Our reference: SO-ENV-1346

29 November 2024

Your Ref: EA nr EM1/1/(c)/00/132

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

Delivered via e-mail: mkhosana@destea.gov.za
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Attention: Deputy Director: Environmental Impact Assessment

ENVIRONMENTAL AUTHORISATION EXTERNAL REPORT SUBMISSION

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

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

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

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

Attached, please find the compliance audit report for the Acrylates Complex authorisation with reference EM1/1/(c)/00/132, dated May 2023.

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

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

No impact management outcome or impact management action requires amendment for the Acrylates Complex

Yours faithfully

Signed by: Johann Van Wyk
Signed at:2024-11-29 13:28:19 +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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Annexure A

Audit report.

Acrylates Complex- ref(EM1/1/(c)/00/132)

From Scoping report - 7 Impact Assessment

	Impact managemnt outcomes	*Impact management action*	*Proposed tasks*	*Request amendment*	Reason for amendment	*Comments*	*Suyen Comments*	*Proposed*
Groundwater	The proposed plant has been designed to have no impact on the groundwater quality. No polluted water dams or open effluent storage facilities will need to be constructed. Raw materials will be largely in a liquid or powder form and will be stored in tanks. All tank systems and the production area will be bunded (walls around them) preventing any accidental spills entering the ground.	Spillage, washings and rainwater will be collected in sumps for re-use or treatment. Where necessary, the storage tanks will be segregated by small internal walls to avoid mixing of products.						
		The emptying of the bunds after a spillage will be managed to ensure that it occurs within the shortest possible time period.Raw materials will be largely in a liquid or powder form and will be stored in tanks. All tank systems and the production area will be bunded (walls around them) preventing any accidental spills entering the ground.						
Stormwater capacity	The proposed Acrylic Acid and Acrylates Complex will make use of existing Midland stormwater system. The capacity of the stormwater system has been analysed and has been assessed as being adequate to cope with the expected rainfall events. No significant impact is expected if the stormwater management presently followed at the complex is continued with for the Acrylic Acid & Acrylates Complex.	Compliance is managed by midland effluent control with in the limit of the current valid Water Use Lisence. Acrylates facility Operations has a valid Service Level Agreement with water and effluent control to enable comblance to this condition.						
Stormwater Quality	The quality of existing stormwater will not deteriorate as a result of stormwater from the Acrylic Acid & Acrylates Complex This is because potentially polluted run-off will be kept separate from clean stormwater and will be monitored on an ongoing basis, as is currently being done on the Sasol Midland effluent managment. No water will be released from the stormwater system into the Taaibosch Spruit until the water has been analysed to ensure that compliance with permit conditions are met.	Potentially polluted run-off will be kept separate from clean stormwater and will be monitored on an ongoing basis Compliance is managed by midland effluent control with in the limit of the current valid Water Use Lisence. Acrylates facility Operations has a valid Service Level Agreement with water and effluent control to enable comblance to this condition.	ACRYLATE : Bi- Annual Bund wall inspections					
Fire water	No significant impact was found. Firewater will be supplied by the existing Midland facilities which are geared towards peak flows able to accommodate any single event	In the case of fire, the runoff would be contained either in the bunded areas, or if excessive quantities are used the overflow would be caprured in the northern effluent dams of Sasol						
Surface water at loading areas	Contamination of surface stormwater as a result of storage and handling of pollutants on the site was found to be of low significance. The relatively low increase in volumes of stormwater is not expected to overload the system. Therefore, it is unlikely that uncontrolled releases of stormwater to the environment would take place. This potential impact is therefore of low significance.	Loading area must be bunded						
Effluent treatment and disposal	All effluent must be properly separated and appropriately disposed	Aqueous effluent streams that do not contain sodium will be combined and biologically treated in the Sasol bioworks or alternatively managed, by a third party, in a legally compliant manner.	ACRYLATE: **Monthly** Proof that effluent without Na goes to bioworks (Plant design/ SLA with waste&Water/ plant procedure)					
		Aqueous effluent that contains sodium will be incinerated or alternatively managed, by a third party, in a legally compliant manner.	ACRYLATE: **Monthly** Proof that effluent containing Na &heavy organics are incinerated (SLA/ plant prosedure)				Waste disposal certificates?	
		The heavy organic streams will be incinerated in the existing fixed bed incinerator at the Sasol One site or alternatively it will be handled within the legislative requirements					Waste disposal certificates?	
Solid waste	Correct managmetn of solid waste	All solid waste streamsare to be disposed of interms of the Waste Act.Therefore, no impactsare expected due to solidwaste disposal.						
Air Quality	Specific care has been taken in the design of the Acrylic Acid and Acrylates Complex to reduce fugitive organic emissions. Big portions of the plant will operate under vacuum and the vacuum exhaust gas will be condensed prior to treatment and release to the stack. The design uses canned pumps and welded fittings to minimise any fugitive emissions where applicable. Where required, double mechanical seals will be used to minimise fugitive emissions. The extensive emission controls designed into the process will minimise the Acrylic Acid and Acrylates Complex's contribution of volatile organic compounds to the ambient concentrations.	All storage tank vents will be fitted with vapour recovery lines and the vents from product tanks will be condensed.	ACRYLATE: **Annual proof** All Storage tanks are fitted with vapour recovery lines (Plant design/ photo)			All tanks are either fitted with nitrogen push-pull system or a vent line that as an extraction hood. The exit line of the nitrogen push-pull system and the extraction hood are connected to the VGT Vent Gas Header which operates at slight vacuum. This VGT header is fed in the AAA incinerator unit.		
		All sample points will be enclosed and routed to drip tanks thus eliminating vapour within the plant and adjacent area.	ACRYLATE: Annual proof - all sample points are enclosed & routed to drip tray (photos)			All sample points that are used frequently and on schedule are enclosed and are routed to drips. There are few sample points that used occasionally (maybe once a year if once in two years) that are not routed to drips. The sample points that have drips also have VGT lines to extract any possible vapours.		
		Large portions of the plant will operate under vacuum and the vacuum exhaust will be condensed prior to release to the stack. The stack will be approximately 27 meters high				All vacuum systems have condensers to recover condensables. The exit streams of the vacuum systems go into the VGT header which fed to the AAA incinerator. The incinerator stack is in excess of 20m.		
		The design uses canned pumps and welded fittings to minimise any fugitive emissions where applicable.				The plant has numerous canned pumps and flange fittings are minimised both from a safety (leak) perspective and fugitive emission perspective.		
		Where required, double mechanical seals will be used to minimise fugitive emissions				All non-canned process pumps have double mechanical seals. Utility		
		Exhaust gases from the catalytic combustion unit - This source would be treated through a catalytic conversion process, which works similar to a car exhaust catalyst				The exit gases from the main Oxidatiuon Reactors are quenched in the quench tower. All waste gas from the quench tower is treated in the catalytic combustion unit which contains proprietary catalyst which you could say works similar to car exhaust catalyst.		
		Treated process vent gases - This source would first be condensed to remove most of the VOCs, before passing through a thermal converter to convert the odorous (smelly) compounds, that would otherwise impact on the area, to carbon dioxide						
		The emissions from the Thermal converter will be let out by a single stack (approximately 27m high). The emissions from the Catalytic combustion unit will be let out by a stack approximately 20m high						

Sasol South Africa Limited

ACRYLIC ACID AND ACRYLATES COMPLEX ENVIRONMENTAL AUTHORISATION (REFERENCE: EM1/1/(C)/00/132) AND EMPR

Compliance Audit Report: August 2019 - November 2022

SASOL SASOLBURG EA AUDITS
MAY 2023

CONFIDENTIAL

Sasol South Africa Limited

ACRYLIC ACID AND ACRYLATES COMPLEX ENVIRONMENTAL AUTHORISATION (REFERENCE: EM1/1/(C)/00/132) AND EMPR

Compliance Audit Report: August 2019 - November 2022

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 41104347

OUR REF. NO. SASOL SASOLBURG EA AUDITS

DATE: MAY 2023

Sasol South Africa Limited

ACRYLIC ACID AND ACRYLATES COMPLEX ENVIRONMENTAL AUTHORISATION (REFERENCE: EM1/1/(C)/00/132) AND EMPR

Compliance Audit Report: August 2019 - November 2022

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QUALITY CONTROL

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

PREPARED BY

Ian Malloy

Senior 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 Sasol South Africa Limited (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	Yuresh Naidoo
Area Manager	Lerata Mofokeng
Foreman Production Butanol	Johan Pretorius

WSP

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

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APPENDICES

1 INTRODUCTION

1.1 TERMS OF REFERENCE

WSP Group Africa (Pty) Ltd (WSP) as an independent environmental consultant was appointed by Sasol Chemicals, a division of Sasol South Africa Limited, to undertake an external environmental authorisation (EA) compliance audit of the Acrylic Acid and Acrylates (AAA) Complex against the commitments contained in the EA (reference number EM1/1(C)/00/132) and the 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).

The details of the EA (initially Record of Decision (RoD)) and the EMPr audited for compliance of the AAA Complex, Sasol One Site are provided below:

- EA for the AAA Complex located at the Sasol One site in Sasolburg Reference number: [EM1/1(c)/00/132], dated 30 January 2002 and issued to Sasol Chemical Industries (SCI) on 06 May 2002 by the Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA), 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 AAA Complex at Sasol One Site, Sasolburg, dated August 2001.

The RoD included the following installations of the proposed AAA Complex:

- Crude acrylic acid plant;
- Glacial acrylic acid plant;
- Ethyl acrylate plant;
- Normal-butyl acrylate plant.

Sasol South Africa Limited in respect of Sasol Sasolburg Operations applied to amend the EA (reference number: EM1/1(C)/00/132) as per Regulation 30(2) of GNR 982, 2014 Environmental Impact Assessment (EIA) Regulations to:

- Change the applicant details on the EA
  - Owner of the EA
  - Contact details and address
- Change the person to whom the EA was issued:
  - Contact person/ Management of the EA

After the 2019 external EA and EMPr compliance audit, Sasol applied to the DESTEA during December 2019 to amend the EMPr to allow for alternative and compliant ways to dispose of aqueous effluent that contains sodium and heavy organic streams. This was approved by the Department.
This 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 2021 to November 2022.

1.2 SASOL SASOLBURG – AAA OPERATIONS

Sasol Chemical Industries (SCI), a wholly owned subsidiary of Sasol South Africa Limited, constructed and operate a AAA Complex in Sasolburg. The AAA Complex facility consists of four production units and is located on the Sasol Midland site in Sasolburg (see Figure 1). The units are operated by Sasol Solvents, the division of SCI responsible for the manufacture and marketing of solvents.

The technology provider for the AAA complex was the Mitsubishi Chemical Corporation (the Licensor) from Japan. The technology is not novel and is well known. Mitsubishi has established similar plants worldwide. The technology is known as the “propylene oxidation technology”. It is based on combining propylene (a fuel) with air (oxygen) using a catalyst (a chemical that causes substances to react with each other).

The AAA Complex produces four chemical products:

- Crude acrylic acid (CH_2=CHCOOH);
- Glacial acrylic acid (CH_2=CHCOOH);
- Ethyl acrylate (CH_2=CHCOOC_2H_5);
- Normal-butyl acrylate (CH_2=CHCOOC_4H_9).

The location of the Sasol Operations and AAA Complex on the Sasol Midland Factory site in Sasolburg, in relation to other industry in the area is shown in **Figure 1-1** and the layout is provided in **Figure 1-2** below.

Figure 1-1 - Sasol Sasolburg with the Midland Factory site layout in Sasolburg

Figure 1-2 - AAA site layout

1.3 PROJECT TEAM

Ian Malloy, Takadzani Takalani and Matilda Mbazo completed a site inspection of the AAA Complex and Butanol Complex on 10 November 2022. This audit included a visit to the Sasolburg One Plant and an inspection of the operations of the Acrylates Complex processes and inspection of records and documents to indicate compliance of conditions in the EA that should be maintained by Sasol. The AAA Complex facility includes the following:

- Crude acrylic acid plant;
- Glacial acrylic acid plant;
- Normal-butyl acrylate plant; and
- Ethyl acrylate plant.

The draft external audit report was compiled in January 2023 and finalised in May 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 is a Senior Environmental Consultant at WSP with over 9 years' experience in the environmental management industry. Ian graduated from the University of Stellenbosch with a BEng in Chemical Engineering in 2016 and a BEng Hons in Environmental Engineering in 2019. He is currently completing a MEng in Water Engineering. Ian has specialised in waste planning, environmental management and auditing, and environmental engineering. He has been involved in numerous waste and water management, and construction related projects in South Africa. The projects completed include EIAs, Water Use Licence (WUL) and Waste Management Licence (WML) Applications, amendment processes, developing IWMPs for District and Local Municipalities, developing EMPrs, conducting environmental compliance audits of EAs, EMPrs, WULs, 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 EMPs. In addition, she has undertaken general site assessments to determine compliance against local, provincial and national environmental legislation.

2 AUDIT SCOPE

WSP was appointed by Sasol to conduct the environmental compliance audit for the AAA Complex. 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 with the commitments of the EA (reference number EM1/1(c)/00/132) for the AAA Complex;
- Assess the level of compliance with the commitments of the EMPr that was submitted as part of the EIA report for the AAA Complex and amended in 2019;
- Assess the extent to which the avoidance, management and mitigation measures provided for in the EMPr for the operation of the AAA complex 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.

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

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

Sub-Section	Requirement	Report Section Reference
34 (2)a	The environmental audit report must be prepared by an independent person with the relevant environmental auditing expertise.	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		
3(a)	The environmental audit report must determine	Section 7

Sub-Section	Requirement	Report Section Reference
	(a) the ability of the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an ongoing basis and to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and	
3(b)	The environmental audit report must determine the level of compliance with the provisions of environmental authorisation, EMPr and where applicable, the closure plan.	Section 4 and 6
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.	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.	Section 8
3(1)(c)	An indication of the scope of, and the purpose for which, the environmental audit report was prepared.	Section 1.1 and 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 and 4

Sub-Section	Requirement	Report Section Reference
3(1)(f)	A description of any assumptions made, and any uncertainties or gaps in knowledge.	Sub-section 2.1 and 2.2
3(1)(g)	A description of any consultation process that was undertaken during the course of carrying out the environmental audit report.	Section 3
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 Sasol, by receiving this document, indemnifies WSP and its directors, managers, agents and employees against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with the services rendered, directly or indirectly by the use of the information contained in this document.

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

2.2 ASSUMPTIONS AND LIMITATIONS

WSP noted the following assumptions and limitations during the audit:

- The information provided by Sasol is up to date and accurately represents the Sasolburg AAA Complex operations;
- WSP viewed as much of the operational area as possible given the timeframe and access limitations;
- Findings made within the previous external and internal audit reports are correct; and
- Site photographs were not provided in the audit report due to the onsite Sasol Sasolburg policy that disallows any photographs being taken on site. Where conditions were deemed compliant, and the evidence provided was onsite observation and verbal confirmation to support the findings; this was observed by the Auditors.

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

3 AUDIT METHODOLOGY

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

The audit process comprised the following:

- Confirmation of the audit checklist;
- Site inspection (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 EIA report, which was used as an auditing compliance tool. Refer to **Section 4** for the audit checklist.

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-2013-24-R1);
- Sasolburg and Ekandustria Operations Annual Emission Report (August 2022) to ensure compliance with the AEL conditions;
- Water Use Licence (WUL) (reference number: 14/C22K/FG/4958);
- Groundwater Quality Monitoring Report: WUL Compliance, Sasolburg Operations: February 2022 (WSP, May 2022)
- Integrated Water and Waste Management Plan (IWWMP) Rev 1 – report number: SO-env-929 (Sasolburg Operations, December 2021) that includes the:
    - Stormwater Management Plan (SWMP);
    - Rehabilitation Strategy and Implementation Plan (RSIP);
    - Water Conservation and demand Management (WC/DM);
    - Malfunctions register;
    - Water management;
    - Groundwater management;
    - Waste management;

- Contaminated Water and Wastewater Management;
- Effluent Management; and
- Land management.

- 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);
- Environmental Standards;
- Health and Safety Standards and Audits;
- Procedure for the management of waste on the Sasolburg Operations' Sites (document number: SSP-S-014) (Sasolburg Operations, January 2020)
- The reporting, investigation and recording of environmental incidents (document number: SSP-S-013) (Sasolburg Operations, July 2019);
- Waste Management and Disposal Registers;
- 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 1.2 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.
OFI	Opportunity for Improvement

4 AUDIT FINDINGS

4.1 ENVIRONMENTAL AUTHORISATION

Table 4-1 provides a compliance rating of the EA commitments that were used as the audit standard.

Table 4-1 - Audit Finding of the Environmental Authorisation (EM1/1(c)/00/132) dated 30 January 2002

EA Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
Special Conditions				
1. Air Pollution				
1.1	All storage tank vents must be fitted with vapour recovery lines.	**C**	Tanks were either fitted with a nitrogen push-pull system or a vent that had an extraction hood. The exit line of the nitrogen push-pull system and the extraction hood were connected to the Vent Gas Header (VGT) which operated at slight vacuum. This VGT header is fed in the AAA incinerator unit. *Evidence:* ▪ Visually observed ▪ Onsite verification from Plant Manager.	-
1.2	All sample points should be enclosed and routed to drip tanks.	**C**	All sample points that were used on schedule were enclosed and routed to a drip area (drip tanks or bunded areas). There are few sample points that are used occasionally that are not routed to drips, but containment and spillage control measures are in place. No spillages were noted or recorded due to sampling. The sample points that have drips also have VGT header lines to extract any possible vapours.	-

EA Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
			Evidence: ▪ Visually observed ▪ Onsite verification from Plant Manager.	
1.3	All exhaust gasses must be properly treated as stated in the Scoping Report.	C	The exhaust gasses are managed and treated as per the EMPr which contains the mitigation measures for impacts identified in the scoping report. *Evidence:* ▪ Visually observed ▪ Onsite verification from Plant Manager.	-
2. Stormwater and Effluent				
2.1	All storm water must be properly separated and appropriately disposed of as stated in the Scope of work.	C	No stormwater that occurs at the AAA Complex site is discharged. The AAA Complex and Plant are constructed within a bund and in such a manner that storm water is directed to a sump and tested before release. Contaminated stormwater is fed to the Bioworks when released. Stormwater adjacent to the AAA complex and outside the bunded area is diverted to the clean storm water system at the Sasol Midland site. No contaminated stormwater enters the clean stormwater system. Effluent is managed in accordance with the IWWMP and SWMP: SSP-S-030. *Evidence:* ▪ Visually observed ▪ Onsite verification from Plant Manager ▪ IWWMP	-
3. Noise				

EA Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
3.1	While noise generation equipment must be fitted with silencers, Sasol will comply with Health and Safety legislation that an overall noise rating level in areas where more than one noise source is placed is less than 85 dB.	C	Noise survey and an impact assessment for hearing conservation purposes was conducted in 2017 and 2019 and were recorded in the ISO 45001:2018 recertification audit report (DQS, November 2021). There are noise hoods at the AAA plant. No loud noises were recorded that exceeded the 85 dB noise threshold. *Evidence:* ▪ Visually observed noise hood ▪ Onsite verification from Plant Manager ▪ ISO 45001:2018 recertification audit report	OFI: The noise survey should be conducted again before the next ISO 45001 recertification audit, Health and Safety Audit or external EA and EMPr compliance audits to ensure compliance with the 85 dB noise threshold.
4. Safety				
4.1	Safety standards will not be compromised to below current levels. The Health and Safety Act shall be observed.	C	Proof of safety induction and training records were provided and all staff were aware and educated on the requirements of the Health and Safety Act. Internal and external Health and Safety audits to ensure compliance and continuous improvement are conducted as required for the AAA Complex. *Evidence:* ▪ Visually observed induction training material and induction training registers ▪ Onsite verification from Plant Manager ▪ ISO 45001:2018 recertification audit report	-
Standard Conditions				
i)	The applicant must advertise the authorization of this specific activity in terms of Section 22 of the Environment Conservation Act, 1989 (Act no. 73 of 1989): Schedule 1 of	N/A	This condition is outside the audit period and therefore was not audited.	-

EA Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
	the Government Gazette No, R1182. Proof of this advertisement must be submitted to this Department within 14 days from the date of this authorisation			
ii)	This record of decision does not exempt any person from the requirements of any other controlling authority or from any provision of any other law and does not purport to interfere with the rights of any person who may have an interest in the property.	**N/A**	Noted. The audit scope did not cover a legal review of compliance of the AAA and SSO with all statutory requirements and whether they were in possession of all the necessary permits, authorisations or any other official documents. However, an AEL (reference nr.: FDDM-MET-203-24-R1) was in place for the AAA Complex and was audited as required by the AEL conditions (Sasol South Africa Limited, August 2022). Internal and external Health and Safety audits were conducted to ensure compliance with the Health and Safety Act. Furthermore, to the knowledge of Sasol and the audit team, the operation of the AAA Complex unit has not transgressed any other law.	-
iii)	A copy of this authorisation and a copy of the relevant Scoping report shall be available at the site office at all times. Staff members and contractors shall be conversant with its content.	**C**	A copy of the EA and EMPr were available at the office of the manager of the AAA complex. Staff members and contractors were made aware of the conditions of the EA and EMPr during induction training and toolbox talks. Signed induction and training were available and maintained by Sasol. *Evidence:* ▪ Visually observed EA and EMPr onsite ▪ Visually observed induction training material and induction training registers ▪ Onsite verification from Plant Manager	-

EA Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
iv)	The Department must be granted access to the property at any time to investigate any possible environmental Impacts that may be caused by this development.	**N/A**	The Department is allowed access to the AAA Complex; however, the Department has not visited the AAA Complex since July 2019.	-
v)	The records of compliance/non-compliance with conditions of this authorisation must be kept in good order. Such records should be available to this Department with seven (7) days from the date of written request from this Department.	**C**	Records of compliance and non-compliance are maintained in good order and stored electronically and are available within seven days from request from the Department. *Evidence:* ▪ Visually observed onsite on Sasol electronic information system ▪ Onsite verification from Plant Manager	-
vi)	Noncompliance with, or any deviation from the conditions of this authorisation as set out in the Record of Decision, is regarded as on offence and will be dealt with In terms of Section 29, 30 and/or 31A of the Environment Conservation Act.	**N/A**	This condition outside the audit period and therefore was not audited.	-
vii)	The Department may change, add, amend any of the conditions mentioned in this authorisation, if in the opinion of the Department, it is environmentally justifiable.	**N/A**	The EA was amended by the Department. The amendments to the EA were conducted prior to the audit period therefore the condition was outside the audit period and not audited.	-
5. Duration and date of expiry				
a)	This permit is valid for as long as: a) Development shall have started within 5 years from the date of issue of this Record of Decision	**N/A**	This condition is outside the audit period and therefore was not audited.	-

EA Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person
b)	This permit is valid for as long as: b) The development does not pose itself as an environmental hazard.	**N/A**	This condition is not auditable. The condition is noted by Sasol.	-
6. Appeal				
	Should this record of decision be queried, an appeal under section 35(3) of the Environment Conservation Act, may be done in writing within 30 (thirty) days from the date on which this record of decision was advertised and must be directed to: The MEC: Department of Tourism, Environmental & Economic Affairs Free State Province P. O. Box 264 Bloemfontein 9300	**N/A**	This condition is outside the audit period and therefore was not audited.	-

4.2 ENVIRONMENTAL MANAGEMENT PROGRAMME

Table 4-2 provides a compliance rating of the EMPr commitments that were used as the audit standard.

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 Y/N	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
Operational Environmental Management Programme from the Scoping Report: 7 Impact Assessment								
1.Groundwater – preventing groundwater pollution								
1.1	Spillage, washings and rainwater will be collected in sumps for re-use or treatment.	C	The plant has been designed to have no impact on the groundwater quality. All tanks and systems, and the production area were bunded (impermeable floors and walls around them) preventing any accidental spills entering the ground. All spillages, washings and rainwater within the AAA complex bund is treated as contaminated water and fed to a sump and either reused or treated. *Evidence:* ▪ Visually observed ▪ Onsite verification from Plant Manager ▪ IWWMP	-	-	-	-	-
1.2	The emptying of the bunds after a spillage will be managed to ensure that it occurs within the shortest possible time period.	C	Processes are in place that ensure spills or contaminated water due to spillages from the AAA plant are contained within the bund and not released. During the biannual shutdown, sludge is cleaned and removed. The contaminated water and sludge are removed from the tanks and disposed of by EnviroServe. All spillages, washings and	-	-	-	-	-

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person	Measures Implemented to Address Non-Compliance	Practicality of the EMPR Commitments Y/N	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
			rainwater within the AAA complex bund is treated as contaminated and fed to a sump and either reused or treated. *Evidence:* ■ IWWMP ■ Visual observations of waste manifests – hardcopy, softcopy and Sasol online intranet					
2. Surface Water								
2.1	Water capacity for the Midland site is operated within the WUL requirements	C	Sufficient water is available within Sasol's current license requirements for the project during operation, including sufficient water in case of a fire. The AAA water use is within the WUL requirements. *Evidence:* ■ Sasol Operations WUL (reference nr: 14/C22K/FG/4958) ■ IWWMP, 2021 ■ WC/DM	-	-	-	-	-
2.2	In case of a fire, the runoff would be contained either in the bunded areas, or if excessive quantities are used the overflow would be captured in the northern effluent dams of Sasol Midland.	C	Surface water and firewater runoff will be contained within the bund at the AAA complex and will not be released during a fire event. In case of a fire, firewater will be supplied by the existing Midland facilities which are geared towards peak flows that are able to accommodate any single fire event. During the audit period, there was	-	-	-	-	-

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person	Measures Implemented to Address Non-Compliance	Practicality of the EMPR Commitments Y/N	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
			no fire at thew AAA complex that required large volumes of firewater. *Evidence:* ▪ IWWMP ▪ Visual observations					
2.3	Run-off from potentially polluted areas will be bunded and will be managed within the existing Midland Factory stormwater control procedures.	C	Contaminated runoff from the AAA Complex is bunded and contained until it is treated or reused. For clean stormwater, the AAA complex makes use of existing Midland stormwater system. The low increase in volume of stormwater during rain events is not expected to overload the system. Therefore, there was no uncontrolled releases of stormwater to the environment. *Evidence:* ▪ IWWMP ▪ Visual observations	-	-	-	-	-
2.4	Potentially polluted run-off will be kept separate from clean stormwater and will be monitored on an ongoing basis	C	Contaminated runoff from the AAA Complex is bunded and contained until it is treated or reused. For clean stormwater, the AAA complex makes use of existing Midland stormwater system. The contaminated and clean stormwater do not mix at the AAA complex. *Evidence:* ▪ IWWMP	-	-	-	-	-

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person	Measures Implemented to Address Non-Compliance	Practicality of the EMPR Commitments Y/N	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
			▪ Visual observations					
2.5	Loading area must be bunded	C	The loading area is bunded. When waste product goes into tankers, the pipes and tankers are fitted with dry - break coupling systems therefore the potential for spillages to occur are reduced. Spill kits are placed at the loading area and a collection sump is placed at the lowest point of the loading bay to ensure spills that occur are drained to the bund. All spillages are contained within the bund. *Evidence:* ▪ IWWMP ▪ Visual observations	-	-	-	-	-
3. Air Quality (Specific conditions for the AAA Complex to reduce fugitive organic emissions)								
3.1	All storage tank vents will be fitted with vapour recovery lines and the vents from product tanks will be condensed.	C	Tanks are either fitted with a nitrogen push-pull system or a vent that has an extraction hood. The exit line of the nitrogen push-pull system and the extraction hood are connected to the VGT (Vent Gas Header) which operates at slight vacuum. This VGT header is fed in the AAA incinerator unit. *Evidence:* ▪ Verbal confirmation from plant manager ▪ Visual observations	-	-	-	-	-
3.2	All sample points will be enclosed and routed to	C	All sample points that are used on schedule are enclosed and are routed to	-	-	-	-	-

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person	Measures Implemented to Address Non-Compliance	Practicality of the EMPR Commitments Y/N	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
	drip tanks thus eliminating vapour within the plant and adjacent area.		drips (drip tanks or bunded areas). There are few sample points that are used occasionally that are not routed to drips, but containment and spillage control measures are in place. No spillages were noted or recorded dur to sampling. The sample points that have drips also have VGT header lines to extract any possible vapours. *Evidence:* ▪ Verbal confirmation from plant manager ▪ Visual observations					
3.3	Large portions of the plant will operate under vacuum and the vacuum exhaust will be condensed prior to release to the stack. The stack will be approximately 27 meters high	C	All vacuum systems have condensers to recover condensable gases. The vacuum and condensation are controlled and monitored on the DCS. The exit streams of the vacuum systems go into the VGT header which are fed to the AAA incinerator. The incinerator stack is more than 27m. *Evidence:* ▪ Site observation	-	-	-	-	-
3.4	The design uses canned pumps and welded fittings to minimise any fugitive emissions where applicable.	C	The plant has numerous canned pumps and flange fittings that minimise leaks and fugitive emissions. *Evidence:* ▪ Site observation	-	-	-	-	-

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person	Measures Implemented to Address Non-Compliance	Practicality of the EMPR Commitments Y/N	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
			▪ Interview with Area Manager (Engineer)					
3.5	Where required, double mechanical seals will be used to minimise fugitive emissions	C	All non-canned process pumps have double mechanical seals to minimise fugitive emissions. *Evidence:* ▪ Site observation ▪ Verbal confirmation from Area Manager (Engineer)	-	-	-	-	-
3. Air Quality (Carbon monoxide (CO), carbon dioxide (CO_2) and nitrogen oxides (NOx) will be formed in the catalytic combustion, and thermal converter)								
3.6	Exhaust gases from the catalytic combustion unit - This source would be treated through a catalytic conversion process.	C	The exit gases from the main Oxidation Reactors are quenched in the quench tower. All waste gas from the quench tower is treated in the catalytic combustion unit which contains proprietary catalyst. *Evidence:* ▪ Site observation ▪ Verbal confirmation from Area Manager (Engineer)	-	-	-	-	-
3.7	The emissions from the Thermal converter will be let out by a single stack (approximately 27m high). The emissions from the Catalytic combustion unit will be let out by a stack approximately 20m high.	C	The stacks were compliant with condition and noted on site. *Evidence:* ▪ Site observation of stacks	-	-	-	-	-

Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person	Measures Implemented to Address Non-Compliance	Practicality of the EMPR Commitments Y/N	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
3. Air Quality (The extensive emission controls designed will minimise the Acrylic Acid and Acrylates Complex's contribution of volatile organic compounds to the ambient concentrations)								
3.8	Treated process vent gases - This source would first be condensed to remove most of the VOCs, before passing through a thermal converter to convert the odorous (smelly) compounds, that would otherwise impact on the area, to carbon dioxide.	C	The exit gases from the main Oxidation Reactors are quenched in the quench tower. All waste gas from the quench tower is treated in the catalytic combustion unit which contains proprietary catalyst. *Evidence:* ▪ Site observation ▪ Verbal confirmation from Area Manager (Engineer)	-	-	-	-	-
4 Solid Waste Correct management of solid waste								
4.1	All solid waste streams are to be disposed of in terms of the Waste Act. Therefore, no impacts are expected due to solid waste disposal.	C	Sasol complies with this condition. Waste disposal records, manifests and a waste disposal register are maintained by Sasol. *Evidence:* ▪ On site observation of online waste management system maintained by Sasol. ▪ IWWMP ▪ Waste manifests and register	-	-	-	-	-
5.Effluent Treatment and Disposal								
5.1	Aqueous effluent streams that do not contain sodium will be routed to Sasol Effluent facility	C	Effluent that does not contain Sodium is contained and taken to the bioworks plant. The bioworks is a contaminated water treatment facility managed by Sasol on	-	-	-	-	-

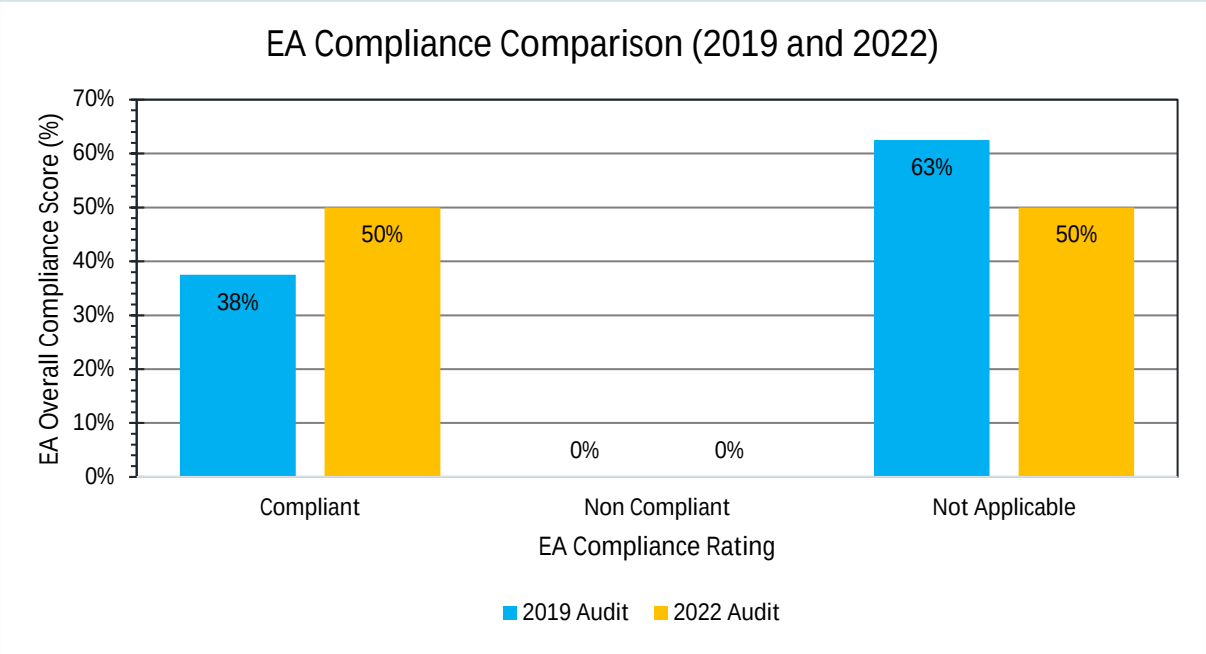
Ref	Condition	Compliance Status	Findings	Recommendation, Timeframe & Responsible Person	Measures Implemented to Address Non-Compliance	Practicality of the EMPR Commitments Y/N	Is the Non-Compliance Administrative or will it have an impact	Historical/New Non-Compliance (Administrative measures)
			site. A dedicated channel transports the effluent from AAA complex to bioworks. Effluent is tested before release. Evidence: ▪ Waste register ▪ IWWMP					
5.2	Aqueous effluent that contains sodium will be incinerated or alternatively managed, by a third party, in a legally compliant manner.	C	Incinerators are currently not operational on site. Effluent that contains sodium is collected by a third-party waste management company and handled and disposed in a compliant manner. Evidence: ▪ Waste manifests	-	-	-	-	-
5.3	The heavy organic streams will be incinerated in the existing fixed bed incinerator at the Sasol One site or alternatively it will be handled within the legislative requirements	C	Heavy ends A and B is blended and loaded into tankers by a third-party waste disposal company. This is used as fuel for heating to make cement. *Evidence:* ▪ On site observation of online waste management system maintained by Sasol ▪ Onsite observation of loading bay for tankers ▪ IWWMP ▪ Waste manifests and register	-	-	-	-	-

5 PROGRESS AGAINST PREVIOUS AUDIT FINDINGS

5.1 ENVIRONMENTAL AUTHORISATION (EM1/1(C)/00/132)

There is no progress for the EA as all conditions were compliant in the 2019 and 2022 external audits. **Figure 5-1**, provides a summary of the EA audit findings for the previous (2019) and current (2022) external compliance audit.

Figure 5-1 - Comparison of Environmental Authorisation Compliance of 2019 and 2022



5.2 ENVIRONMENTAL MANAGEMENT PROGRAMME (L&W SOLVENTS, 2003)

Figure 5-2, provides a summary of the EMPr audit findings for the previous and current audits (2019 and 2022). Two NC conditions that were recorded in the 2019 audit report, were compliant in the 2022 audit as the conditions in the EMPr were amended. This current audit identified zero non-compliant conditions.

The previous compliance audit in 2019 of the EMPr included two non-compliance (18%), 9 compliances (82%), and zero not applicable conditions for the EMPr, as indicated in **Figure 5-2** below. Two non-compliances from the previous audit were closed out in the current audit, and 19 compliant conditions were recorded in the current audit. The number of conditions increased from 11 conditions in 2019 to 19 conditions in 2022 as the EMPr was amended to adequately manage the operations on site and minimise the environmental impacts. Nineteen (19) compliant conditions, zero (0) non-compliances and zero (0) not applicable conditions were achieved in the 2022 audit (refer to **Figure 5-2** below). The conditions that were non-compliant in 2019, but compliant in 2022 due to the amendment of the EMPr are provided in **Table 5-1.**

Figure 5-2 - Camparison of EMPr Compliance of 2019 and 2022

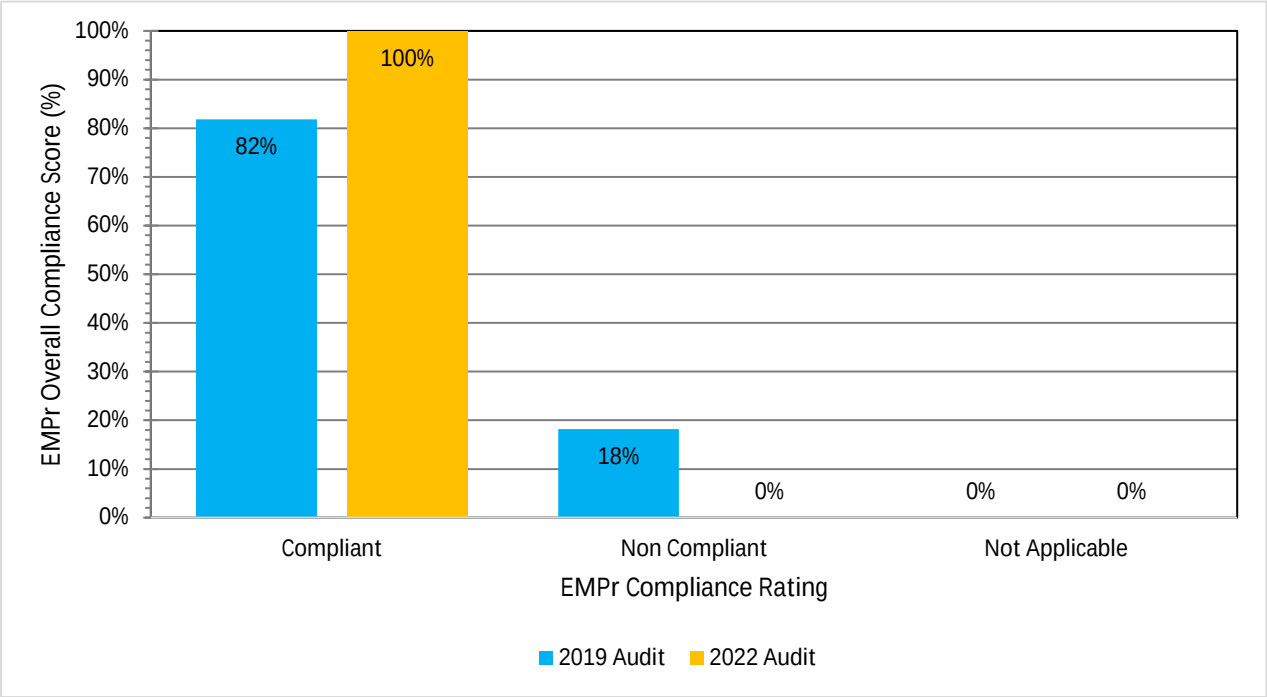


Table 5-1 – Comparison between the 2019 and 2022 EMPr Audit Findings

EMPr Conditions	Audit 2019	Audit 2022	Comment
EMPr Conditions			
Liquid Effluent b) Aqueous effluent that contains sodium will be incinerated in the existing Sasol One caustic incinerator	NC		The condition was amended after the 2019 external audit and was aligned with the condition in the EA. This EA condition was compliant during the 2022 external audit.
Aqueous effluent that contains sodium will be incinerated or alternatively managed, by a third party, in a legally compliant manner.		C	
Liquid Effluent c) The heavy organic streams will be incinerated in the existing fixed bed incinerator at the Sasol One site.	NC		The condition was amended after the 2019 external audit and was aligned with the condition in the EA. This condition was compliant during the 2022 external audit.
The heavy organic streams will be incinerated in the existing fixed bed incinerator at the Sasol One site or alternatively it will be handled within the legislative requirements		C	

6 SUMMARY OF THE AUDIT FINDINGS

6.1 SUMMARY OF AAA EA FINDINGS

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 provided in **Table 6-1** and **Figure 6-1** below. The percentage of compliance against all the conditions was 50% **(Figure 6-1 - Compliance Contribution for the EA Conditions per Section**

). However, only considering the applicable conditions, 100% compliance was achieved for this audit.

Table 6-1 - Summary of EA Compliance Audit Findings

Section of the EA	No. Commitments	C	NC	N/A
EA Condition of Approval				
Special Conditions	6	6	-	0
Standard Conditions	7	2	-	5
Duration and Date of Expiry	2	-	-	2
Appeal	1	-	-	1
Total	**16**	**8**	**0**	**8**
Total Percentage		**50%**	**0%**	**50%**
Percentage Compliance with Applicable Conditions	**100%**			

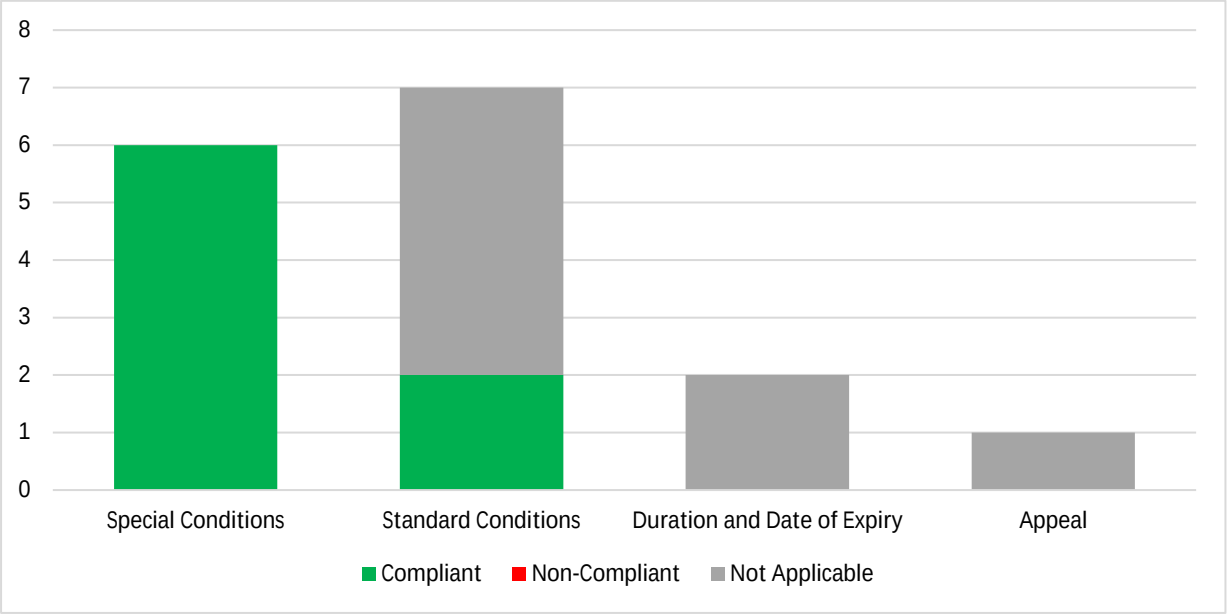


Figure 6-1 - Compliance Contribution for the EA Conditions per Section

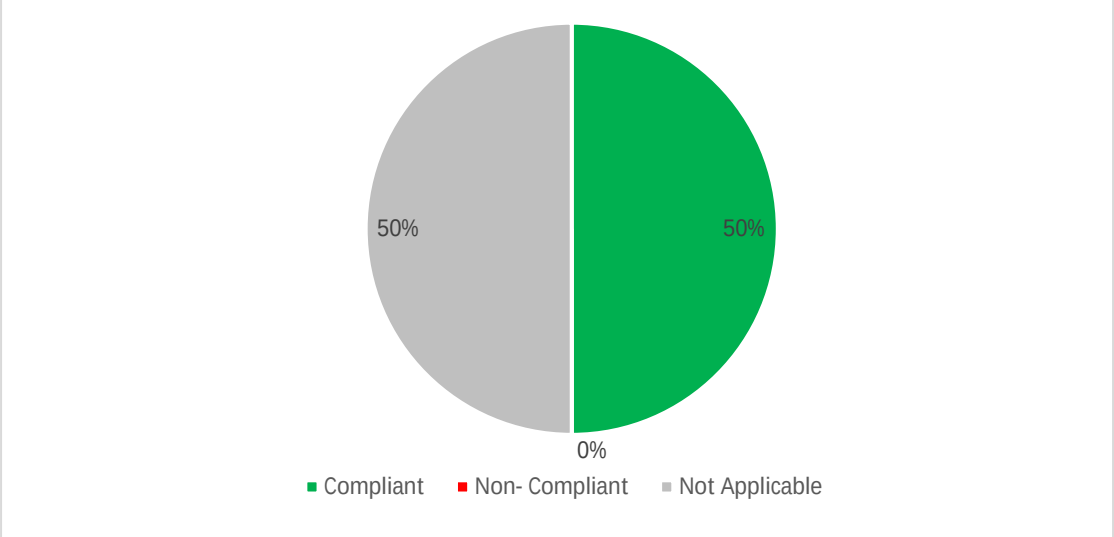


Figure 6-2 - Overall Percentage Compliance of the EA Conditions

6.2 SUMMARY OF EMPR FINDINGS

The audit findings of the EMPr have been summarised into the following categories: compliance, non-compliance and not applicable. **Table 6-2** summarizes the EMPr compliance audit findings per section and this is graphically presented in **Figure 6-3**. The percentage of compliance against all the conditions was 100% for this audit and graphically presented in **Figure 6-4.**

Table 6-2 - Summary of EMPr Compliance Audit Findings

Section of the EA	No. Commitments	C	NC	N/A
Air Quality Emissions	8	8		
Surface Water/ Stormwater	5	5		
Effluent Treatment and Disposal	3	3		
Groundwater	2	2		
Solid Waste	1	1		
Total	**19**	**19**	**0**	**0**
Total Percentage		**100%**	**0%**	**0%**
Percentage Compliance with Applicable Conditions				**100%**

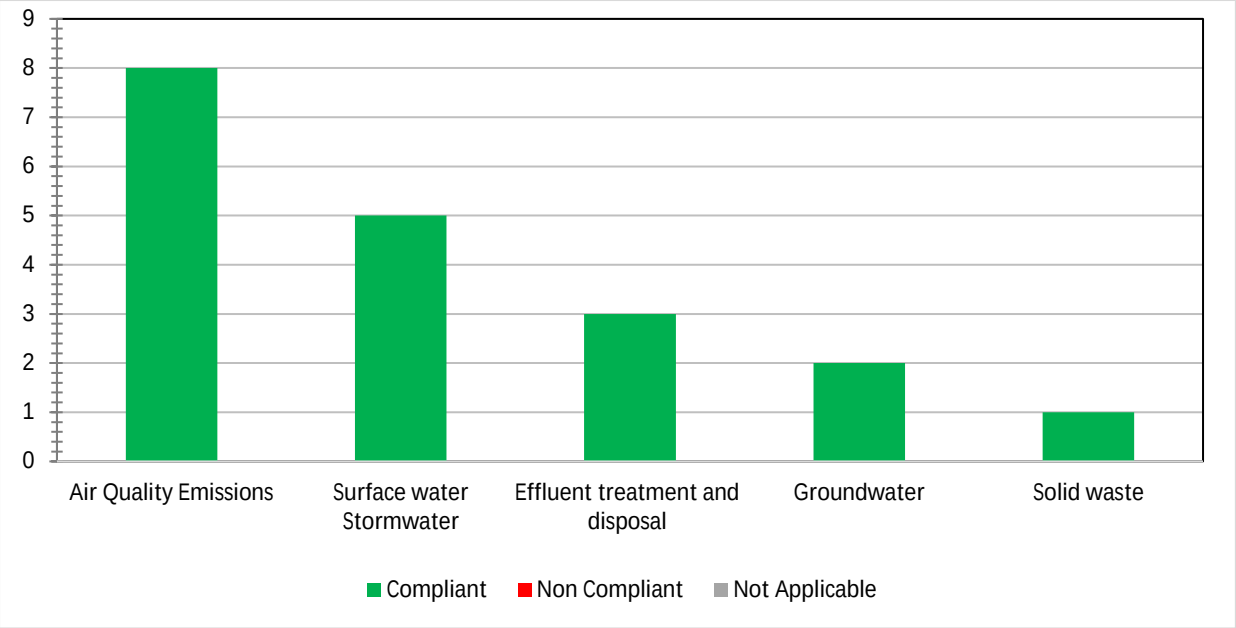


Figure 6-3 - Sectional count contribution for the EMPr conditions per section

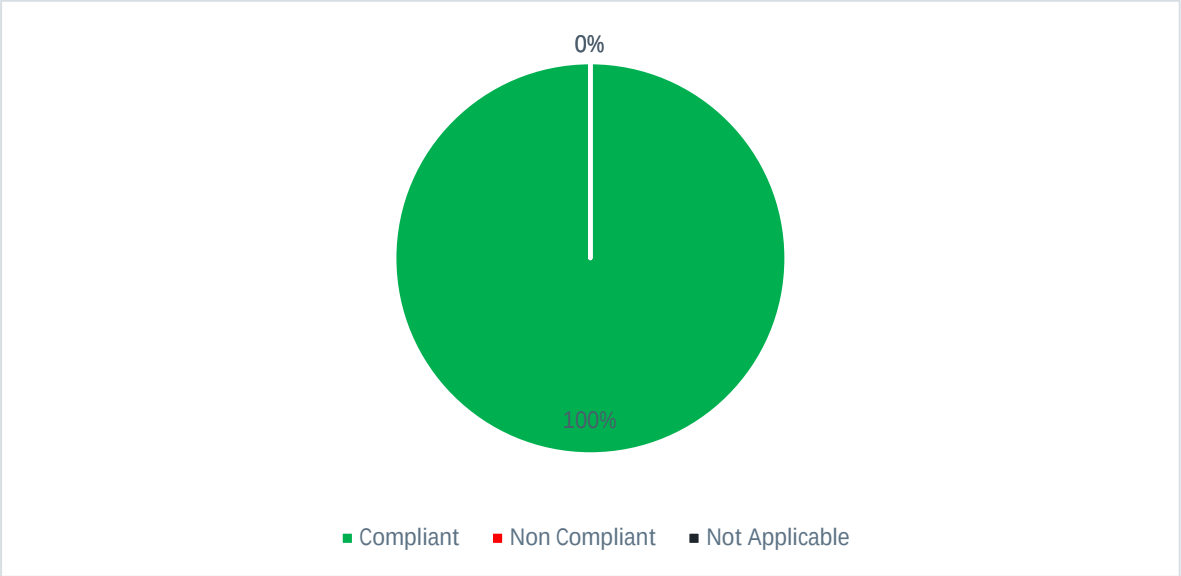


Figure 6-4 - Overall percentage on compliance to the EA conditions

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.

The EMPr compliance audit has identified that the EMPr commitments applicable to the operational phase of the activity (the operation of the AAA Complex) remain applicable.

Where applicable, mitigation measures in the EMPr should be amended based on any new processes and systems that are introduced by Sasol. The EMPr is effective to manage the environmental impacts at the AAA complex.

WSP do acknowledge that Sasol has systems in place which are considered to be more robust for monitoring compliance and implementing changes than through the EA 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 to regularly identify new impacts and risks and manage these adequately.

8 DECLARATIONS

8.1 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 Sasols AAA Complex Operations and compared the operations to the approved EMPr and compiled this report to the best of my knowledge. This section should be read with **Section 3 and 4**.

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 CV

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
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Annexure B – Acrylates Complex ref- EM1/1/(c)/00/132

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. Groundwater	The proposed plant has been designed to have no impact on the groundwater quality. No polluted water dams or open effluent storage facilities will need to be constructed. Raw materials will be largely in a liquid or powder form and will be stored in tanks. All tank systems and the production area will be bunded (walls around them) preventing any accidental spills entering the ground.	1.1. Spillage, washings and rainwater will be collected in sumps for re-use or treatment. Where necessary, the storage tanks will be segregated by small internal walls to avoid mixing of products.
		1.2. The emptying of the bunds after a spillage will be managed to ensure that it occurs within the shortest possible time period. Raw materials will be largely in a liquid or powder form and will be stored in tanks. All tank systems and the production area will be bunded (walls around them) preventing any accidental spills entering the ground.
2. Stormwater capacity	The proposed Acrylic Acid and Acrylates Complex will make use of existing Midland stormwater system. The capacity of the stormwater system has been analysed and has been assessed as being adequate to cope with the expected rainfall events. No significant impact is expected if the stormwater management presently followed at the complex is continued with for the Acrylic Acid & Acrylates Complex.	2.1. Compliance is managed by midland effluent control within the limit of the current valid Water Use License. Acrylates facility Operations has a valid Service Level Agreement with water and effluent control to enable compliance to this condition.
3. Stormwater Quality	The quality of existing stormwater will not deteriorate as a result of stormwater from the Acrylic Acid & Acrylates Complex This is because potentially polluted run-off will be kept separate from clean stormwater and will be monitored on an ongoing basis, as is currently being done on the Sasol Midland effluent management. No water will be released from the stormwater system into the Taaibosch Spruit until the water has been analysed to ensure that compliance with permit conditions is met.	3.1. Potentially polluted run-off will be kept separate from clean stormwater and will be monitored on an ongoing basis Compliance is managed by midland effluent control within the limit of the current valid Water Use License. Acrylates facility Operations has a valid Service Level Agreement with water and effluent control to enable compliance to this condition.
4. Fire water	No significant impact was found. Firewater will be supplied by the existing Midland facilities which are geared towards peak flows able to accommodate any single event	4.1. In the case of fire, the runoff would be contained either in the bunded areas, or if excessive quantities are used the overflow would be captured in the northern effluent dams of Sasol

5. Surface water at loading areas	Contamination of surface stormwater as a result of storage and handling of pollutants on the site was found to be of low significance. The relatively low increase in volumes of stormwater is not expected to overload the system. Therefore, it is unlikely that uncontrolled releases of stormwater to the environment would take place. This potential impact is therefore of low significance.	5.1. Loading area must be bunded
6. Effluent treatment and disposal	All effluent must be properly separated and appropriately disposed	6.1. Aqueous effluent streams that do not contain sodium will be combined and biologically treated in the Sasol bio works or alternatively managed, by a third party, in a legally compliant manner.
		6.2. Aqueous effluent that contains sodium will be incinerated or alternatively managed, by a third party, in a legally compliant manner.
		6.3. The heavy organic streams will be incinerated in the existing fixed bed incinerator at the Sasol One site or alternatively it will be handled within the legislative requirements
7. Solid waste	Correct management of solid waste	7.1. All solid waste streams are to be disposed of in terms of the Waste Act. Therefore, no impacts are expected due to solid waste disposal.
8. Air Quality	Specific care has been taken in the design of the Acrylic Acid and Acrylates Complex to reduce fugitive organic emissions. Big portions of the plant will operate under vacuum and the vacuum exhaust gas will be condensed prior to treatment and release to the stack. The design uses canned pumps and welded fittings to minimise any fugitive emissions where applicable. Where required, double mechanical seals will be used to minimise fugitive emissions. The extensive emission controls designed into the process will minimise the Acrylic Acid and Acrylates Complex's contribution of	8.1. All storage tank vents will be fitted with vapour recovery lines and the vents from product tanks will be condensed.
		8.2. All sample points will be enclosed and routed to drip tanks thus eliminating vapour within the plant and adjacent area.

	volatile organic compounds to the ambient concentrations.	8.3. Large portions of the plant will operate under vacuum and the vacuum exhaust will be condensed prior to release to the stack. The stack will be approximately 27 meters high
		8.4. The design uses canned pumps and welded fittings to minimise any fugitive emissions where applicable.
		8.5. Where required, double mechanical seals will be used to minimise fugitive emissions
		8.6. Exhaust gases from the catalytic combustion unit - This source would be treated through a catalytic conversion process, which works similar to a car exhaust catalyst
		8.7. Treated process vent gases - This source would first be condensed to remove most of the VOCs, before passing through a thermal converter to convert the odorous (smelly) compounds, that would otherwise impact on the area, to carbon dioxide