Our reference: SO-ENV-1333

29 November 2024

Your Ref: EA nr EM1/1(c)/03/08

Department of Economic, Small Business Development, Tourism and Environmental Affairs
113 Saint Andrews Street,
St Andrews Building
3rd Floor , Room 8
Bloemfontein

9301

Free State

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Attention: Deputy Director: Environmental Impact Assessment

ENVIRONMENTAL AUTHORISATION EXTERNAL REPORT SUBMISSION

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

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

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

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

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

Attached, please find the compliance audit report for the Tar Naphtha Phenolic Extraction Plant (TNPE) Merisol Sulphur Reduction Project, Sasol One Site with reference EM1/1(c)/03/08, dated May 2023.

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 Tar Naphtha Phenolic Extraction Plant (TNPE) Merisol Sulphur Reduction Project, Sasol One Site.

Yours faithfully

Signed by: Johann Van Wyk
Signed at:2024-11-29 11:56:30 +02:00
Reason:I approve

Johann Van Wyk

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

Tel: +27 16 960 2398
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Sasol South Africa Ltd

TNPE ENVIRONMENTAL AUTHORISATION: REFERENCE NR.: EM1/1(C)/03/08 AND EMPR

Compliance Audit Report: November 2019 - November 2022

SASOL SASOLBURG EA AUDITS
MAY 2023

CONFIDENTIAL

Sasol South Africa Ltd

TNPE ENVIRONMENTAL AUTHORISATION: REFERENCE NR.: EM1/1(C)/03/08 AND EMPR

Compliance Audit Report: November 2019 - November 2022

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 41104347

OUR REF. NO. SASOL SASOLBURG EA AUDITS

DATE: MAY 2023

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Final EA External Audit Report			
Date	26 May 2023			
Prepared by	Ian Malloy			
Signature				
Checked by	Anri Scheepers			
Signature				
Authorised by	Anri Scheepers			
Signature				
Project number	41104347			
Report number	1			
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SIGNATURES

PREPARED BY

Ian Malloy

Senior Environmental Consultant

REVIEWED BY

Anri Scheepers
Principal Associate

This Environmental Authorisation Audit report (Report) has been prepared by WSP Group Africa (Pty) Ltd (WSP) on behalf and at the request of Impala Platinum (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: TNPE	James Dyasi

WSP

Lead Auditor	Ian Malloy
Project Director/Quality Assurance	Anri Scheepers

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AUDIT TEAM CVS

1 INTRODUCTION

1.1 TERMS OF REFERENCE

WSP Group Africa (Pty) Ltd (WSP) as an independent environmental consultant was appointed by Sasol Chemicals a division of Sasol South Africa Limited to undertake an external compliance audit of the Tar Naphtha Phenolic Extraction (TNPE) Plant against the commitments contained in the Environmental Authorisation (EA) and Environmental Management Programme (EMPr), and compile an audit report according to the requirements of the National Environmental Management Act (No. 107 of 1998), as amended (NEMA) based on the findings of the audit.

The reference number of the applicable EA (initially Record of Decision (RoD)) and details of the EMPr audited for compliance of the TNPE Plant, Sasol One Site are:

- EA for the Tar Naphtha Phenolic Extraction (TNPE) Plant located at the Sasol One site in Sasolburg (Reference number: Em1/1(c)/03/08), dated 05 June 2003 and issued to Sasol RSA on 4 August 2003, for the construction or upgrading of transportation routes and structures, and manufacturing, storage, and handling or processing facilities for any substance, which is considered as dangerous or hazardous and is controlled by national legislation; and the
- EMPr for the proposed Tar Naphtha Phenolic Extraction Plant (TNPE) at Sasol, RSA, Sasolburg, Appendix G to the Scoping Report for the development completed by Nemai Consulting, dated March 2003.

The RoD included the following installations of the proposed TNPE plant:

- Storage tanks;
- Piping;
- Distillation columns;
- Heat exchangers; and
- Pumps.

Sasol applied to the Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA) to amend the EA reference number: Em1/1(c)/03/08; as per Regulation 30(2) of GNR 982, 2014 Environmental Impact Assessment (EIA) Regulations to:

1. First Amendment dated 30 January 2015: Change the applicant and contact person details on the EA to Sasol Chemical Industries (Pty) Ltd and Mr Holger Maul respectively.
2. Second Amendment dated 29 March 2018: Change the:
    a. Brief description of the activity from “Merisol RSA focuses on production of, some would be piped from Secunda and Durban whilst some would be transported via the road from Durban and Merisol” to “Sasol South Africa (Pty) Ltd acting through its Sasolburg Operations produces, Rail cars bring the feed from Secunda and Durban whilst the product is transported via road and rail and the facility” respectively.
    b. The location of the facility updated to remove “South of Merisol tank farm and east of Ortho-cresol Novolac (OCN) plant” from the location description.
    c. Applicant details changed from Mr Holger Maul, Sasol Chemical Industries (SCI) (Pty) Ltd, Sasol Rosebank, 1 Sturdee Avenue, Rosebank, 2196” to “Mr. Louis Fourie, SVP

Sasolburg Operations, Sasol South Africa (Pty) Ltd acting through its Sasolburg Operations, P. O. Box 1, SASOLBURG, 1947, Tel: +27 16 960 8001"

3. Third Amendment dated 22 November 2019: Change the applicant and contact person details of the applicant representative on the EA from Sasol South Africa (Pty) Ltd to Sasol South Africa Ltd and from Mr. Louis Fourie to Mr Rightwell Laxa.

The external audit was undertaken in accordance with Regulation 34 of the Environmental Impact Assessment (EIA) Regulations, 2014 published in terms of the National Environmental Management Act 107 of 1998 (NEMA). This audit and report consider the period December 2019 to November 2022.

1.2 SASOL SASOLBURG – TNPE OPERATIONS

The TNPE Plant was developed by Merisol RSA which was a joint venture between Merichem (a USA based company) and Sasol Chemical Industries Ltd RSA. The focus of the TNPE Plant was the production of high value phenolic molecules (phenols, cresols and xylenols) due to the decline in raw materials worldwide and the availability of source feeds from Sasol. The Sasol Secunda coal tar heavy naphtha stream was recognized as a potential source for the TNPE plant.

After performing in-depth pilot studies at Sasolburg, it was concluded that the Liquid-Liquid Extraction process be used as it achieved the product specification requirements that was superior to the alternatives considered. The pilot study also ensured that all processes and requirements for the TNPE Plant was considered and that the process was thoroughly tested before construction and operation.

The products from Merisol and the TNPE Plant would be used in resins, solvents, antioxidants, functional fluids, cosmetics, disinfectants, agricultural chemicals, and many other chemical intermediates. The TNPE plant included the installation of storage tanks in a tank farm, piping, distillation columns, heat exchangers and pumps.

The site for the TNPE Plant was alongside the existing Merisol's plant on the Sasol One site in Sasolburg. The TNPE Plant draws phenolic-rich streams from Sasol facilities in Sasolburg. The Plant was built and assembled on site.

Sasol Chemical Industries (SCI), a wholly owned subsidiary of Sasol Limited, proposed to construct and operate a TNPE Complex in Sasolburg. The layout location of the Sasol Operations and TNPE Facility on the Sasol One site in Sasolburg, in relation to other industry in the area is shown in Error! R eference source not found. below.

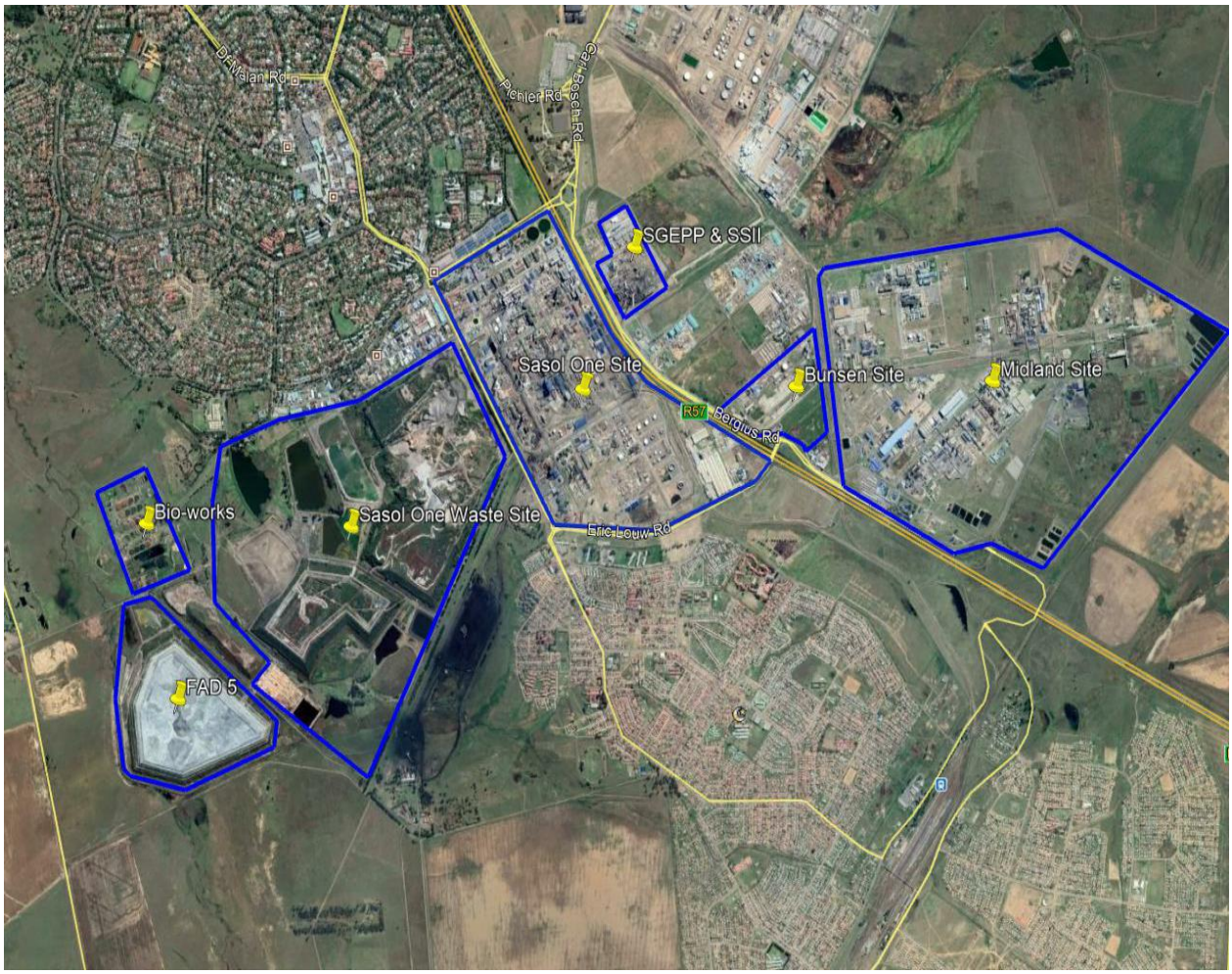

Figure 1-1 - Sasol One Site and Midland Factory Site Layout in Sasolburg

1.3 PROJECT TEAM

Ian Malloy completed a site inspection of the TNPE Facility with Mr James Dyasi (TNPE Area Manager) on 09 November 2022.

The draft external audit report was compiled in December 2022 and finalised in February 2023. This report will be submitted to the DESTEA 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 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 nine years of working experience as an Environmental Consultant specialising 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 project completed include EIAs, Water Use Licence (WUL) and Waste Management Licence (WML) Applications, amendment processes, developing IWMPs for District and Local Municipalities, developing EMPrs, conducting environmental compliance audits of EAs, EMPrs, and WMLs, conducting GRAP 17 and 19 assessments of landfill sites, and sampling and monitoring of groundwater and marine water.
Anri Scheepers	Reviewer	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 EMPrs. 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 TNPE Facility. This report provides an overview of the level of compliance with the conditions contained in the EA and EMPr. The site audit was undertaken on 09 November 2022 at the Sasol One, Sasolburg Plant.

The objective of the audit was to:

- Assess the level of compliance of the TNPE Plant with the commitments of the EA (reference number Em1/1(c)/03/08);
- Assess the level of compliance with the commitments of the EMPr that was submitted part of the Scoping Report for the licencing of the TNPE Plant (Nemai Consulting, 2003);
- Assess the extent to which the avoidance, management and mitigation measures provided for in the EMPr for the operation of the TNPE Plant were implemented;
- Identify and assess any new impacts and risks that result from undertaking the activity;
- Critically evaluate the effectiveness of the EMPr;
- Identify shortcomings in the EMPr; and
- Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr.

As a result, the EIA Regulations are considered applicable to the TNPE Plant Operations. Regulation 34, of the EIA Regulations, provides for the auditing of an environmental authorisation, EMPr and closure plan. Furthermore, Appendix 7 the EIA Regulations outlines the required audit report content. The 2014 Regulations, as amended, refer to a minimum frequency of five years however, the EMPr refers to a more frequent auditing requirement which supersedes the 2014 Regulations. **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** CVs 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**
Appendix 7, Section 3 of EIA Regulations		

Sub-Section	Requirement	Report Section Reference
3(a)	The environmental audit report must determine (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	**Section 4**
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**
3(1)(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**
3(1)(b)	A declaration that the independent auditor is independent in a form as may be specified by the competent authority.	**Sub-section 8**
3(1)(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**
3(1)(D)	A description of the methodology adopted in preparing the environmental audit report.	**Section 3**
3(1)(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**

Sub-Section	Requirement	Report Section Reference
3(1)(f)	A description of any assumptions made, and any uncertainties or gaps in knowledge.	**Sub-sections 2.2**
3(1)(g)	A description of any consultation process that was undertaken during the course of carrying out the environmental audit report.	**Sub-section 3.2**
3(1)(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**.
3(1)(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 Impala, 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 was up to date and accurately represents the Sasolburg TNPE operations;
- WSP viewed as much of the operational area as possible given the timeframe and access limitations;
- Findings and observations made within the previous audit reports are correct.
- 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 on behalf and at the request of the Client (Sasol South Africa Ltd.) and according to Terms of Reference as detailed in **Section1.1.**

3 AUDIT METHODOLOGY

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

The audit process comprised the following:

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

3.1 AUDIT CHECKLIST

WSP compiled an audit checklist of the EA (reference number EM1/1(c)/03/08) and the approved EMPr commitments developed with the Scoping Report, which was used as an auditing tool. **Table 4-1** below provides the compliance of Sasol with the conditions within the EA and amendments to the EA.

Table 4-1and **Table 4-2** provides the compliance of Sasol with the conditions within the EA conditions in the EMPr.

3.2 SITE INSPECTION AND INTERVIEWS

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

- Suyen Van Zyl (Environmental Manager); and
- James Dyasi (TNPE Area Manager).

3.3 INFORMATION CONSIDERED

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

- Air Emissions Licence (AEL) (reference number: FDDM-MET-2013-20-R1);
- Sasolburg and Ekandustria Operations Annual Emission Report (Reference no: FDDM-MET-2013-20-R1) dated 29 August 2022;
- Air Quality Management Plan;
- Application for Amendment of an EMPr (Reference no: EM1/1()03/08) dated 29 November 2019)
- DESTEA amendment letter confirmation;
- Sasol Sasolburg & Ekandustria Operations ISO14001 Certificate issued by DQS (Reference no : 40600394 UM15) dated 01 January 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);
- Sasolburg and Ekandustria Operations ISO 45001:2018, ISO 9001:2015 and ISO 14001:2015 Recertification Audit Report (DQS Management Systems Solutions, November 2021);
- Procedure for the management of waste on the Sasolburg Operations' Sites (document number: SSP-S-014) (Sasolburg Operations, October 2020)
- The reporting, investigation and recording of environmental incidents (document number: SSP-S-013) (Sasolburg Operations, July 2019);
- Various email correspondence to confirm details on site.
- Waste Manifests and Disposal Registers;
- Confirmation of Health and Safety Standards and Audits;
- EA and EMPr training registers; and
- Other related approvals.

3.4 ASSESSMENT EVALUATION METHODOLOGY

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

Table 3-1 - Level of Compliance

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

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

4 AUDIT FINDINGS

4.1 ENVIRONMENTAL AUTHORISATION (REFERENCE NUMBER EM1/1(C)/03/08) AUDIT FINDINGS

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 (EM1/1(c)/03/08) Audit Checklist – Audit Findings

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
A	**Brief Description of the Activity**			
	Sasol South Africa (Pty) Ltd acting through its Sasolburg Operations produces high value phenols, cresols, and xylenols (pcx). The Merisol products are useful in resins, solvents, antioxidants, functional fluids, cosmetics, disinfectants, agricultural chemicals and many other chemicals. The market was faced with a decline of such products because of the introduction of the natural gas at Sasolburg Some of the sources of Merisol raw materials are synthetic fuel plants, petroleum refineries, and coal coking operations. As such, the Tar Naphtha Phenolic Extraction Plant (TNPE) is aimed at increasing the production of phenolic molecules. Some of feed materials would be railed from Secunda, Rail cars bring the feed from Secunda and Durban whilst the product is transported via road and rail and the facility. The following installations in the proposed TNPE plant are: ▪ Storage tanks, ▪ Piping, ▪ Distillation columns, ▪ Heat exchangers and ▪ Pumps.	**N/A**	This was provided as information in the EA and is not an auditable condition.	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
	There is enough space for new a TNPE plant, tanks to be utilised are available, cooling water is available, there is an existing control room at Merisol, and effluent processing facilities.			
B	**Location**			
	The proposed plant is located in Sasol One site in Sasolburg. The site was favoured due to availability of some of infrastructure on site.	**N/A**	This was provided as information in the EA and is not an auditable condition.	-
C	**Applicant**			
	Mr. Rightwell Laxa, SVP Sasolburg Operations, Sasol South Africa Ltd acting through its Sasolburg Operations, P. O. Box 1, SASOLBURG, 1947, Tel: +27 16 960 8001	**N/A**	This was provided as information in the EA and is not an auditable condition. In November 2019, the details of the Applicant within the EA was amended.	-
C(i)	**Consultant**			
	N Maistry Nemai Consulting C.C P.O Box 1673 Sunninghill 2157 Tel: 011-482 1730 Fax: 011-482 1731	**N/A**	This was provided as information in the EA and is not an auditable condition.	-
E.	**Site Visit**			
	Mashudu Dzivhani (DTEEA-FS) visited the site on 16-January-2003 in company of Sasol representatives. The site visit revealed that the	N/A	This was provided as information in the EA and is not an auditable condition.	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
	proposed activity would not have negative impact should the activity go on.			
F.	**Decision**			
	In terms of Section 22 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) the MEC: Tourism, Environmental and Economic Affairs hereby grants authorisation for the execution of the activity described above, subject to the conditions of approval contained in this Record of Decision.	N/A	This was provided as information in the EA and is not an auditable condition.	-
G.	**Conditions of Approval**			
	1. Specific Conditions			
1	This authorisation has been granted solely for the purpose of undertaking the specified activities referred to above.	**N/A**	This condition is not auditable and is noted by the Licence Holder. The specified activity was constructed and operated as per the EA activity description.	**-**
2	An integrated waste management approach must be used that is based on best practices and should incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste should be disposed of at a landfill, licensed in terms of Section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989).	**C**	An Integrated Water and Waste Management Plan (IWWMP) was developed for all operations at the Sasol One site, Sasolburg (Sasol, 2021). This plan details the waste and wastewater management practices that are in place and implemented on site. TNPE receives tar acid from Secunda via rail. This is fed into the process to remove the phenols, cresols and xylenols (PCXs). The unused feed is returned to Secunda as raffinate via rail. The raffinate is processed further in the fuel pool and therefore reused. Where practical and feasible, solid waste generated during the process is not disposed to landfill but re-used in further processes. Spent TEG polymer from the process and sludge removed from slops tank is handled and treated as hazardous waste and is adequately removed from site for further treatment and disposal by a service provider. Proof of safe handling and disposal was	**-**

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
			provided to Sasol and maintained by Sasol (waste manifest/disposal receipts). Waste disposal registers are maintained by Sasol. Contaminated water that is generated during the TNPE process is sent to the C-stream for further processing and remaining PCXs are removed. This contaminated water eventually goes to the Bioworks for further treatment. All rainwater within the bund goes to the slops tanks that goes back to E4901 unit. Vapours from the TNPE process are sent to the flare. This is confirmed by AEL and the external AEL audit that was conducted. No leaks and NCs were identified during the AEL audit. All of Sasol One Site, Sasolburg operations must adhere to the waste management procedure (SSP-S-014). Competent service providers were appointed to remove the waste from site. Appointments of service providers are in place. All waste manifests are retained electronically on a central IT system by Sasol waste management department. *Evidence:* ▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021) ▪ Procedure for the management of waste on the Sasolburg Operations' Sites (document number: SSP-S-014) (Sasolburg Operations, October 2020) ▪ Waste inventory and register ▪ Verbal confirmation ▪ Waste manifests ▪ Onsite observation ▪ Verbal confirmation	

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
3	Transport risk assessment must be undertaken to ensure safety handling and that the systems are in place for spillage management and venting. Such a report must be made available to this Department (DTEEA-FS).	C	Transport risk assessment are conducted and maintained in a register. A spill procedure was in place and staff received training on safe handling and spill prevention procedures. Spillages and incidents during transport are recorded in the incident register and transport risk assessment register. No incidents for spillages were recorded in the incident register. *Evidence:* ■ The transport risk assessment (SO-ENV-600) developed and submitted to Department on 7 November 2019.	-
4	Impact and Mitigation tables in Appendix F, and Environmental Management Plan in Appendix G of the Scoping Report for the Proposed Tar Naphtha Phenolic Extraction Plant (TNPE) at Sasolburg, as Prepared by Nemai Consulting CC dated April 2003 must be adhered to.	C	Sasol has adhered to the implementation of the mitigation measures in the Impact and Mitigation tables in Appendix F, and the Environmental Management Plan in Appendix G of the Scoping Report as prepared by Nemai Consulting CC dated April 2003. Compliance to the management measures of the EMPr are assessed in table 4.2. *Evidence:* ■ EA and EMPr External audit report, (CEM, 2019)	-
5	All areas for loading and unloading zones for hazardous substances must be bunded for containment of any possible spills and to avoid run-off into the street, watercourses or stormwater systems.	C	The loading and offloading of feed and product are done in a well-controlled area (paved and bunded). The offloading and loading area have a sump at the low point that drains to the bund of the storage tanks. All liquid within the storage tanks is pumped to the slops tank or the C-stream and eventually to the Bioworks. The bund wall inspection is done monthly and uploaded on SAPEC (an information system used by Sasol to manage environmental compliance on site). There is no risk of hazardous substances or runoff contaminating watercourses or stormwater systems.	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
			Evidence: ▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021) ▪ Procedure for the management of waste on the Sasolburg Operations' Sites (document number: SSP-S-014) (Sasolburg Operations, October 2020) ▪ Onsite verbal confirmation ▪ Onsite observation ▪ Incident register ▪ Sasol emergency response plan	
6	Any spillages must be re-routed to the slop tank for processing.	C	The TNPE Plant Units and Storage tanks were designed and constructed within large bunds to contain any spillages or leaks that may occur. A sump was constructed at the low point of all bunds that are routed to the slop tank. Small spills within the bund and Plant area are collected with spill kits that are placed throughout the Plant. Furthermore, spills and leaks are recorded as incidents on the Environmental incident register and subsequently closed out. The Standard Operating Procedure for Phenolics Production Plants: Generic for Phenolics (PHEN-GEN-SOP-005) covers the cleaning process if spillages occur on site. *Evidence:* ▪ Standard Operating Procedure for Phenolics Production Plants: Generic for Phenolics (PHEN-GEN-SOP-005) ▪ Incident register ▪ Reporting, investigation and Recording of Environmental Incidents (document number: SSP-S-013)	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
			▪ Management of water and wastewater on the Sasol One site (document number: SSP-S-03) ▪ Onsite verbal confirmation ▪ Onsite observation.	
7	Clean up procedures in case of spillages must be put in; place prior to the commencement of the operation of the plant.	C	Clean up procedures for spills are in place and documented in the Standard Operating Procedure for Phenolics Production Plants: Generic for Phenolics (PHEN-GEN-SOP-005). Several spill kits and hazardous waste bins are placed in visible and conspicuous places at the TNPE site. *Evidence:* ▪ Standard Operating Procedure for Phenolics Production Plants: Generic for Phenolics (PHEN-GEN-SOP-005) ▪ Reporting, investigation and Recording of Environmental Incidents (document number: SSP-S-013) ▪ Management of water and wastewater on the Sasol One site (document number: SSP-S-03).	-
8	There should be proper warning signage to caution unauthorised people near the unit.	C	Warning signages and information boards were available throughout the TNPE site. *Evidence:* ▪ Onsite observation	-
9	All contractors working on the site must undergo safety training and/or induction prior to commencement of any work.	C	All contractors and service providers working on-site undergo Sasol induction training prior commencement of any work. The induction training includes information regarding Health and Safety and Environmental Compliance. Evidence of contractors and service	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
			providers induction training registers and material discussed during induction training was visually observed during the site audit. To note, the Authority regarding Occupational Health and Safety Act and regulations is the Department of Labour. This condition is managed by the Sasol Health and Safety Department. *Evidence:* ▪ Onsite observation ▪ Staff induction and training material ▪ Staff induction and training registers	
10	Contracting companies must have a safety representative to ensure compliance with all relevant safety rules and emergency procedures at all times.	**C**	Contracting companies or service providers must adhere to all the safety rules and emergency procedures at the Sasol One Site. Companies and individuals that do not adhere to these conditions are not allowed entry into to Sasol Sasolburg One Site. The conduct of contractors and service providers are monitored by Sasol staff and handled internally with Sasol. To note, this condition is related to Health and Safety and the Authority for compliance of the Occupational Health and Safety regulations is the Department of Labour. This condition is managed by the Sasol Health and Safety Department. *Evidence:* ▪ Onsite observation ▪ Verbal confirmation	-
11	Within six (6) months of the facility ceasing to be functional for the purpose for which it is now authorised, the facility must be removed at the	**N/A**	This condition outside the audit period and therefore was not audited.	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
	expense of the applicant, and the site including all infrastructure must be rehabilitated to the satisfaction of this Department.			
	2. Standard Conditions			
1	The applicant must advertise this record of decision	**N/A**	This condition outside the audit period and therefore was not audited.	-
2	This authorisation is granted only in terms of Section 28A of the Environment Conservation Act (Act No. 73 of 1989). It therefore does not exempt any person from the requirements of any other controlling authority or from any provision of any other law and does not purport to interfere with the rights of any person who may have an interest in the property.	**N/A**	The licence holder is aware of this condition and has to their end ensured compliance with other authorities and laws. Other licences in place for the TNPE are the AEL. This audit scope did not cover a legal review of compliance of the TNPE 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.	-
3	Any changes in the proposal resulting in significant environmental impacts are only permissible if approved in writing by the Department.	**C**	No changes were made to this plant that resulted in significant environmental changes. Three (3) amendment applications to the EA were submitted in 2015, 2018, 2019. The three amendments were related to administrative changes (changes of the applicant details).	-
4	The Department reserves the right to amend and review the conditions of this authorisation every 5 years.	**N/A**	This condition is not auditable and is noted by the Licence Holder. No amendments were made by the Department and received by the Licence Holder.	-
5	The Department must be notified, within 30 days of change of ownership/project developer. Conditions established in the authorisation must be made known to the new owner/developer and are binding on the new owner/developer.	**C**	The details of the applicant were amended on 22 November 2019 to Mr Rightwell Laxa, Sasol South Africa, Ltd. The changes of the licence holder's name and responsible person of the EA followed required guidelines.	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
6	The Department must be notified of any change of address of the owner/developer.	C	The address on the EA of the owner/developer was amended on 29 March 2018 to Sasolburg Operations, P. O. Box 1, SASOLBURG, 1947. *Evidence:* ▪ EA Amendment (reference number: EM1/1(c)/03/08) dated 29 March 2018.	-
7	Proof of compliance with the conditions described in the authorisation must be forwarded to the Department one month prior to the commencement of operation of the development (as appropriate).	N/A	This condition outside the audit period and therefore was not audited. This condition was applicable prior to the operation phase of the activity.	-
8	One month's notice must be given to the Department before the commencement of operation.	N/A	This condition outside the audit period and therefore was not audited. This condition is not applicable to the operational phase. A report to indicate proof of compliance was submitted to the Department via email on 22 February 2005. The operation commenced on 22 March 2005.	-
9	A copy of this authorisation shall be made available at TNPE Offices in Sasolburg at all times and all staff, contractors and sub-contractors shall be acquainted with the contents of this authorisation.	C	A copy of the Environmental authorisation was available with the Area manager and Senior Manager at the TNPE Plant office. The staff and managers are aware of the conditions within the EA. Contractors and staff receive training on the compliance of the EA and the conditions that are relevant to work on site during induction training. *Evidence:* ▪ Onsite observation ▪ Staff induction and training registers	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
10	The owner/developer must notify the authority within 24 hours if any condition of the exemption is not adhered to.	C	Sasol One Site, Sasolburg have an incident register where they record all the incidents and non-compliances. Authorities are notified when there are significant non-compliances or amendments that are requested in terms of the EA, EMPr or the AEL. Non-adherence of conditions was indicated in the audit reports that are distributed to the Department. *Evidence:* ▪ Onsite observation of Sasol SAP system to document incidents ▪ Onsite confirmation.	-
11	Records relating to the compliance/non-compliance with the conditions of the exemption must be kept in good order. Such records must be made available to the Department within 7 days of written request by the Department for such records.	C	Records relating to compliance and non-compliance are maintained by Sasol. An internal information and quality management system, SAPEC, is used to keep track of the compliance and non-compliance of this authorisation and EMPr. Records are made available within 7 days by the Environmental Representative to the Department when requested. *Evidence:* ▪ Onsite observation of Sasol SAP system.	-
12	Non-compliance with, or any deviation from, the conditions set out in the authorisation documentation constitutes a failure in compliance. Under such conditions, the authorisation from the regulations as laid out in the documentation will be revoked.	N/A	This condition is not auditable. It is noted by the Licence Holder.	-
13	Provincial Government, Local Authority, or committees appointed in terms of the conditions of the application or any other public authority or	N/A	This condition is not auditable. It is noted by the Licence Holder.	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
	organisation shall not be held responsible for any damages or losses suffered by the developer or his successor in title in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance by the developer with the conditions of approval as set out in this document or any other subsequent documents			
H	**Key Factors for The Decision**			
1	The site is located in the highly industrialised area of Sasol one site and is already disturbed.	**N/A**	This was provided for informational purposes in the EA. This condition is not auditable.	-
2	The manufacturing process does not create any by-products (solid waste) that need to be disposed	**N/A**	This was provided for informational purposes in the EA. This condition is not auditable.	-
3	There is an existing infrastructure at the site	**N/A**	This was provided for informational purposes in the EA. This condition is not auditable.	-
4	Various return products streams will be routed to their original destination as other Sasol plants (e g Secunda) for processing	**N/A**	This was provided for informational purposes in the EA. This condition is not auditable.	-
5	There will be no effect on surface and groundwater.	**N/A**	This was provided for informational purposes in the EA. This condition is not auditable.	-
6	No historical, archaeological features or cultural sites were identified on or near the site	**N/A**	This was provided for informational purposes in the EA. This condition is not auditable.	-
7	There are no red data or other protected plant and animal species	**N/A**	This was provided for informational purposes in the EA. This condition is not auditable.	-
8	There were no concerns raised during the public participation	**N/A**	This was provided for informational purposes in the EA. This condition is not auditable.	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
9	The applicant has met the requirements of the Department of Tourism. Environmental & Economic Affairs.	**N/A**	This was provided for informational purposes in the EA. This condition is not auditable.	-
I	**Duration and date of expiry**			
	This authorisation shall lapse if the activity does not commence within two years of the date of issue of this authorisation.	**N/A**	This condition outside the audit period and therefore was not audited. The authorisation was granted 05 June 2003 and the construction was completed on 22 February 2005. The operation commenced on 22 March 2005 which was within the given time frame.	-
J	**Appeal**			
	An appeal to the MEC (Tourism, Environmental & Economic Affairs) under Section 35(3) of the Environment Conservation Act, (Act No. 73 of 1989), must be done in writing within 30 days from the date on which the Record of Decision was issued to the applicant in terms of regulation 10(1) of the Environmental Impact assessment Regulations, (Government Notice No. R1182 and 1183 of 5 September 1997) and should be directed to MEC (Tourism, Environmental & Economic Affairs) Private Bag X 20801 Bloemfontein 930	**N/A**	This condition is not auditable.	-
4.2	Section 35 of the Environment Conservation Act, (Act No. 73 of 1989), makes provision for appeal by any person who feels aggravated by a decision made by the Department in terms of these	**N/A**	This condition is not auditable.	-

Ref.	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
	regulations “Any person”, therefore includes the applicant, interested party or member of the public.			

4.2 ENVIRONMENTAL MANAGEMENT PROGRAMME (NEMAI CONSULTING, 2003)

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

Table 4-2 - Environmental Management Programme – Audit Findings

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person	Measures Implemented to Address Non-Compliance	Practicality of the EMPr Commitments	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
1. Transport								
1.1	Transport risk assessment studies will be conducted as a Sasol standard for the feed to the plant and the product from the plant.	C	Proof of transport risk assessments are maintained on site for all vehicles and loads was shared with the auditor. The transport risk assessment (SO-ENV-600) was submitted to the Department on 7 November 2019. *Evidence:* ■ The transport risk assessment (SO-ENV-600) developed and submitted to Department on 7 November 2019.	-	-	-	-	-
2. General routing and disposal								
2.1	Feed to be sampled in Secunda and Sasolburg. Off-spec feed will be returned to Secunda	C	Feed is sampled as required. During the audit period, there was no off-spec	-	-	-	-	-

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)
			material that was returned to Secunda. All feed received was processed. *Evidence:* ▪ Onsite observation of electronic records and SAP system ▪ Sample manifest ▪ Verbal confirmation.					
2.1	Off-spec product will be re-worked in the system. Raffinate will be processed	**C**	Off-spec product is reworked into the system. Raffinate was returned to Secunda as per the process description. *Evidence:* ▪ Onsite observation of DCS, electronic records and SAP system ▪ Verbal confirmation.	-	-	-	-	-
3. Solid Waste Produced								
3.1	The following points will be focused upon during construction: ▪ Sufficient waste receptacles are to be placed around the site. Good housekeeping practices to be stressed in the construction contract; ▪ Separation of waste' material that is recyclable and not recyclable wherever appropriate should be practised; ▪ Material should also be separated into hazardous and non-hazardous material. All	**N/A**	This condition outside the audit period and therefore was not audited.	-	-	-	-	-

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)
	non hazardous material should be routed to Charlie 1 and hazardous material should be disposed of at a registered waste disposal site; ▪ All polystyrene material should be collected and disposed of in covered waste receptacles; ▪ Drip trays should be provided for all semi-permanent construction equipment and equipment that could potentially have leakages; ▪ All construction water is to be disposed of in an environmentally responsible manner; and ▪ All oil, chemical or other polluting agents that are spilled should be cleaned up immediately.							
3.2	Disposal of packaging material ▪ Sufficient waste receptacles to be placed around the site. Good housekeeping practices to be stressed in the construction contract; ▪ Waste separation at the source should be practiced.	**N/A**	This condition outside the audit period and therefore was not audited. This condition applied to the construction phase as detailed in the EMPr. This condition is however, implemented and complied with in the operational phase. Waste bins were placed on site for different waste streams for separation of waste at source. Good housekeeping is maintained on site. Waste management procedures and records are uploaded on SAPEC. *Evidence:*	It is recommended that this condition should be amended by 2024 and made applicable to the operational phase of the activity. The responsible person should be Sasol.	-	-	-	-

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)
			▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021) ▪ Procedure for the management of waste on the Sasolburg Operations' Sites (document number: SSP-S-014) (Sasolburg Operations, October 2020) ▪ Waste inventory and register ▪ Verbal confirmation ▪ Waste manifests ▪ Onsite observation ▪ Verbal confirmation					
3.3	Disposal/ routing/ re-use/ storage of excavated material /soils. To be tested for contamination and disposed of at a permitted landfill site. Contaminated material should be disposed of at a hazardous landfill site. This is to be included in the contractors contract.	**N/A**	This condition is outside the audit period and therefore was not audited. Excavations were applicable to the construction phase of the activity and is not applicable to the operational phase of the activity.	-	-	-	-	-
3.4	Disposal/ routing/ re-use/ storage of excavated material /soils: To be tested for contamination and disposed of at a permitted landfill site. This is to be included in the contractors contract.	**N/A**	This condition is outside the audit period and therefore was not audited. Excavations were applicable to the construction phase of the activity and is not applicable to the operational phase of the activity.	-	-	-	-	-
3.5	Handling and disposal of insulation material:	**N/A**	This condition is outside the audit period and therefore was not audited.	-	-	-	-	-

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)
	If recoverable to be recovered/disposed of at a permitted landfill site. This is to be included in the contractors contract.							
3.6	Handling / storage/ disposal of redundant piping and equipment: To be disposed of at a permitted landfill site. This is to be included in the contractors contract.	**N/A**	This condition is outside the audit period and therefore was not audited.	-	-	-	-	-
3.7	Disposal/routing of domestic waste: The waste will be disposed of in waste bins and then in waste skips, which are removed, to a permitted landfill by a refuse contractor.	**C**	Waste generated on site is contained in either waste bins or skips. The provision of bins or skips is based on the volume of the waste type generated daily/weekly. Service providers were appointed to collect, treat and/or dispose of all general, hazardous, solid, liquid/effluent waste developed on site to licenced landfill sites. All waste manifests are retained electronically on a central IT system by Sasol waste management department. An Integrated Water and Waste Management Plan (IWWMP) was developed for all operations at the Sasol One site, Sasolburg (Sasol, 2021). This plan details the waste and wastewater management practices that are in place and implemented on site. *Evidence:* ▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021)	-	-	-	-	-

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)
			▪ Procedure for the management of waste on the Sasolburg Operations' Sites (document number: SSP-S-014) (Sasolburg Operations, October 2020) ▪ Waste inventory and register ▪ Verbal confirmation ▪ Waste manifests ▪ Onsite observation.					
4. Liquid Effluent								
4.1	Generators must be proper working condition. Any spillage should be contained, reported to the contractor and cleaned immediately. Contaminated soil should be excavated to a depth of 300mm and disposed of at a hazardous waste disposal site. The area should be rehabilitated with new soil. This is to be included in the contractor's contract.	**N/A**	As detailed in the EMPr, this condition was applicable to the construction phase of the activity. This condition is outside the audit period and therefore was not audited.	-	-	-	-	-
4.2	Contaminated rainwater will be route to the slop tanks or re-routed to Phenosolvan. Hence, there will be no water leaving the plant in normal operation and in emergency mode there will no rainwater reporting to the stormwater drains.	**C**	No contaminated water leaves the TNPE during normal operations. Contaminated rainwater from the TNPE is routed to the slop tanks and from there back to unit E4901. During emergencies or when the slop tank is full, contaminated water is sent to the C-stream and sent to the Bioworks for further treatment. *Evidence:*	-	-	-	-	-

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)
			▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021) ▪ Stormwater management plan ▪ Emergency response plan and procedures ▪ Verbal confirmation ▪ Onsite observation					
4.3	Water used during cleaning of the plant equipment will be collected inside the bund areas which is sloped to the plant sumps to be routed to the slop tanks. Should the slop tanks be full it will be routed to Phenosolvan.	**C**	All contaminated rainwater runoff and water used during cleaning are collected within the bund areas, directed to sumps and the slop tanks and re-used in the plant. This is detailed in the Sasolburg Operations: Phenolics Standard Operating Procedure: TNPE-S4900-SOP-006. *Evidence:* ▪ Standard Operating Procedure for Phenolics Production Plants: (TNPE-S4900-SOP-006) ▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021) ▪ Emergency response plan and procedures ▪ Verbal confirmation ▪ Onsite observation	-	-	-	-	-

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person	Measures Implemented to Address Non-Compliance	Practicality of the EMPr Commitments	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
4.4	Water used for eyebaths and showers will be collected and reprocessed in the plant.	C	All used, effluent, rainwater and contaminated water is routed to the slop tanks and re-routed to unit E4901, Phenosolvan. *Evidence:* ▪ Standard Operating Procedure for Phenolics Production Plants: (TNPE-S4900-SOP-006) ▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021).	-	-	-	-	-
4.5	Water used during hydro-testing will be routed to the slop tanks	C	All effluent water is routed to the slop tanks and re-routed to unit E4901, Phenosolvan, where it is reprocessed. *Evidence:* ▪ Standard Operating Procedure for Phenolics Production Plants: (TNPE-S4900-SOP-006) ▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021).	-	-	-	-	-
4.6	Water used during flushing will be collected in a tank and reprocessed in the plant.	C	All effluent water is routed to the slop tanks and re-routed to unit E4901, Phenosolvan, where it is reprocessed. This is detailed in the Sasolburg Operations: Phenolics Standard Operating Procedure: TNPE-S4900-SOP-006 *Evidence:* ▪ Standard Operating Procedure for Phenolics Production Plants: (TNPE-S4900-SOP-006)	-	-	-	-	-

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)
			▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021).					
4.7	Process effluent will be reprocessed in the plant.	**C**	All effluent water is routed to the slop tanks and re-routed to unit E4901, Phenosolvan where it is reprocessed. *Evidence:* ▪ Standard Operating Procedure for Phenolics Production Plants: (TNPE-S4900-SOP-006) ▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021).	-	-	-	-	-
5. Emissions to Atmosphere								
5.1	Emissions from electricity generators: Machines/ generators to be in proper working condition and monitored for excessive emissions. This is to be included in the contractor's contract.	**N/A**	As detailed in the EMPr, this condition was applicable to the construction phase of the activity. This condition is outside the audit period and therefore was not audited.	-	-	-	-	-
5.2	Emissions to flare: The emissions to flare are to be tied into the refinery flare.	**C**	This is conducted as per the design of the TNPE plant and processes on site. Sasolburg Operations has an Atmospheric Emission Licence (AEL), FDDM-MET-2013-23-P2. All the emissions are managed as per the operation licence. *Evidence:*	-	-	-	-	-

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)
			▪ Sasolburg and Ekandustria Operations Annual Emission Report (Reference no: FDDM-MET-2013-20-R1) dated 29 August 2022 ▪ Verbal confirmation from plant manager.					
5.3	Venting of emissions: Vacuum vents from TEG rectifier and TEG flash will be vented to the ejector system, where the ejector coolers will knock out the TEG and phenolics. The final emission to atmosphere is ca 19kg/h (consisting of water and air and trace phenolics).	C	Vacuum vent sources vent to the injector coolers where all the TEG and Phenolics are knocked out. This vent consists of water and air. This is the only place light hydrocarbons can be vented to atmosphere which is from the slop and Hexane tanks. Floating roofs have been placed to mitigate this from happening. Tanks will vent to atmosphere. Vapours from the Hexane and slops tanks are sent to flare as the hexane vapours also result from slop tank. TEG tanks vapours are vent to atmosphere. The TNPE facility does not discharge. The liquid discharge fraction goes to tank 8 and 9 and the final emission (including all vapours, steam ejector steam/vapours) go to the flare and not to the atmosphere. *Evidence:* ▪ Verbal confirmation from plant manager.	-	-	-	-	-
5.4	Emissions from tank breathers on storage tanks: Minimization of venting will be ensured through operating procedures.	C	This is conducted as per the design of the TNPE plant and processes on site and is recorded in TNPE-S4900-SOP-008(3) - Prepare for maintenance - Tanks of TNPE Plant.	-	-	-	-	-

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)
			Evidence: ▪ Verbal confirmation from plant manager ▪ Onsite observation					
5.5	Fugitive emissions will occur due to leaks and flanges; however, this is not expected to be significant: Regular inspections will be carried out to identify fugitive sources must be undertaken and corrective actions to address the source must be taken	**C**	A monthly inspection is conducted at the TNPE – Sulphur reduction Plant to identify fugitive emissions sources and corrective actions to address issues identified are implemented. It was reported by the TNPE area manager that no fugitive emissions were detected during the audit period. No incidents of fugitive emissions was recorded in the incident register. In addition, a sump/bund wall/paved floor/Hexane line Inspection Checklist was developed and is used to inspect the TNPE Plant. The checklist and results of inspection are available from SAPEC. *Evidence:* ▪ Sasolburg and Ekandustria Operations Annual Emission Report (Reference no: FDDM-MET-2013-20-R1) dated 29 August 2022 ▪ Verbal confirmation from plant manager ▪ Sasol online SAPEC document register	-	-	-	-	-
5.6	Emissions from Effluent loading/ offloading disposal of feed/ chemicals etc.:	**C**	There are no emissions or venting during offloading and loading of feed and chemicals due to standard operating	-	-	-	-	-

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)
	Minimization of venting will be ensured through operating procedures. A recovery system will be installed at the hexane-offloading bay.		procedures implemented during offloading. *Evidence:* ▪ Standard Operating Procedure for Phenolics Production Plants: (TNPE-S4900-SOP-006) ▪ Verbal confirmation from plant manager.					
6.	**Noise Pollution**							
6.1	A preference of low noise generating equipment will be given preference. This is to be included in the contractor's contract.	**C**	The selection of low noise generating equipment was conducted during the construction phase of the activity. Noise activities on the plant and exposure of staff to excessive noise on site are managed as per the Health and Safety Act by the Sasol Health and Safety Department. *Evidence:* ▪ Sasolburg and Ekandustria Operations ISO 45001:2018, ISO 9001:2015 and ISO 14001:2015 Recertification Audit Report (DQS Management Systems Solutions, November 2021)	**-**	**-**	**-**	**-**	**-**
7.	**Social Aspects**							
7.1	The contractor will use local labour during construction and maintenance of the plant. This will have a positive impact on the economy of the area. The creation of two hundred jobs (at peak) during construction and 13	**C**	Sasol currently appoints more than 13 permanent staff to manage and operate the TNPE unit. This meets the requirement to appoint 13 staff during the operational phase of the activity. The appointment of staff during the operational phase is managed by Sasol	-	-	-	-	-

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)
	permanent jobs during the operation of the plant. The Department of Labour will be informed of this regard. The labourers will be trained in the construction activities; this will increase the skills base of the community. Also, the contractor will be encouraged to use local products if available. This is to be included in the contractor's contract.		in accordance with the Labour Acts and Health and Safety Act.					
7.2	The waste and emissions inventory will be updated and monitored in terms of any new conditions.	**C**	The waste and emissions inventory is maintained by Sasol that lists all waste that are generated, collected and disposed of. Emissions are monitored through the operation and management of the TNPE unit. All waste manifests are retained electronically on a central IT system by Sasol waste department. *Evidence:* ▪ IWWMP (Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021) ▪ Procedure for the management of waste on the Sasolburg Operations' Sites (document number: SSP-S-014) (Sasolburg Operations, October 2020) ▪ Waste inventory and register ▪ Sasolburg and Ekandustria Operations Annual Emission Report (Reference no: FDDM-MET-2013-20-R1) dated 29 August 2022 ▪ Verbal confirmation	-	-	-	-	-

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)
			▪ Waste manifests ▪ Onsite observation.					
	8. Emergency Plans							
8.1	Sasol has stringent occupational health and safety standards, in accordance with international standards as well as the Occupational Health and Safety Act, (Act 85 of 1993 as amended). There is a professional emergency management service available on site, twenty-four hours. All personnel, permanent or temporary are subject to environmental health and safety training. Workers have access to personal protective equipment at all times. Workers are made aware of all emergency procedures, related emergencies; and Resources. Emergency exercises are held to train personnel in the handling of emergency incidents, pending the arrival of the emergency services. Hence personnel are familiarised with safety and firefighting equipment as well as emergency procedures. Schedules of emergency exercises are submitted annually and all production plants hold emergency exercises once a month per shift. Emergency preparedness is monitored and audited on an ongoing basis to ensure that the	**C**	The TNPE plant is managed and operated according to the Health and Safety Act. All staff, contractors and visitors to the Sasol One Site are trained on the requirements of the EA, EMPr and Sasol's Health and Safety, Environmental and Emergency requirements before visiting the TNPE Plant or entering the site. PPE are worn by all staff and visitors to the site. Toolbox talks are held with staff and emergency, health and safety and environmental compliance conditions are discussed during these talks. Emergency preparedness exercises are conducted on site more frequent than the annual requirement. *Evidence:* ▪ Onsite observation ▪ Verbal confirmation ▪ Staff induction and training registers ▪ Sasolburg and Ekandustria Operations ISO 45001:2018, ISO 9001:2015 and ISO 14001:2015 Recertification Audit Report (DQS Management Systems Solutions, November 2021).	-	-	-	-	-

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)
	personnel maintain a high degree of preparedness and that the planning is still valid.							
8.2	Fire and presence of flammable chemicals: ▪ The Merisol emergency procedures rev 001/2003 effected as of 20 February 2003 will be used. ▪ Emergency exercises are carried out.	**C**	This standard has been updated and is implemented. Emergency exercises are carried out on site for fires and preventative measures are in place for handling and storage of flammable chemicals. Preventative measures are included in standard operating procedures to minimise the occurrence of fires. *Evidence:* ▪ Onsite observation ▪ Verbal confirmation ▪ Sasol One Complex Emergency Preparedness and Response Plan ▪ Staff induction and training registers	The reference to the emergency procedures to Merisol to be changed to the current licence holder and the document reference to be amended.	-	-	-	-
8.3	Chemical Spills ▪ The Merisol emergency procedures rev 001/2003 effected as of 20 February 2003 will be used. ▪ Emergency exercises are carried out.	**C**	This standard has been updated and is implemented. Emergency exercises are carried out on site for chemical spills. Preventative measures are included in standard operating procedures to minimise the occurrence of chemical spills. *Evidence:* ▪ Onsite observation ▪ Verbal confirmation ▪ Sasol One Complex Emergency Preparedness and Response Plan ▪ Staff induction and training registers	The reference to the emergency procedures to Merisol to be changed to the current licence holder name and the document reference to be amended.	-	-	-	-

5 PROGRESS AGAINST PREVIOUS AUDIT FINDINGS

5.1 ENVIRONMENTAL AUTHORISATION (REFERENCE NUMBER EM1/1(C)/03/08)

Figure 5-1, provides a summary of the EA audit findings for the previous and current audits (2019 and 2022). The 2022 audit identified zero non-compliant conditions.

The previous compliance audit in 2019 included zero non-compliances (0%), 13 compliances (48%), and 14 not applicable conditions for the EA, as indicated in **Figure 5-1** below in percentages. Four non applicable conditions in the previous audit were changed to compliant in the 2022 audit. The summary of compliance with the conditions of the EA is included in **Table 6-1.**

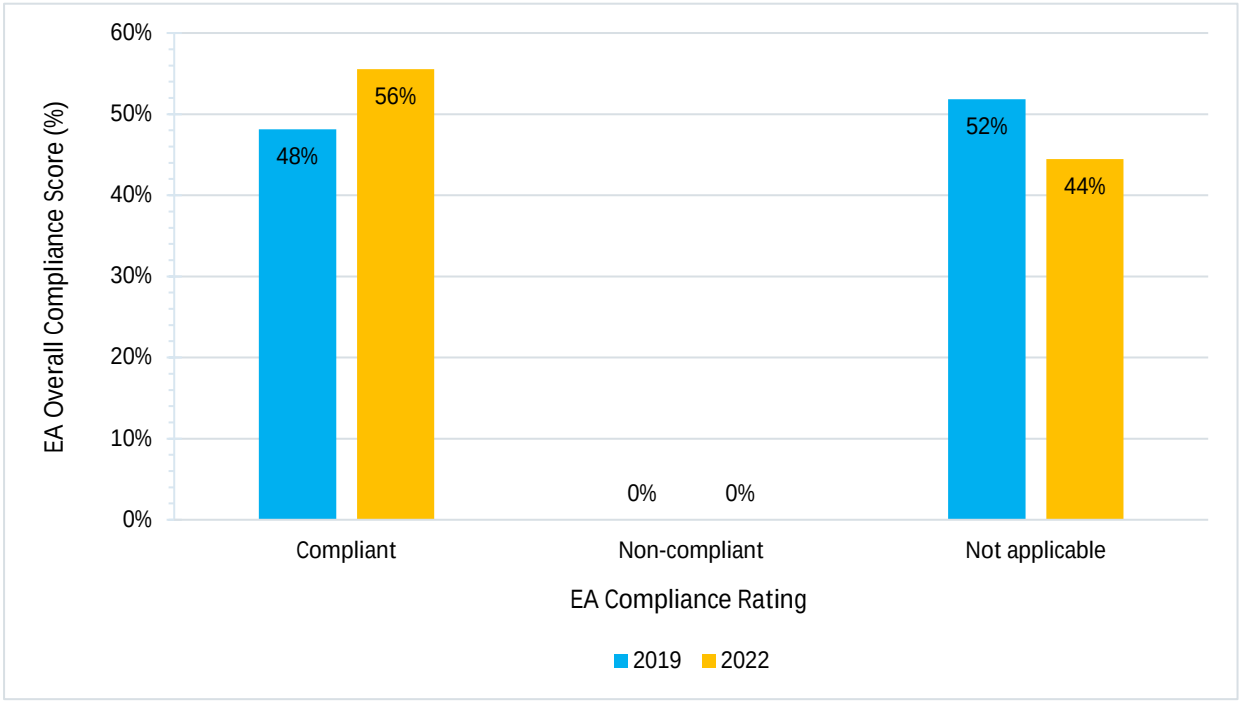

Figure 5-1 – Comparison of Environmental Authorisation compliance from 2019 to 2022

5.2 ENVIRONMENTAL MANAGEMENT PROGRAMME (NEMAI CONSULTING, 2003)

Figure 5-2, provides a summary of the EMPr audit findings for the previous and current audits (2019 and 2022). The 2022 audit identified zero non-compliant conditions.

The previous compliance audit in 2019 of the EMPr included one non-compliance (3%), 23 compliances (79%), and 5 not applicable conditions (17%), as indicated in **Figure 5-2** below in percentages. One non-compliance from the previous audit finding was closed out in the current audit findings, 6 compliant findings from the previous changed to not applicable conditions, and three not applicable conditions from the previous audit were changed to compliant (refer to **Table 5-1**). The summary of compliance with the conditions of the EMPr is included in **Table 6-2**.

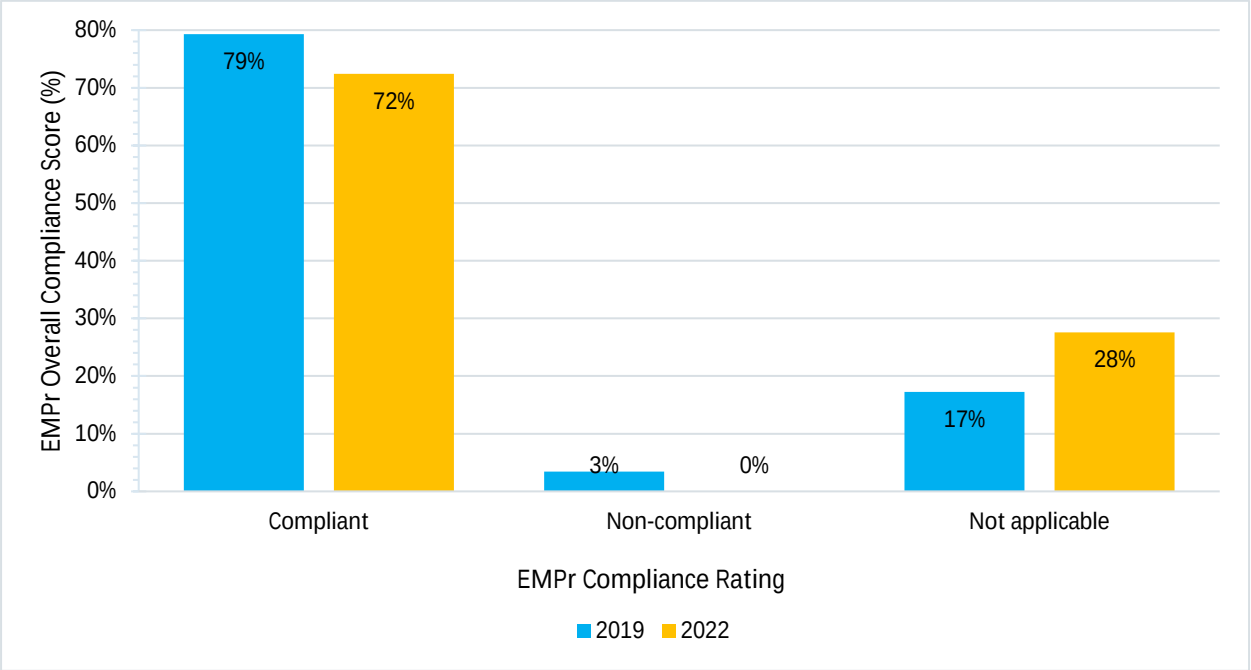

Figure 5-2 - Comparison of EMPr compliance levels from 2019 to 2022

Table 5-1 – Progress against Previous EMPr Audit Findings

Ref	Commitment	2019 Status	2021 Finding	2022 Status	2022 Finding
5.6	Emissions from Effluent loading/ offloading disposal of feed/ chemicals etc.: Minimization of venting will be ensured through operating procedures. A recovery system will be installed at the hexane-offloading bay.	NC	FNTM01: At the time of the audit, no evidence could be found that a recovery system has been installed at the hexane-offloading bay. The hexane is offloaded from a 30m3 tanker that uses suction via a closed system, resulting in minimal vapours. A vapour recovery system is therefore not required. Evidence was found that corrective action has been formulated that still needs to be implemented, i.e. amend the EMPr to ensure that the EMPr and the operational procedures are aligned. Although evidence was found of communication from DESTEA regarding the appropriate public participation process required for the amendment of Environmental Management Plans, dated 13 September 2019, no amendment has been done as yet.	C	There are no emissions or venting during offloading and loading of feed and chemicals due to standard operating procedures implemented during offloading.

6 SUMMARY OF THE AUDIT FINDINGS

6.1 SASOL SASOLBURG TNPE EA

The audit findings of the EA 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. The percentage of compliance with applicable conditions was **100%** for this audit.

Table 6-1 - Summary of EA Compliance Audit Findings

Section of the EA	No. Commitments	C	NC	N/A
Location	1			1
Applicant	1			1
Specific Conditions	11	9		2
Standard Conditions	13	6		7
Duration and Date of Expiry	1			1
Total	**27**	**15**	**-**	**12**
Total Percentage		**55.6%**	**0%**	**44.4%**
Percentage Compliance with Applicable Conditions		**100%**		

Figure 6-1 illustrates the number/count contribution of the findings of the EA conditions per section for the TNPE Plant.

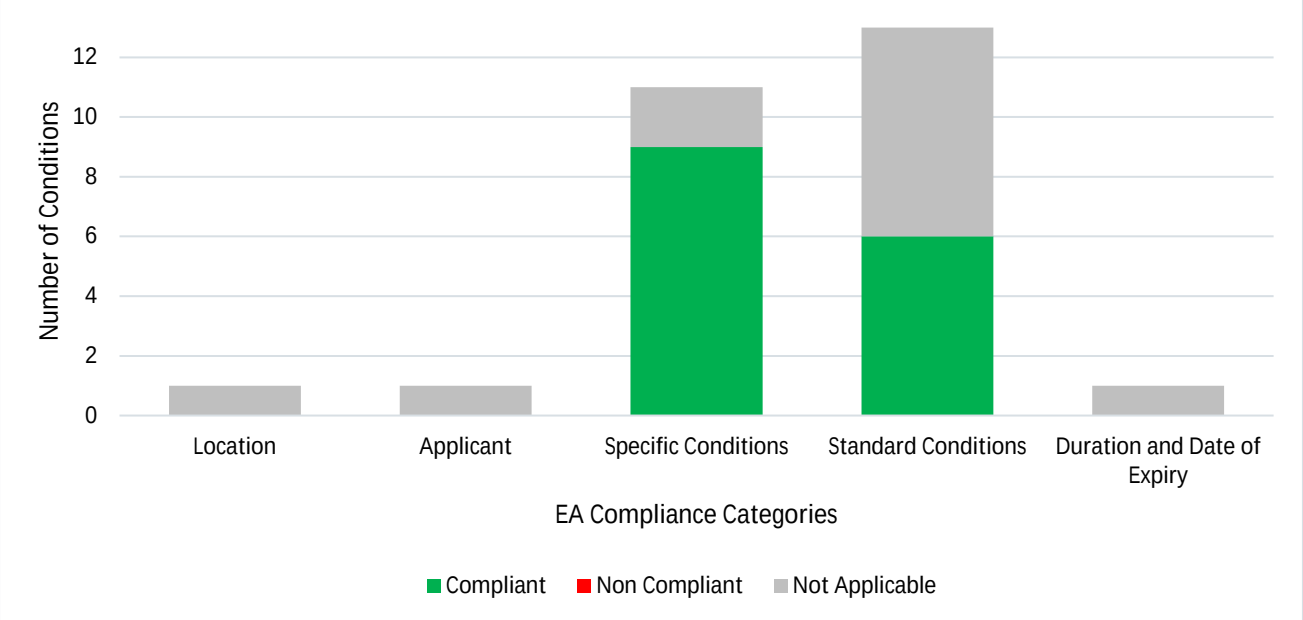

Figure 6-1 - Sectional count contribution for the EA conditions per section

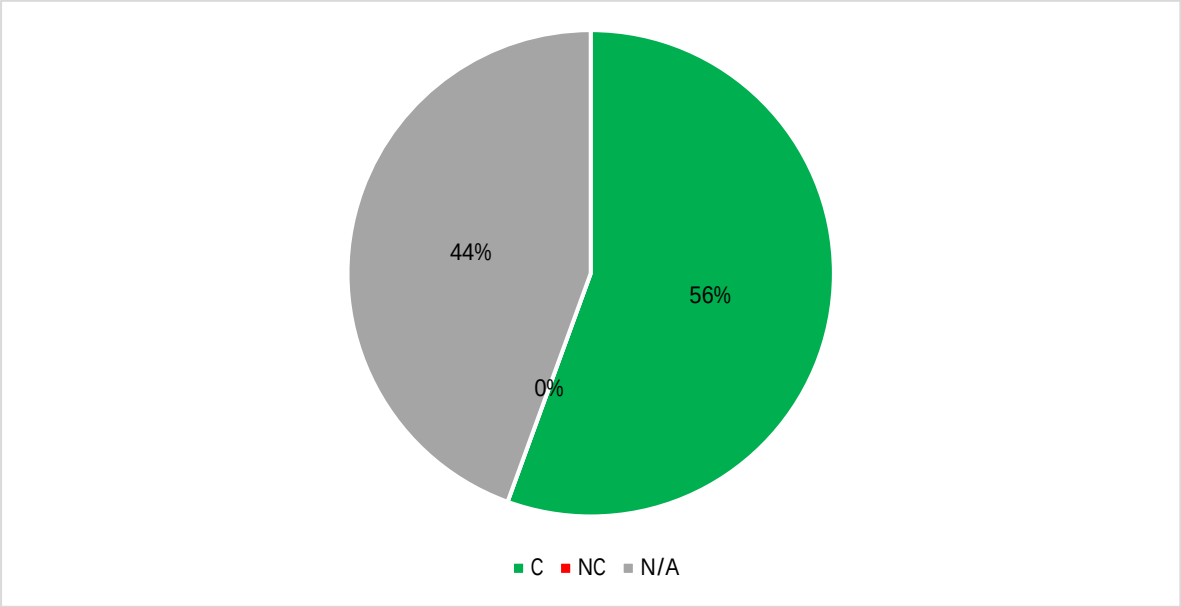

Figure 6-2 - Overall percentage on compliance to the EA conditions

6.2 SASOL SASOLBURG TNPE EMPR

The audit findings of the EMPr 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 6-1** below. The percentage of compliance with applicable conditions was **100%** for this audit.

Table 6-2 - Summary of EMPr Compliance Audit Findings

Section of the EMPr	No. Commitments	C	NC	N/A
Transportation	1	1		
General Routing and Disposal	2	2		
Solid Waste Produced	7	1		6
Liquid Effluent Produced	7	6		1
Emissions to Atmosphere	6	5		1
Noise Pollution	1	1		
Social Aspects	2	1		1
Emergency Plans	3	3		
Total	**29**	**21**	**-**	**8**
Total Percentage		**72%**	**0%**	**28%**
Percentage Compliance with Applicable Conditions		**100%**		

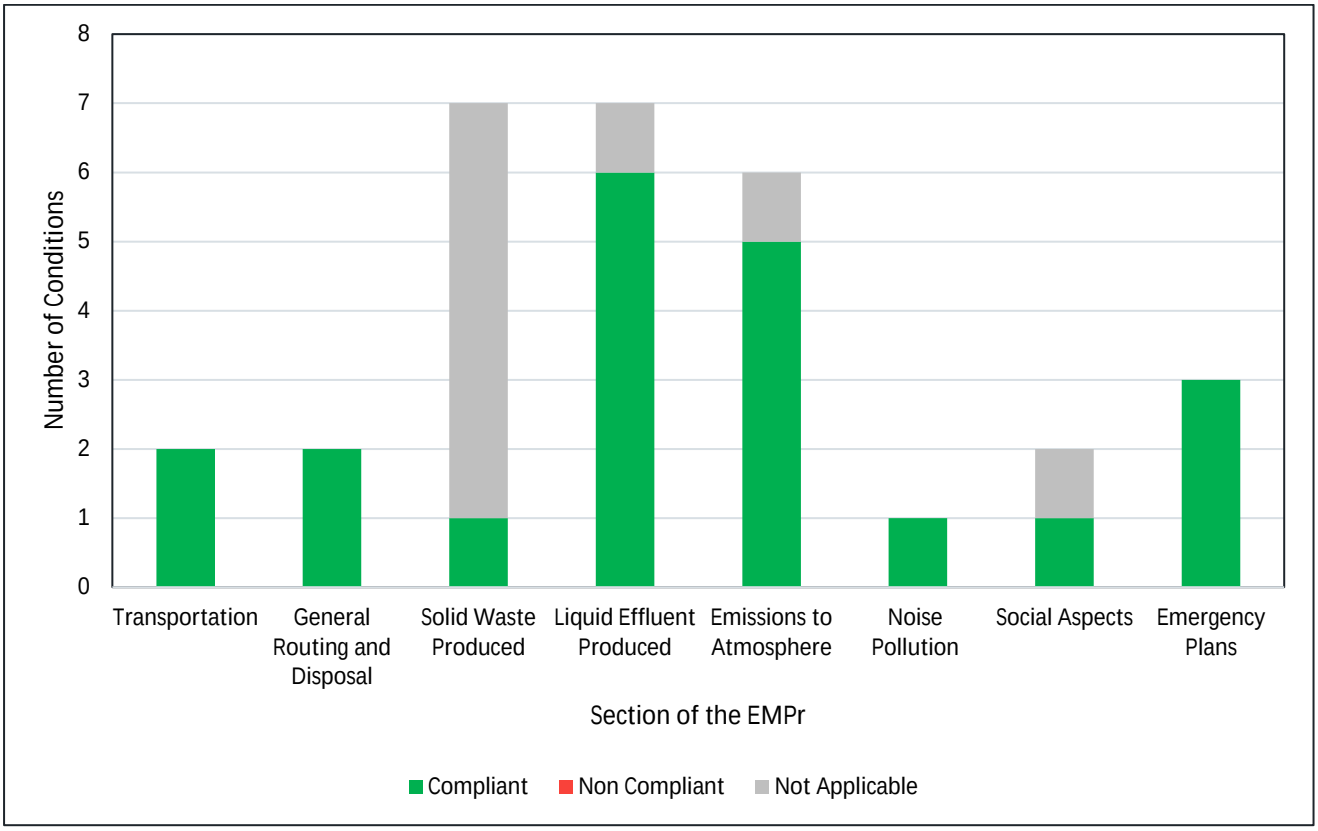

Figure 6-3 - Sectional count contribution for the EMPr conditions per section

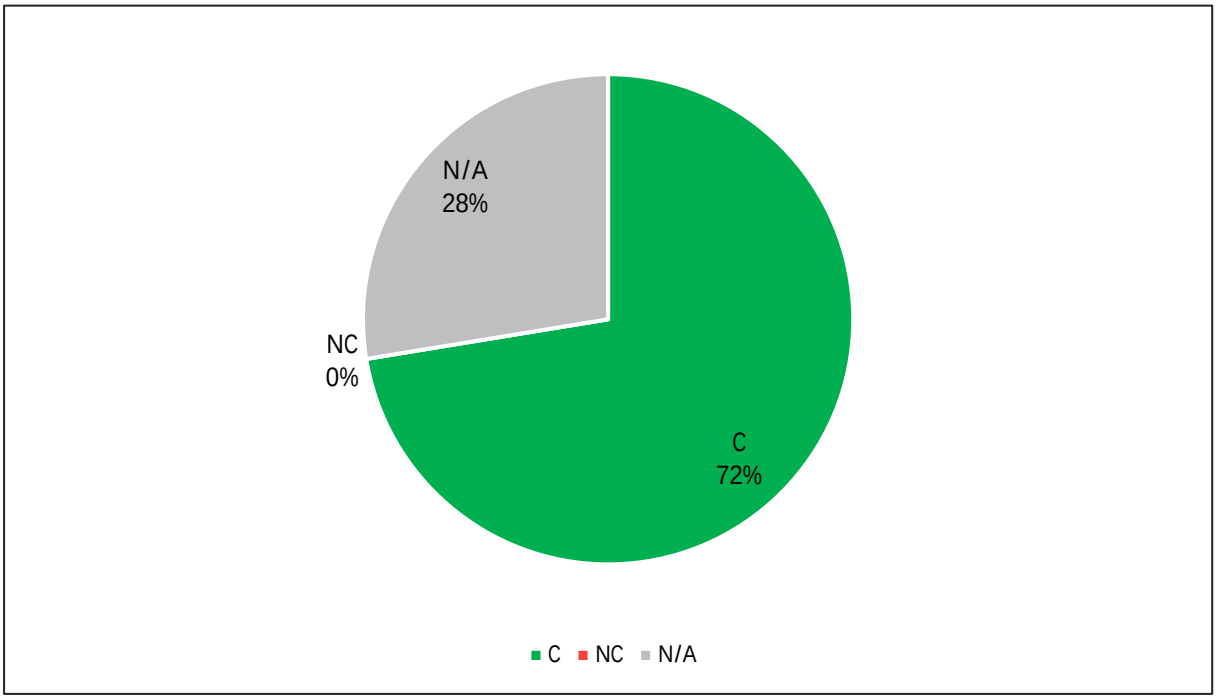

Figure 6-4 - Overall percentage on compliance to the EA conditions

7 CONCLUSION

Regulation 34 and Appendix 7 of the EIA Regulations 2014 (as amended) requires an assessment of the adequacy and effectiveness of the EA and EMPr 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 initial EA (RoD) was issued on 06 June 2003 to govern some of the construction phase as well as the operational phase impacts.

- Assess the level of compliance with the conditions of the EMPr and the ability of the EMPr to mitigate identified environmental impacts during the operational phase.

The EMPr compliance audit has identified that the majority of the EMPr commitments applicable to the operational phase of the activity (the operation of the TNPE) remain applicable. However, there are several conditions in the EMPr that were applicable to the construction phase and not to the operation phase. Where these conditions are applicable to the operations of the TNPE Plant these conditions should be made applicable to the operational phase and activities of the TNPE Plant. In addition, and where applicable, mitigation measures in the EMPr should be amended based on the new management mitigation measures implemented by Sasol to manage the environmental impacts. The EMPr is effective to manage the environmental impacts at the TNPE.

WSP do acknowledge that Sasol has systems in place which are more robust for monitoring compliance and implementing changes than through the EA and EMPr audit. This includes implementation of the ISO 14001 standards and the annual audit of each business unit to meet these standards. In addition, the ISO 14001 standards promotes continuous improvement. The recommendations and amendments to the mitigation measures of the EMPr can be implemented through this standard as well.

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

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

8 DECLARATIONS

INDEPENDENT AUDITOR DECLARATION

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

NAME OF INDEPENDENT AUDITOR: Ian Malloy

UNDERTAKING

I, Ian Malloy, the undersigned and duly authorized thereto, by WSP, have studied Sasol South Africa TNPE Plant Operations and compared the operations to the EA and approved EMPR and compiled this report to the best of my knowledge. This section should be read with section 2.

Signed at Cape Town on this the 06 June 2023.

SIGNATURE OF INDEPENDENT AUDITOR

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

Appendix A

AUDIT TEAM CVS

Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

CAREER SUMMARY

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

<1 year with WSP

9 years of experience

Area of expertise

Waste Management and Planning

Environmental Management

Waste Management Licencing (WML)

Water Use Licencing (WUL)

Basic Assessment (BA)

Environmental Impact Assessment (EIA)

Development of Environmental Management Programmes (EMPr)

Compliance Auditing (EA, EMPr, WML, WUL)

Development of municipal Integrated Waste Management Plans (IWMPs)

Environmental Engineering (Wastewater Treatment and Waste Management)

GRAP 17 and 19 Assessments of Landfill Sites

Surface and Groundwater Monitoring

Language

English and Afrikaans

EDUCATION

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

ADDITIONAL TRAINING

Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

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

PROFESSIONAL MEMBERSHIPS

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

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

PROFESSIONAL HISTORY

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

PROFESSIONAL EXPERIENCE

Waste Management and Planning

District and Municipal Integrated Waste Management Plans and Waste Minimisation Plans

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

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

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

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

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

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

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

Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

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

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

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

Landfill GRAP 17 and 19 Assessments

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

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

Environmental Impact Assessment and Basic Assessment Process

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

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

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

Environmental Compliance Audits

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

Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

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

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

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

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

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

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

Environmental Management Plans and Environmental Control Officer

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

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

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

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

Ian Malloy

Earth and Environment, Environmental Planning & Advisory, Senior Consultant

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

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

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

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

Dissertations and Research Projects

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

2023

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

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

2016

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

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

wsp.com

Annexure B – Tar Naphtha Phenolic Extraction Plant (TNPE) Sulphur Reduction Project, Sasol One Site– ref ([EM1/1(c)/03/08])

Environmental Management Programme Operational Phase

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

Impact management outcomes		***Impact management action***
1. Waste management	1.1 Disposal of Domestic waste Small volumes of general waste, including rags used for cleaning purposes during maintenance.	The waste will be disposed of in waste bins and then waste skips, which are removed, to a permitted landfill by the refuse contractor.
2. Liquid Effluent	2.1 Disposal of water used for cleaning of Equipment	Water for cleaning of equipment- Water used during cleaning of the plant equipment will be collected inside the bund areas which is sloped to the plant sumps to be routed to the slop tanks. Should the slop tanks be full it will be routed to Phenosolvan (sec1900)
	2.2 Disposal of used potable water	Water used for eyebaths and showers will be collected and reprocessed in the Phenosolvan plant.
	2.3. Disposal of water used for Hydro testing	Water used during hydro-testing will be routed to the slop tanks.
	2.4. Disposal of water used for Flushing	Water used during flushing will be collected in a tank and reprocessed via the slop tank Should the slop tanks be full it will be routed to Phenosolvan
	2.5. Routing/Disposal of process effluent	Process effluent will be collected in a tank and reprocessed via the slop tank Should the slop tanks be full it will be routed to Phenosolvan
	2.6. Disposal/routing of Off-spec products	Off-spec product will be re-worked in the system. Raffinate will be processed
3. Emissions to Atmosphere	3.1. Emissions to flare	a) The emissions to flare are to be tied into the cresol and paraffins flare.

		b) All process vents from pressurized systems and relieve valves from raffinate stripper will be vented to the existing flare .
	3.2. Venting of emissions	Venting - Vacuum vents from TEG rectifier and TEG flash will be vented to the ejector system,, where the ejector coolers will knock out the TEG and phenolics before tieing into the existing flare
	3.3. Emissions from tank Breathers on storage tanks	Minimization of venting will be ensured through OPERATING procedures
	3.4. Fugitive emissions will occur due to leaks and flanges; however this is not expected to be significant	Regular inspections to identify fugitive sources must be undertaken and corrective actions to address the source must be taken
	3.5. Emissions from Effluent loading/ offloading disposal of feed/ chemicals etc	Minimization of venting will be ensured through operating procedures. The hexane is offloaded from a tanker that uses suction via a closed system
4. Soil and Land Pollution	4.1. The site will have a concrete floor. There will be no area of exposed soil.	The site will have a concrete floor. There will be no area of exposed soil.
5. Ground water Quality Ground water could be polluted if during operation , oil , chemicals and other polluting agents are spilt and not properly mopped up.	5.1. Loading bay operation During OPERATION the loading bays would be susceptible to spills.	Inspection of Loading Bay concrete surface and bund walls

	5.2. Leaks in process could result in groundwater pollution	a) Visual inspection of Operation and Tank area concrete surface and bund walls
6. Surface water quality There are no surface water within the project area; there will be no impact on rivers or streams. The project area does not drain into any rivers or streams. Hence, there will be no water leaving the plant in normal operation and in emergency mode there will be no rainwater reporting to the stormwater drains	6. 1. Rainwater could be contaminated by phenol spills. There may be contaminated vapour setting in the drainage system	Contaminated rainwater will be routed to the slop tanks or re - routed to Phenosolvan
7. Odours There will be small quantities of odour associated with the plant however it will be negligible in terms of the larger Sasolburg complex present odour	7.1. The waste and emissions inventory will be updated and monitored in terms of any new odours	The waste and emissions inventory will be updated and monitored in terms of any new odours
8. Emergency plans	8.1 The presence of flammable chemicals suggests a possibility of fires at the site	Workers must be made aware of the Emergency response plan on site.
	8.2 Workers may be exposed to phenols during the operation of the plant. This may be due to spills which release hydrocarbon vapours. A pool fire could result in heat radiation to which personnel may be exposed	Workers must be made aware of the Emergency response plan on site.