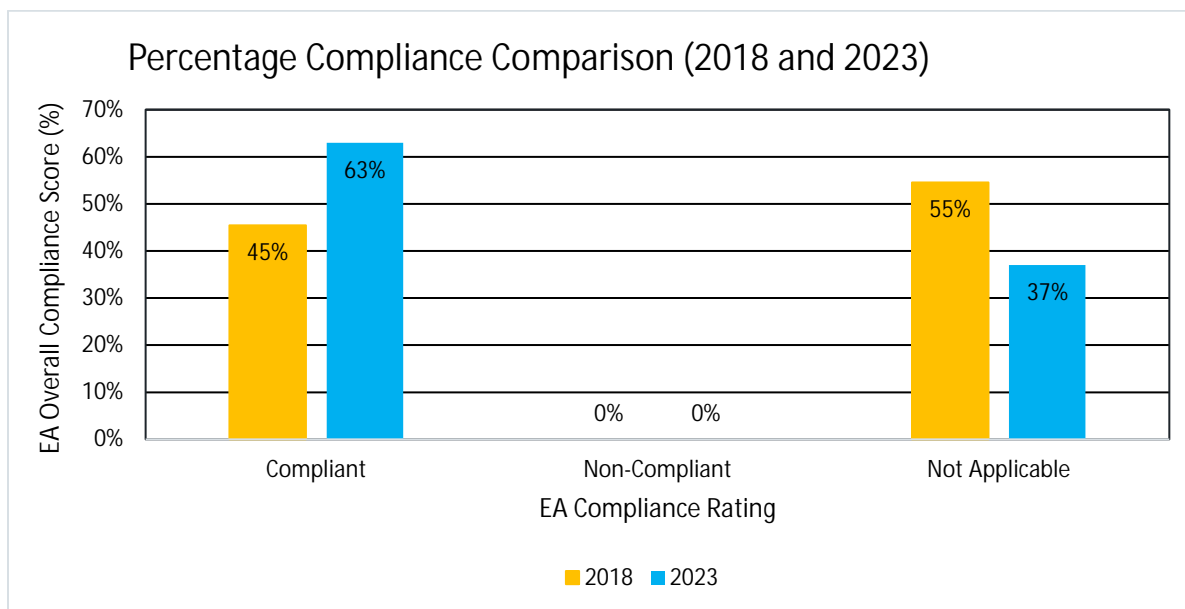


Figure 5-1 – Percentage comparison of Environmental Authorisation compliance levels from 2019 to 2023

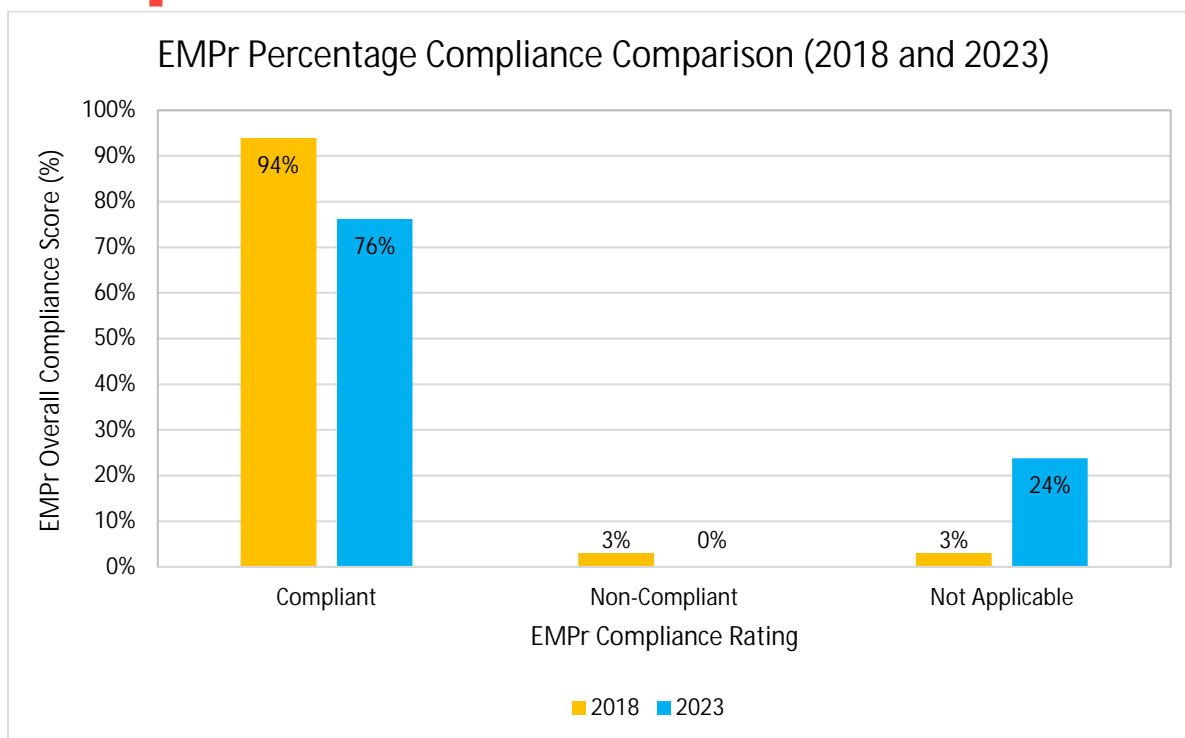


Figure 5-2 - Percentage comparison of EMPr compliance score from 2018 to 2023

Table 5-1 – Progress against previous findings

Ref	Commitment	2018 Status	2018 Finding	2023 Status	2023 Finding
EMPr Conditions					
Transportation					
	Transportation of by-products and products: 2. The HSP waste is collected in the pitch tank F7101B and from the pitch tank it is loaded into road tankers for incineration. The production rate of HSP is currently about 35 t/d. With the expected decrease in sulphuric acid addition (due to more effective mixing) the amount of HSP produced per ton of feed	OFI	At the time of the audit it was communicated to the auditor that the HSP waste is not collected in pitch tank F7101B. The HSP waste is collected in the pitch tanks F4394A and F4394B. This is a non-compliance to a transportation condition (page 2 of 6) of the Environmental Management Plan of the N-Base Removal Plant to be Upgraded at	-	Condition was amended since 2019 audit.

Ref	Commitment	2018 Status	2018 Finding	2023 Status	2023 Finding
	decreases. The future HSP production rate with the increased flow rate will decrease to about 20t/d		Merisel (Pty) Ltd... which requires that the HSP waste is collected in the pitch tank F7101B. It is recommended that this condition in the said Environmental Management Plan be amended to reflect the practice on the ground.		
	The HSP waste is collected in the pitch tanks. From the pitch tank it is loaded into road tankers for incineration or offsite treatment with registered third parties.	-	Condition was amended since 2019 audit.	C	The HSP waste is collected in the pitch tanks F4394A and F4394B and from the pitch tank it is loaded into road tankers for collection, treatment and disposal by a 3 rd party service provider.. The HSP waste is no longer loaded in for incineration, therefore, this condition is non-compliant. It is recommended that Sasol amends the EMP _r to align condition to existing SO operational procedures.
Disposal and Routing					
	Disposal/Routing of spent chemicals- for cleaning/pickling/passivation and desiccants, solvents, catalysts. DIPE recycle back to recycle E- 4328 column, Caustic is drained into HOW water system and	NC	At the time of the audit it was communicated to the auditor that caustic (as a spent chemical) is not routed back to a caustic drum. Caustic is drained into the high organic waste (HOW) water system and sent to	-	Condition was amended since 2019 audit.

Ref	Commitment	2018 Status	2018 Finding	2023 Status	2023 Finding
	send to Phenolsolvan. Cleaning and pickling is performed by 3 rd parties.		phenosolvan. This is a non-compliance to a general disposal and routing condition (page 2 of 6) of the Environmental Management Plan of the N-Base Removal Plant to be Upgraded at Merisol (Pty) Ltd... which requires that caustic be routed back to a caustic drum. It is recommended that this condition in the said Environmental Management Plan be amended to reflect the practice on the ground		
	Disposal/Routing of spent chemicals- for cleaning/pickling/passivation and desiccants, solvents, catalysts. DIPE recycle back to recycle E- 4328 column, Caustic is drained into HOW water system and send to Phenolsolvan. Cleaning and pickling is performed by 3 rd parties.	-	Condition was amended since 2019 audit.	C	Caustic is drained into the HOW water system and thereafter sent to Phenosolvan. Thereafter is it is recycled back into the E-4328 column by DIPE. A third party handles the cleaning and pickling.

6 SUMMARY OF THE AUDIT FINDINGS

6.1 SASOL SASOLBURG N-BASE REMOVAL FACILITY 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
Description of the Activity	1	1	0	0
Location	1	1	0	0
Applicant	1	1	0	0
Consultant	1	0	0	1
Decision	1	0	0	1
Special Conditions	8	7	0	1
Standard Conditions	8	3	0	5
Key Factors in Decision	3	3	0	0
Duration date of Expiry	2	1	0	1
Appeal	1	0	0	1
Total	27	17	0	10
Total Percentage		63%	0%	37%
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.

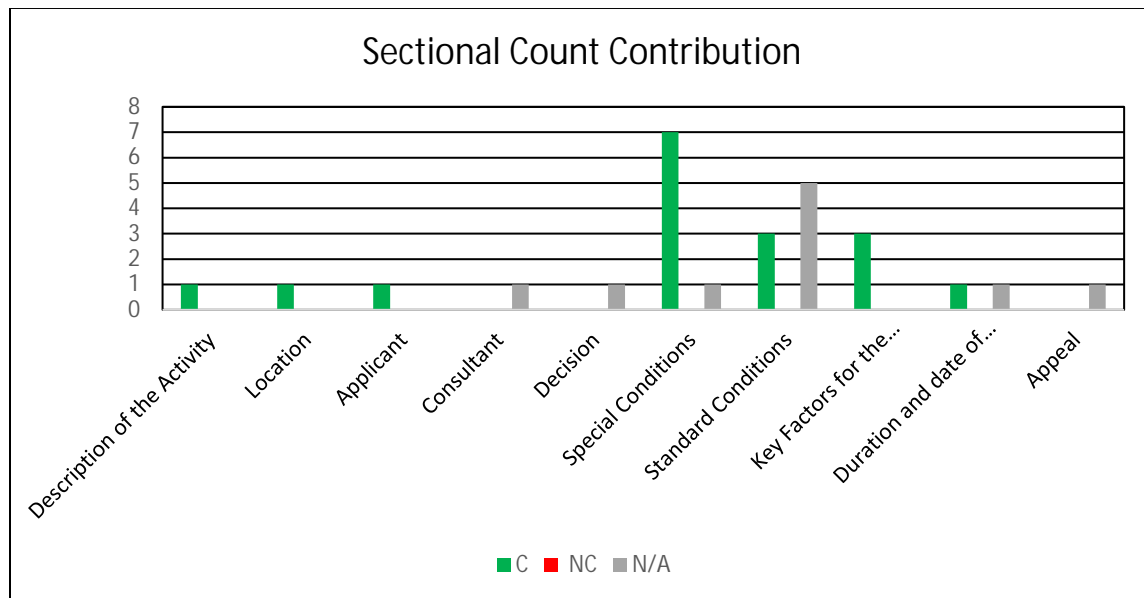


Figure 6-1 - Number/Count contribution of findings made to the expansion projects EA conditions per section

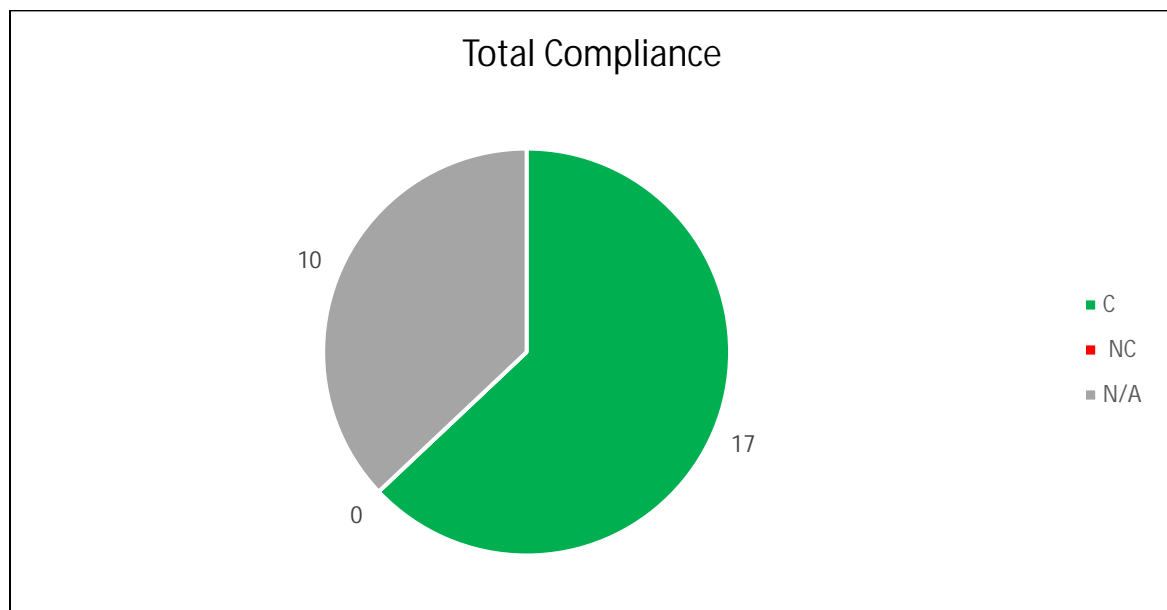


Figure 6-2 - Overall count findings on compliance to the EA commitments

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

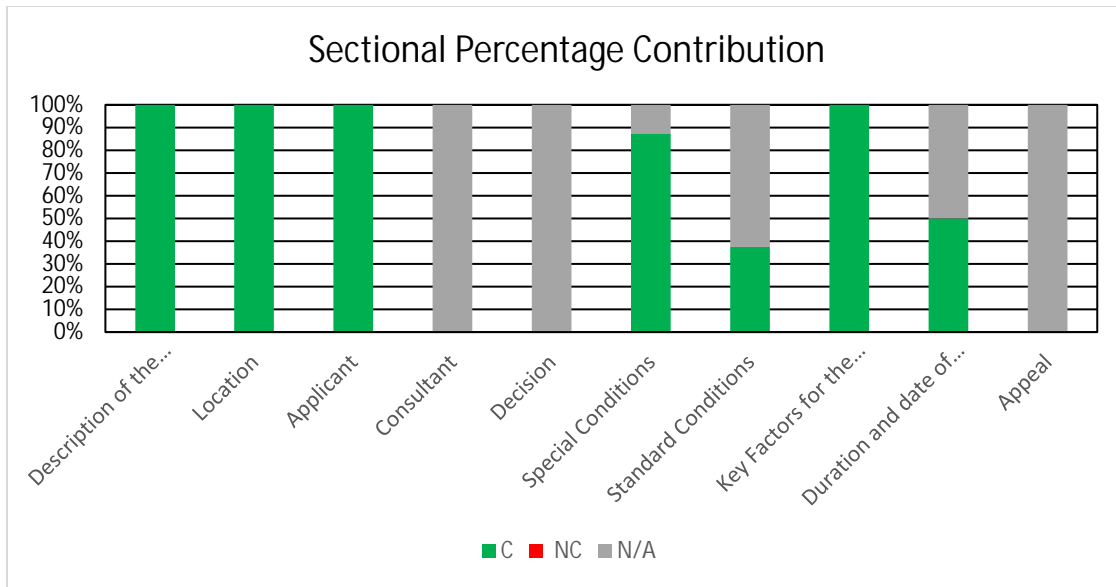


Figure 6-3 - Percentage contribution of findings made to the EA Commitments per Section

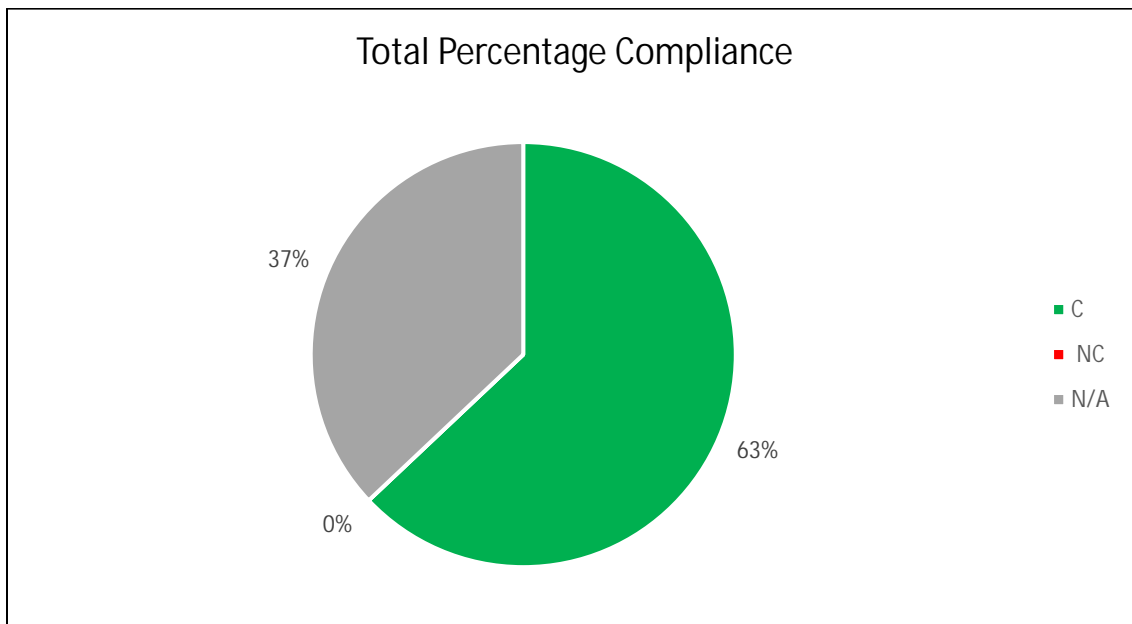


Figure 6-4 - Overall percentage findings on compliance to the EA Commitments

6.2 SASOL SASOLBURG N-BASE REMOVAL FACILITY EMPR

The 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 EA Compliance Audit Findings

Section of the EMPr	No. Commitments	C	NC	N/A
Transportation	3	3	0	0
Disposal and Routing	2	3	0	0
Solid Waste	2	1	0	7
Liquid Waste	11	11	0	1
Emission	10	9	0	1
Social	4	4	0	1
Emergency Plans	1	1	0	0
Total	42	32	0	10
Total Percentage		76%	0%	24%
Percentage Compliance with Applicable Conditions	100%			

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

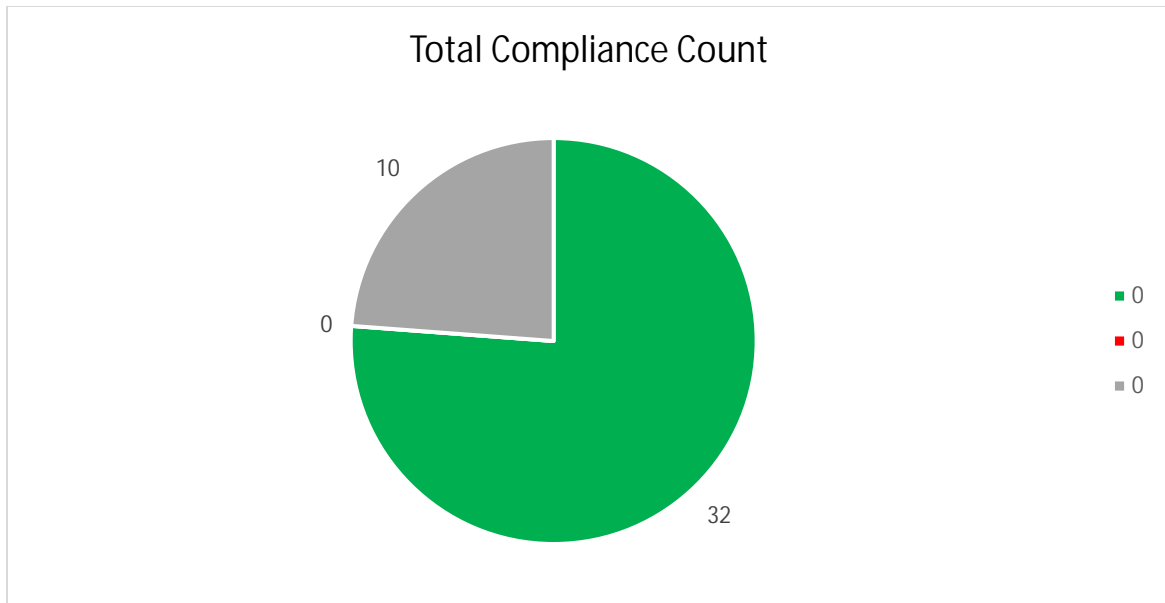


Figure 6-5 - Overall count findings on compliance to the EMPr Commitments

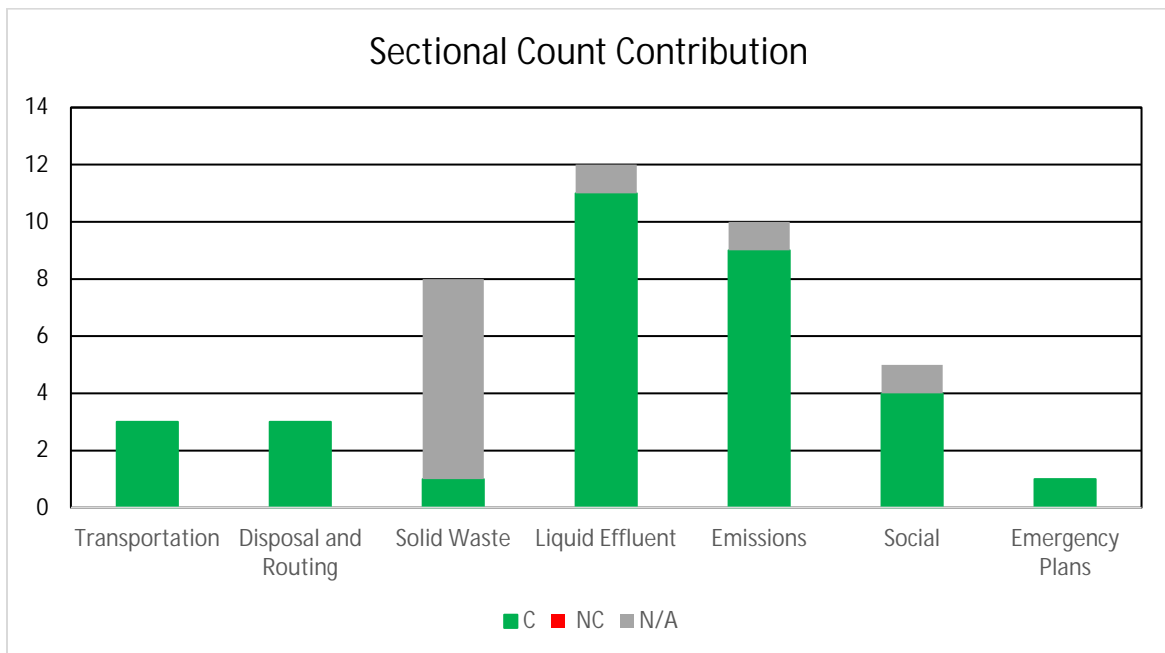


Figure 6-6 - Number/Count contribution of findings made to the EMPr Commitments per Section

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.

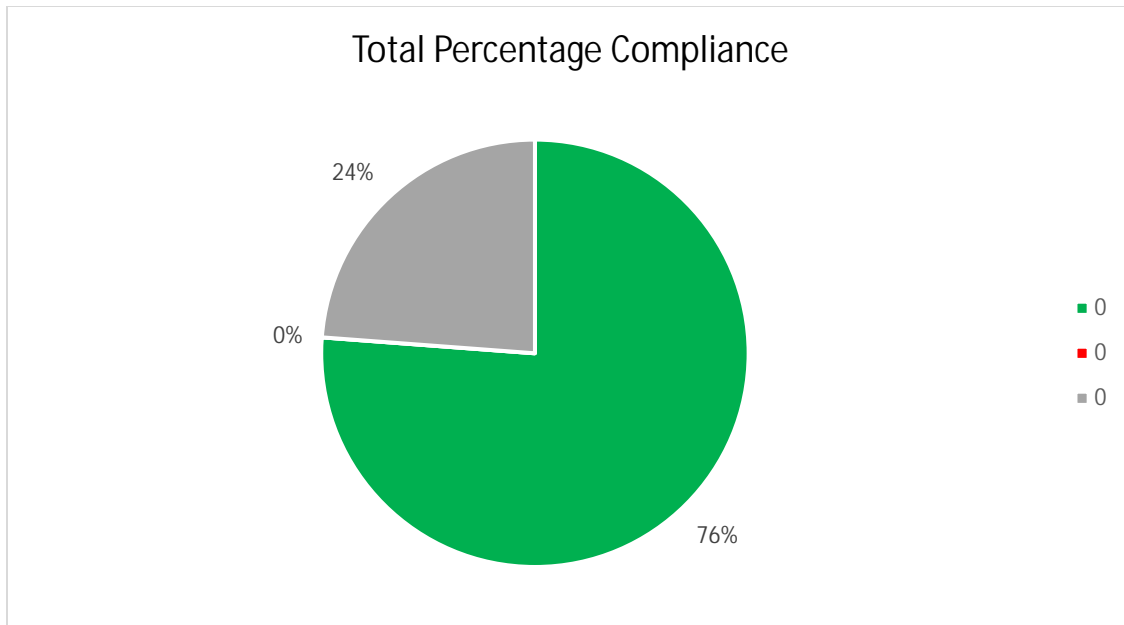


Figure 6-7 - Overall percentage findings on compliance to the EMPr Commitments

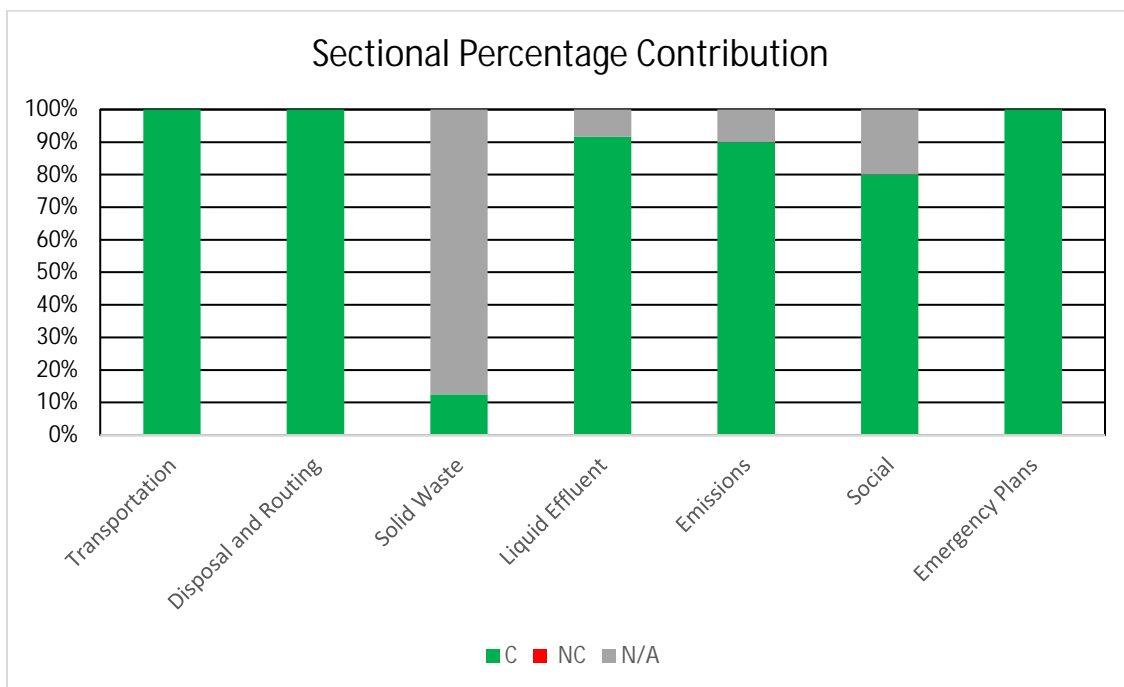


Figure 6-8 - Percentage contribution of findings made to the EMPr Commitments per Section

7 RECOMMENDATIONS

Zero non-compliances of the EA and EMPr conditions was noted during the audit. 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 their onsite operations and to identify new environmental risks due to changes in operations, and address these when identified on site.

Sasol is advised to continue with their comprehensive EMS and strategy for detecting environmental risks and resolving incidents and non-compliances identified on site, and to utilize the audit report as an indicator of all areas that need attention.

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 EA was issued on 09 January 2003 to govern the construction and operation 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 environmental impacts and risks are continually identified and assessed by Sasol's Environmental Department, which drives improvement of implementation measures. 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 to meet the licence compliance conditions (EMPr, WUL, EA, AEL, etc). This is effective as mitigation against any gaps in the EMPr, and to regularly identify and address new environmental impacts and risks.



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
Ian Malloy

I, _____, the undersigned and duly authorized thereto, by WSP, have studied Sasol N-Base Removal Facility and compared the operations to the approved EMP 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

AUDITOR CVS





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

wsp.com

CONFIDENTIAL



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

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

9 years of experience

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 Mompoti District Municipality, Dr Ruth S Mompoti District Municipality IWMP, 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 Mompoti 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 Unlicensed 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) unlicensed 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 EMP criteria.

Dissertations and Research Projects

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

2023

To quantify 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 – Upgrade N-base Removal Unit (Merisol)– ref [EM1/02/18]

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	Impact management action
1. Transportation	1.1. Transport of feed to the plant - new feed (HP-DTA) by train from Secunda.
	1.2. Transportation of by-products and products - The HSP waste is collected in the pitch tanks. From the pitch tank it is loaded into road tankers for incineration or offsite treatment with registered third parties
	1.3. Transportation of by-products and products Water is drained from the vacuum condensers (C- 4346/4342) to a vacuum drum from where it flows into the phenolic water sewer. This water is treated in the Phenosolvan plant.
	1.4. Transportation of chemicals for cleaning /pickling/passivation and deciccants, solvents, catalyst - Sulphuric acid, DIPE 7 caustic
2. Disposal and routing	2.1. Disposal/Routing of spent chemicals- for cleaning/pickling/passivation & desiccants, solvents, catalysts. DIPE recycle back to recycle E- 4328 column, Caustic is drained into HOW water system and send to Phenosolvan. Cleanings and pickling are also handled by 3rd party.
	2.2. Disposal /routing of off -spec feed to be tested in Secunda, there is no chance for off-spec feed
	2.3. Disposal /routing of off -spec Any off-spec product produced are recycled back to the feed tanks and re-circulated through the process.
3. Solid waste	3.1. Disposal of Sludge to be recycled, re-use or disposed of at licensed site.
	3.2. Disposal of contaminated equipment N base salts are removed via the mixers and forms part of the HSP waste stream.
4. Liquid effluent	4.1. Disposal used for flushing into phenolic sewer to Phenosolvan plant to be treated
	4.2. Storm water management (Routing of on-spec/contaminated storm water) Routed to Chemical sewer. Existing infrastructure
	4.3. Disposal/routing of water used for hydrotesting Condensate water used for hydrotesting. Condensate to storm water sewer
	4.4. Disposal /routing of wash water for plant (cleaning of equipment) Steam to be used. Disposed of into existing chemical sewer.
	4.5. Disposal of used potable water to existing clean sewer. Within existing bund area.
	4.6. Disposal/routing of firewater to storm water sewer.
	4.7. Routing/disposal of process effluent Vacuum system water to phenolic sewer
	4.8. Measuring of effluent and method1 Formal measurement on condenser line
	4.9. Liquid effluents generated during loading/off-loading of feed, chemicals, solvents, products and by-products. Caustic - Closed tanks within bunded area. To existing sewer system
	4.10. Liquid effluents generated during loading/off-loading of feed, chemicals, solvents, products and by-products. Sulphuric acid - N2 blanket within bunded area. To existing sewer system
	4.11. Liquid effluents generated during loading/off-loading of feed, chemicals, solvents, products and by-products. DIPE - N2 blanket within bunded area. To existing sewer system
5. Emissions	5.1. Emissions to flare. Use existing flare. Existing procedures
	5.2. Venting of emission Through scrubber system to atmosphere
	5.3. Emissions from tank breathers on storage tanks. All tanks are currently vented to atmosphere because of the low vapour pressure of the compounds. No new emissions streams are created in this project, as no new technology (except for the mixer system) is introduced to the area
	5.4. Fugitive Emissions If required vent to atmosphere
	5.5. Emissions from effluent from loading/off-loading/disposal of feed/chemicals etc. Caustic - Tank within bunded area. Vent to atmosphere.
	5.6. Emissions from effluent from loading/off-loading/disposal of feed/chemicals etc. Sulphuric acid - N2 blanket within bunded area
	5.7. Emissions from effluent from loading/off-loading/disposal of feed/chemicals etc. DIPE - N2 blanket within bunded area
	5.8. Venting of purge gas. To flare. Existing procedures
	5.9. Other emissions. 1. De-pitcher column scrubbed off-gas. After the off gas from the top of the De-pitcher column has been scrubbed and cooled via the vacuum system condensers, the remaining non-condensable vapours are released to the atm 3m above working platform. The off gases mainly consist of SOx's and NOx's. The composition of this stream will be finalized as soon as a sample was taken and analysed.
6. Social Impacts	6.1. 6. SOCIAL: 3. Additional sources of odour Process stays the same. The changes to the plant will not increase odours
7. Permit Requirements	7.1. Existing Air permit will be revised & updated. CAPCO will be consulted.
8. Emergency plans	8.1. New equipment will be included in the existing emergency plan. Existing plan will be updated.

