



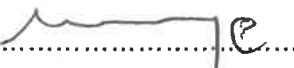
water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Private Bag X313, Pretoria, 0001, Sedibeng Building, 185 Francis Baard Street, Pretoria,
Tel: (012) 336-7500 Fax: (012) 323-4472 / (012) 326-2715

**LICENCE IN TERMS OF CHAPTER 4 OF THE
NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) (THE ACT)**

I, **Sifiso Mkhize** in my capacity as Director-General (Acting) in the Department of Water Sanitation and acting under authority of the powers delegated to me by the Minister of Water and Sanitation, hereby authorise the following water uses in respect of this licence:

SIGNED: 

DATE: 11/10/2017

**LICENCE NO 10/C22K/CGIJ/4608
FILE NO: 27/2/2/C1022/5/1**

- 1. **Licensee:** **Sasol Mining (Pty) Ltd: Sasol Sigma Colliery Ash**
- Postal Address:** **Backfilling project
P.O Box 32
Sasolburg
1947**
- 2. **Water Uses**
 - 2.1 Section 21(c) of the Act: Impeding or diverting the flow of water in a watercourse, subject to the conditions as set out in Appendices I and II.
 - 2.2 Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource, subject to the conditions as set out in Appendices I and III.
 - 2.3 Section 21(i) of the Act: Altering the bed, banks course or characteristics of a watercourse, subject to the conditions as set out in Appendices I and II.
 - 2.4 Section 21(j) of the Act: Removing, discharging or disposing of water found underground, subject to the conditions as set out in Appendices I and IV

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3. Properties on which the uses will be exercised

Table 1: Properties where water uses will be exercised

Properties	Registered Owner of Properties
Portion 1 and R of the farm Alfresco 202	Interferon Trust Cerneels Rossouw
Portion R of the farm Alicedale 301	Dirk Strydom
Portion R of the farm Beginsel 310	Lucas Erasmus
Portion 4 of the farm Bersheba 01	George Atkinson Trust
Portion 2 of the farm Boschbank 12	Sasol Mining (PTY) Ltd as Potgieter
Portion 3 of the farm Boschbank 3	C.A Jordan/ Cerneels Rossouw
Portion R of the farm Boschbank 12	A.M Rossouw Eiendomme (PTY) (Cerneels Rossouw)
Portion 5 of the farm Boschbank 12	Jan Rossouw Trust (Cerneels Rossouw)
Portion R of the farm Brakkuil 401	Brakkuil Trust Dirk Strydom
Portion R of the farm Clifton 316	D.J Strydom Trust (Dirk Strydom)
Portion R of the farm Die Pan 225	Tharina No 2 Trust Tharina (Tharina Terblanche)
Portion R of the farm Donkerhoek 323	Lewies Trust (Tharina Terblanche)
Portion 1 of the farm Donkerhoek 323	Infrachem as Potgieter
Portion 2 of the farm Goedehoop 272	A.H.S. Beleggings (PTY) Ltd
Portion R of the farm Gouverneur's Kraal 333	Beginsel Broerdery Trust (Lukas Erasmus)
Farm Gysbert 1161	Edwin Claassen 0829005103
Portion 2 and R of the farm Gysbertshoek 315	Edwin Claassen 0829005103
Portion R of the farm Herewarde 409	Sasol Townships (PTY) Ltd Johan van Rooyen
Portion 6 and 8 of the farm Herewarde 409	Infrachem (PTY) Ltd as Potgieter
Portion R of the farm Kruidfontein 67	Prontuitbeleggings 11 (PTY) Ltd August Weilbach
Portion 6 and 7 of the farm Kruidfontein 67	Robbie Cronje
Portion 5 of the farm Kruidfontein 67	L.P.J Besigheidsdienste Louis Barnard
Portion 8 and R of the farm Londondale 422	Sasol Mining (PTY) Ltd as Potgieter
Portion 17 and 18 of the farm Mullersrust 352	Sasol Mining (PTY) Ltd as Potgieter
Portion R of the farm Roseberry Plain 250	Knoetze Family Trust (Roberts Knoetze)
Portion 1 and 7 of the farm Roseberry Plain 250	Infrachem (PTY) Ltd as Potgieter
Portion 5 of the farm Roseberry Plain 250	Metsimaholo Local Municipality, Gerrit Steenkamp

Properties	Registered Owner of Properties
Portion 1 and R of the farm Saltberry Plain 137	Allan Peeters
Portion 1 and R of the farm Saltberry Plain 422	Allan Peeters
Portion R of the farm The Star 387	Alfresco Trust (Cerneels Rossouw)
Portion 1 of the farm The Star 387	Sasol Townships (PTY) Ltd Johan van Rooyen
Portion R of the farm Tweelingfontein 386	Begnisel Boedery Trust Lukas Erasmus
Portion R of the farm Uitkomst 413	Sasol Mining (PTY) Ltd as Potgieter
Portion R of the farm Weltevreden 182	Begnisel Boedery Trust Lukas Erasmus
Portion 20 & 21 of the farm Wonderfontein 350	Hannelie de Jager/ O R G Muller
Portion 23 & 24 of the farm Wonderfontein 350	Sasol Mining (PTY) Ltd as Potgieter
Portion 3, 9, 10 & R of the farm Wonderwater 180	Sasol Mining (PTY) Ltd as Potgieter
Portion 1 of the farm Wonderwater 180	Jaco Burger (Bothma& Son Transport)
Portion R of the farm Zaaiplaats 203	Brakkuil Trust Dirk Strydom
Portion 1 & 2 of the farm Zwaneberg 450	Roberts Knoetze

4. Licence and Review Period

- 4.1 This licence is valid for a period of fifteen (15) years from the date of issuance and maybe reviewed every five (5) years.

5. Definitions

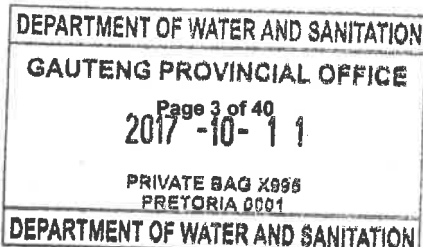
"Any words or terms defined under the Act shall be on the same meaning as defined in the Act, unless otherwise specifically stated."

"The Provincial Head" means the Provincial Head: Gauteng, Department of Water and Sanitation, Private Bag X995, Pretoria, 0001.

"Report" refers to the report entitled, "Integrated Water Use Licence Application compiled by Digby Wells (Pty) Ltd for Sasol Mining (Pty) Ltd: Sasol Sigma Colliery Ash Backfilling Project; dated February 2014.

6. Description of the Activity

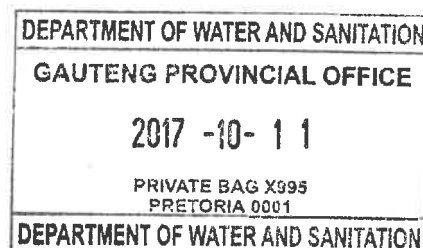
This licence authorises Sasol Mining for Section 21 (g), (c) and (i), (j) water uses in terms of Section 40 of the National Water Act, 1998 (Act 36 of 1998). The ash backfilling activities and its associated infrastructure are located on several properties as depicted in Table 1 in the Vaal River Water Management Area (WMA).



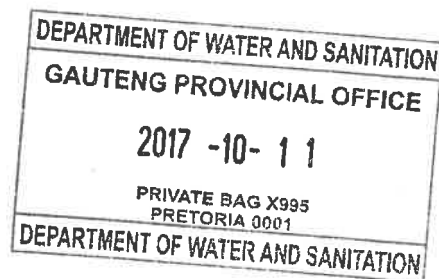
APPENDIX I

General conditions for the licence

1. This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998).
2. The responsibility for complying with the provisions of the licence is vested in the Licensee and not any other person or body.
3. The Licensee must immediately inform the Provincial Head of any change of name, address, premises and/or legal status.
4. If the property(ies) in respect of which this licence is issued is subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Provincial Head of the Department within sixty (60) days of the said change taking place.
5. If a water user association is established in the area to manage the resource, membership of the Licensee to this association is compulsory.
6. The Licensee shall be responsible for any water use charges or levies imposed by a Responsible Authority.
7. While effect must be given to the Reserve as determined in terms of the Act, where a desktop determination of the Reserve has been used in issuance of a licence, when a comprehensive determination of the Reserve has finally been made; it shall be given effect to.
8. The licence shall not be construed as exempting the Licensee from compliance with the provisions any other applicable Act, Ordinance, Regulation or By-law.
9. The licence and amendment of this licence are also subject to all the applicable procedural requirements and other applicable provisions of the Act, as amended from time to time.
10. The Licensee shall conduct an annual internal audit on compliance with the conditions of licence. A report on the audit shall be submitted to the Provincial Head within one (1) month of finalisation of the audit
11. The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit must be conducted within three (3) months after the date this licence is issued and a report on the audit shall be submitted to the Provincial Head within one (1) month of finalisation of the report.
12. Flow metering, recording and integrating devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than two years. Calibration certificates shall be available for inspection by the Provincial Head or his/her representative upon request.



13. Any incident that causes or may cause water pollution must be reported to the Provincial Head or his/her designated representative within 24 hours.
14. Licensee shall use water efficiently to minimise total water intake, void usage of water where possible, implement "good" housekeeping and operating practices, and maximise the reuse /recycle of contaminated water.



APPENDIX II

Section 21 (c) of the Act: Impeding or diverting the flow of water in a watercourse;

and

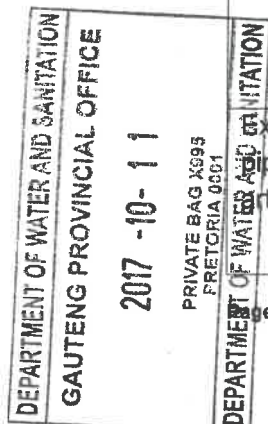
Section 21 (i) of the Act: Altering the bed, banks, course or characteristic of a watercourse

1. General

1.1 This licence authorises the Licensee for Section 21 (c) and (i) water use activities as indicated in Table 2 and in the water use licence application reports submitted to the Department or the Provincial Head.

Table 2: Section 21 (c) and (i) water use activities

Purpose/ Description	Properties Description	Dimension	Property Co-ordinates
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown stream and channelled valley bottom wetland	Roseberry Plain 250, Portion 1	L=103.85 m W= 0.288 m	Start: S 26°50'41.172" E 27°49'54.757" End: S 26°50'38.306" E 27°49'56.060"
Potential ash slurry pipeline crossing an unnamed non perennial stream	Alfresco 202, portion RE		S 26°50'47.980" E 27°46'20.132"
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an artificial seep wetland	Hereward 409, Portion 06	L= 91.51 m W= 0.288 m	Start: S26° 50' 16.235" E 27° 48' 49.723" End: S 26° 50' 17.257" E 27° 48' 46.609"
Existing Ash and Water pipeline crossing an artificial seep wetland	Hereward 409, Portion 06	L= 98.13 m W= 0.288 m	Start: S26° 50' 16.235" E 27° 48' 49.723"



Purpose/ Description	Properties Description	Dimension	Property Co-ordinates
			End: S 26° 50' 13.272" E 27° 48' 48.420"
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing the Leeuspruit and artificial seep wetland	Herewarde 409, portion RE	L= 417.35 m W= 0.288 m	Start: S26° 49' 39.202" E 27° 48' 39.348" End: S 26° 49' 36.628" E 27° 48' 18.443"
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing a hillslope seep wetland	Herewarde 409, portion 42	L= 351.54 W= 0.288 m	Start: S26° 49' 37.556" E 27° 48' 25.931" End: S 26° 49' 27.138" E 27° 48' 20.711"
Existing and potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing the Leeuspruit stream and artificial seep wetland	Donkerhoek 323, portion 1 and remainder portion	Potential L= 365.41 m W= 0.288 m Existing L= 169.43 W= 0.288 m	Start: S26° 50' 21.458" E 27° 48' 33.937" End: S 26° 49' 44.710" E 27° 48' 48.301"
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown	Wilgefontein 431, portion RE	L= 334.07 m W= 0.288 m	Start between: S 26° 49' 19.495" E 27° 48' 2.124"

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Purpose/ Description	Properties Description	Dimension	Property Co-ordinates
stream and hillslope seep wetland			End: S 26° 48' 19.411" E 27° 47' 50.708"
Existing Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown stream and hillslope seep wetland	Wilgefontein 431, portion RE	L= 318.34 m W= 0.288 m	Start between: S 26° 49' 26.861" E 27° 48' 1.094" End: S 26° 49' 0.862" E 27° 47' 46.212"
Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing a wetland	Goedehoop 272, Portion 04	L= 17.91 m W= 0.288 m	Start: S 26°46'54.332" E 27°47'34.174" End: S 26°46'54.916" E 27°47'34.145"
potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown stream and hillslope seep wetland	Boschbank 12, Portion RE	L= 157.26 m W= 0.288 m	Start: S 26°48'12.686" E 27°46'40.775" End: S 26°48'10.364" E 27°46'45.847"
Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown	Roseberry Plain 250, Portion 1	L= 30.74 m W= 0.288 m	Start: S 26°50'44.272" E 27°49'31.868"

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Purpose/ Description	Properties Description	Dimension	Property Co-ordinates
stream			End: S 26°50'44.902" E 27°49'32.732"
Existing and potential Ash and Water Pipeline (transporting Ash & Water Slurry into underground voids) crossing an unknown non-perennial stream	Wonderwater 180, Portion 1,3 & 9		Start: S 26°45'26.719" E 27°48'12.838" End: S 26°46'23.574" E 27°48'5.710"
Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown stream	Mullersrust 352, Portion 18		Start: S 26°47'17.851" E 27°47'52.958" End: S 26°47'18.600" E 27°47'52.555"
Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown stream	Boschbank 12, Portion 3	L= 72.39 m W= 0.288 m	Start: S 26°48'26.748" E 27°46'27.817" End: S 26°48'27.871" E 27°46'7.759"
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing a channelled valley bottom wetland	Gouverneur's Kraal 333, Portion R	L= 44.22 m W= 0.288 m	Start: S 26°48'53.953" E 27°45'18.212" End: S 26°48'55.339" E 27°45'17.788"
Potential Ash Slurry Pipeline (transporting Ash Slurry into	Brakkuil 410, Portion RE;	L= 99.61 m	Start: S 26°49'43.050"

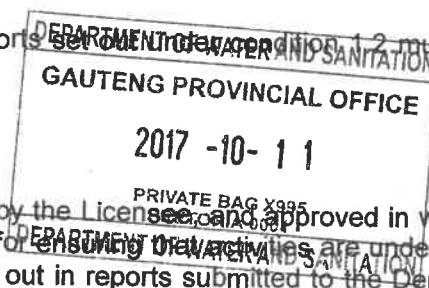
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Purpose/ Description	Properties Description	Dimension	Property Co-ordinates
underground voids) crossing an unknown stream and a wetland	Begnisel 310, Portion RE		E 27°45'19.188" End: S 26°49'40.102" E 27°45'118.205"
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown stream	Zaaiplaats 203, Portion RE	L= 32.51 m W= 0.288 m	Start: S 26°50'15.061" E 27°45'19.188" End: S 26°50'15.335" E 27°45'16.589"
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing a wetland	Uitkomst 413, Portion RE	L= 42.63 m W= 0.288 m	Start: S 26°48'32.800" E 27°45'4.126" End: S 26°48'33.156" E 27°45'2.635"
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown non perennial stream and a wetland	Alfresco 202, Portion 1 & Zaaiplaats 203, Portion RE	L=218.79 m W= 0.288 m	Start: S 26°50'14.770" E 27°45'21.964" End: S 26°50'13.945" E 27°45'29.833"
Potential Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing an unknown non perennial stream and a wetland	Wonderwater 180, Portion 27; Wonderfontein 350, Portion 23 & 24; Rietfontein 251, Portion 19	L= 457.81 m W= 0.288 m	Start: S 26°45'26.773" E 27°46'59.095" End: S 26°45'39.539" E 27°46'51.128"
New Ash Slurry Pipeline (transporting Ash Slurry into underground voids) crossing wetland	Gysbert 1161, Portion RE	L= 63.3 m W= 0.288 m	Start: S 26°52'13.674" E 27°50'1.586" End:

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Purpose/ Description	Properties Description	Dimension	Property Co-ordinates
			S 26°52'13.793" E 27°50'4.110"

- 1.2 The Licensee must carry out and complete all the activities listed under condition 1.1 according to the following:
- Reports submitted to the Department or the Provincial Head, specifically:
- 1.2.1.1 Sasol Mining South Africa (Pty) Ltd: Integrated Water Use Licence Application for Sasol Sigma Colliery Ash Backfilling Project in Free State Province; file 1 and 2; dated February 2014; compiled by Digby Wells (Pty) Ltd.
 - 1.2.1.2 Sasol Mining South Africa (Pty) Ltd: Sigma Ash Backfill Groundwater Model Report; dated 15 November 2013; compiled by Digby Wells (Pty) Ltd.
 - 1.2.1.3 Storm water Management Plan for Sigma Colliery Ash Backfilling Project; dated November 2013; compiled by Digby Wells (Pty) Ltd.
 - 1.2.1.4 Ash Classification Study for Sasol Sigma Colliery; dated 14 January 2014; compiled by Digby Wells (Pty) Ltd.
 - 1.2.1.5 Ecological Wetland Assessment for Ash Backfilling at Sigma Colliery Free State Province; dated October 2013; compiled by Digby Wells (Pty) Ltd.
 - 1.2.1.6 Aquatic Bio monitoring for the Sasol Sigma Ash Backfilling Project; dated February 2014; compiled by Digby Wells.
 - 1.2.1.7 Surface Water Report for Sasol Sigma Colliery Ash Backfilling Project; dated October 2013; compiled by Digby Wells (Pty) Ltd.
- 1.3 No activity must take place within the: 100 year flood line or the delineated riparian habitat, whichever is the greatest, or within 500 m radius from the boundary of any wetland unless authorised by this licence.
- 1.4 The conditions of the authorisation must be brought to the attention of all persons (employee, sub-consultants, contractors etc.) associated with the undertaking of the activity and the licence must take such measures that are necessary to bind such persons to the conditions of this licence.
- 1.5 A copy of the water use licence and reports set out in conditions 1.2 must be on site at all times.
- 1.6 A suitably qualified person(s), appointed by the Licensee and approved in writing by the Provincial Head must be responsible for ensuring that activities are undertaken in compliance with the specifications as set out in reports submitted to the Department or the Responsible Authority and the conditions of this licence.



2. FURTHER STUDIES AND INFORMATION REQUIREMENTS

2.1 For water use activities in Table 2:

2.1.1 Work method statements, site plan (s) and detailed design drawings for the construction of all infrastructure of impending and/or diverting flow of watercourse as well as alteration to watercourse(s) on the properties must be submitted to the Provincial Head for a written approval before construction and implemented as directed. The foregoing must indicate the regulated activities, marking the limits of disturbance in relation to the impacted watercourse(s); morphology of the watercourse(s); site specific impacts; and environmental management, particularly erosion and sediments, controls and measures;

2.1.2 No fundamental alteration of the work method statement, sites plan(s) and drawings are allowed, unless a modification is requested and granted by the Provincial Head in writing; and

2.1.3 No site activities must occur beyond the proposed site location of the erosion and sedimentation controls and marked limits of disturbance.

2.2 If the Licensee is not the end user/beneficiary of the water use related infrastructure and will not be responsible for long term maintenance and management of the infrastructure, the Licensee must provide a programme for hand over to the successor-in-title including a brief management/maintenance plan and the agreement for infrastructure along with allocation of responsibilities, within three (3) months of the date of issuance of this licence

2.3 For water use activities in **Table 2** the following information must be submitted to the Provincial Head for a written approval before these activities commence:

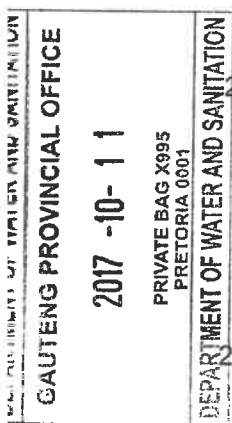
2.3.1 An environmental management plan (EMP) including rehabilitation and financial provision strategies.

2.4 An EMP and rehabilitation plan for the decommissioning of any of the water use activities listed in **Table 2** must be submitted five (5) years before commencing with closure to the Provincial Head for a written approval.

2.5 For all the activities listed under condition 1.1, **Table 2**, "as-built" plan(s) and engineering drawing (s) prepared by a registered professional engineer, must be submitted to the Provincial Head within six (6) months of completion of new activities and for existing water uses within six (6) months of the date of issuance of this licence. These plan (s) and drawing(s) must indicate the watercourse(s) including wetland boundaries and layout and structure location(s) of all infrastructures of impending and/or diverting flow of watercourses as well as alterations to watercourse(s) on the properties.

2.6 A stormwater management plan must be compiled and submitted to the Provincial Head for a written approval before backfilling may commence.

2.7 The Storm water Management Plan should be designed in a way that aims to ensure that post-development run-off does not exceed pre-development values in:



- 2.7.1 Peak discharge for any given storm
- 2.7.2 Total volume of run-off for any given storm,
- 2.7.3 Frequency of run-off for any given storm'
- 2.7.4 Outgoing velocities are equal or smaller than incoming velocities,
- 2.7.5 Erosion and sedimentation prevention
- 2.7.6 Pollutant and debris concentrations reaching watercourse, and
- 2.7.7 Increase in run-off due to a higher water table resulting from tree clearing

3 PROTECTIVE MEASURES

3.1 Storm water Management

3.1.1 Storm water management practices must be constructed, operated and maintained in a sustainable manner throughout the project and for the water use activities set out in condition 1.1 (Appendix II) and must include but are not limited to the following:

3.1.1.1 Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that stormwater does not lead to bank instability and excessive levels of silt entering the watercourse(s);

3.1.1.2 Where necessary the stormwater must be diverted from the construction works, ash backfilling areas, and roads and must be managed in such a manner as to disperse runoff and to prevent the concentration of stormwater flow;

3.1.1.3 The velocity of stormwater discharges must be attenuated and the banks of the watercourses protected;

3.1.1.4 Stormwater leaving the Licensee's premises must in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises;

3.1.1.5 Drainage next to the construction works must be diverted away from the water course(s) to ensure that any contaminated runoff does not flow directly into the watercourse(s) as a stormwater discharge;

3.1.1.6 Stormwater should be discharged back into the watercourse.

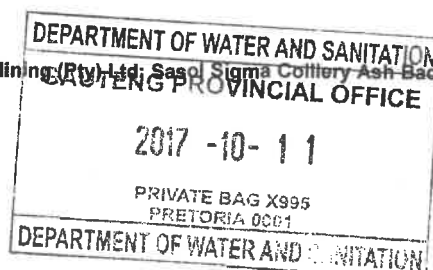
3.1.1.7 Stormwater discharge points must have energy dissipaters, litter and oil traps

3.1.1.8 Sheet runoff from paved surfaces and access roads need to be curtailed.

3.2 Structures, Construction and Materials

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- 3.2.1 Necessary erosion prevention measures must be employed to ensure the sustainability of all structures
- 3.2.2 Structures must not be damaged by floods exceeding the magnitude of floods occurring on average once in every 100 years.
- 3.2.3 Structures must be non-erosive, structurally stable and must not induce any flooding or safety hazard.
- 3.2.4 Structures must be inspected regularly for accumulation of debris, blockage, erosion of abutments and overflow areas - debris must be removed and damages must be repaired and reinforced immediately.
- 3.2.5 The construction camp must be located outside the extent of the watercourse(s) and must be recovered and removed one (1) week after construction has been completed.
- 3.2.6 All areas affected by construction of pipelines shall be rehabilitated upon completion of the construction phase of the development. Where necessary areas should be reseeded with indigenous vegetation species as required and the use of seed nets is recommended to prevent erosion.
- 3.2.7 During construction phase no vehicles shall be allowed to indiscriminately drive through any wetland areas. Habitat, whichever is the greatest, or within 500 m radius from the boundary of any wetland unless authorized in this licence.
- 3.2.8 Any access roads, haul roads or crossing must be:
- 3.2.8.1 No-erosive, structurally stable and should not induce any flooding or hazard; and
- 3.2.8.2 Any damage is repaired immediately to prevent further damage.
- 3.3 Water Quality**
- 3.3.1 The Licensee shall sample the surface water quality monthly during operation for the variables as shown in condition 5 of Appendix II
- 3.3.2 Activities that lead to elevated level of turbidity in any watercourse(s) must be prevented, reduced, or otherwise remediated. Activities must be scheduled to take place during the dry season when flows are at its lowest where reasonably possible. If this is not possible and if management measures have not been provided for in the reports submitted to the responsible Authority, the licensee must submit such to the Responsible Authority: Gauteng for written approval before these activities commence. Natural in stream hydrology is to be used to determine which months constitute the flow months.
- 3.3.3 The Licensee must ensure that the quality of the water to downstream water users does not decrease because of the water use activities listed under condition 1.1 (Appendix II).



- 3.3.4 A qualified person must be appointed to assess the quality of water both upstream and downstream of the activities prior to commencement of construction.
- 3.3.5 Pollution of and disposal/spillage of any materials into the watercourse must be prevented, reduced, or otherwise remediated through proper operation, maintenance and effective protective measures.
- 3.3.6 Vehicles and other machinery must be serviced well above the 1: 100 year flood line or delineated riparian habitat, whichever is the greatest. Oils and other potential pollutants must be disposed of at an appropriate licensed site, with the necessary agreement from the owner of such site.
- 3.3.7 Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance.
- 3.3.8 Where any ash spills along the pipeline route occur, they have to be cleaned immediately. Daily inspections are recommended and to be recorded formally. Ash spills from any pipeline into watercourse will be communicated to the Provincial Head within two (2) days after it occurred. The Licensee shall take precautionary measures to prevent reoccurrence.
- 3.3.9 The Licensee shall conduct a soil study by a registered soil scientist to establish wetland and other soils on the entire property and submit the report to the Provincial Head within two (2) months after the issuance of this licence.
- 3.4 Flow**
- 3.4.1 The Licensee must determine flood lines (1:50 and 1:100 year) prior to construction to ensure risks are adequately managed. Flood lines must be clearly indicated on the site plan(s) and drawings along with all wetland boundaries.
- 3.4.2 Activities must be conducted in a manner that does not negatively affect catchment yield, hydrology and hydraulics. The Licensee must ensure that the overall magnitude and frequency of flow in the watercourse(s) does not decrease, other than for natural evaporative losses and authorised attenuation volumes.
- 3.4.3 Appropriate design and mitigation measures must be developed to minimise impacts on the natural flow regime of the watercourse i.e. through placement of structures/supports and to minimise turbulent flow in the watercourse.
- 3.4.4 Structures must be designed in a way to prevent the damming of stream/river water and not impact on the flow of the water, during the construction and operational phases of all developments.
- 3.4.5 The development may not impede natural drainage lines, unless authorised in this licence.



3.5 Riparian and In-stream Habitat (Vegetation and Morphology)

- 3.5.1 Activities (including spill clean-up) must start up-stream and proceed into a down-stream direction, so that the recovery processes can start immediately, without further disturbance from upstream works.
- 3.5.2 Operation and storage of equipment must not take place within the 1:100 year flood line or delineated riparian habitat, whichever is the greatest unless authorised in this License.
- 3.5.3 Activities must not occur in sensitive riffle habitats.
- 3.5.4 Indigenous riparian vegetation, including dead trees, outside the limits of disturbance indicated in the site plans must not be removed from the area.
- 3.5.5 Alien and invader vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be sustainably eradicated or controlled.
- 3.5.6 Existing vegetation composition must be maintained or improved by maintaining the natural variability in flow fluctuations. Rehabilitated areas shall have vegetation basal cover of at least 15% at all times.
- 3.5.7 Recruitment and maintaining of a range of size classes of dominant riparian species in perennial channels must be stimulated.
- 3.5.8 Encroachment of additional exotic species and terrestrial species in riparian zones must be discouraged.
- 3.5.9 Accumulation of woody debris on terraces by periodic flooding must be discouraged.
- 3.5.10 Existing flood terraces and deposition of sediments on these terraces to ensure optimum growth, spread and recruitment of these species must be maintained.
- 3.5.11 All reasonable steps must be taken to minimise noise (below 35dB from 18:00 to 06:00 and below 45dB from 06:00 to 18:00) and mechanical vibrations in the vicinity of the watercourses.
- 3.5.12 Necessary erosion prevention mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent in-stream sedimentation.
- 3.5.13 Soils that have become compacted through the water use activities must be loosened to an appropriate depth to allow seed germination.
- 3.5.14 Slope/bank stabilisation measures must be implemented with a 1:3 ratio or flatter and vegetated with indigenous vegetation immediately after the shaping.
- 3.5.15 Stockpiling of removed soil and sand must be stored outside of the 1:100 flood line or delineated riparian habitat, whichever is greater, to prevent being washed into the river and must be covered to prevent wind and rain erosion.

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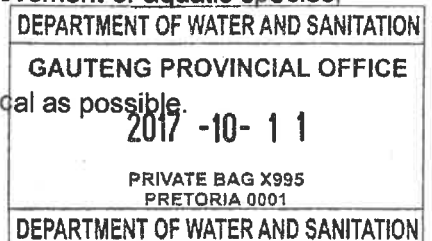
- 3.5.16 The indiscriminate use of machinery within the in-stream and riparian habitat will lead to compaction of soils and vegetation and must therefore be strictly controlled.
- 3.5.17 The overall macro-channel structures and mosaic of cobbles and gravels must be maintained by ensuring a balance (equilibrium) between sediment deposition and sediment conveyance. A natural flooding and sedimentation regime must thus be ensured as far as reasonably possible.
- 3.5.18 As much indigenous vegetation growth as possible shall be promoted within the proposed development area in order to protect soil and to reduce the percentage of the surface area which is compacted/hardened.
- 3.5.19 Run-off from compacted/hardened surfaces shall be slowed down by the strategic placement of berms where applicable.
- 3.5.20 Any medical plants that are impacted upon must be assessed by the Responsible Authority and a registered, professional specialist and relocated, if necessary, to a suitable site. This activity must take place within thirty (30) days after the issuance of this licence and proof must be submitted to the Provincial Head for approval.
- 3.5.21 Adequate measures must be implemented to prevent in-stream siltation during the construction phase.
- 3.5.22 Unless authorised by this licence, access roads must not encroach into the extent of the watercourse(s).
- 3.5.23 Inlet and outlet drops of watercourse crossing must be avoided to prevent scouring from taking place as well as changes in flow velocity.

3.6 Biota

- 3.6.1 All reasonable steps must be taken not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.
- 3.6.2 The current level of diversity of biotopes and communities of animals, plants and microorganisms must be maintained.
- 3.6.3 The Licensee must take all reasonable steps to allow movement of aquatic species, including migratory species.
- 3.6.4 Ecological connectivity must be maintained where practical as possible.

4. REHABILITATION AND MANAGEMENT

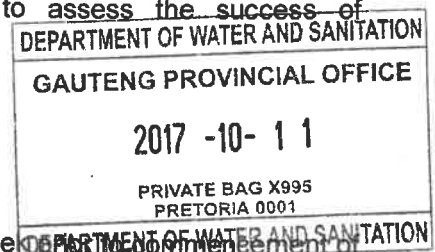
- 4.1 All disturbed areas must be re-vegetated with an indigenous seed mix in consultation with an indigenous plant expert, ensuring that during rehabilitation only indigenous shrubs, trees and grasses are used in restoring the biodiversity.



- 4.2 Rehabilitated areas must have a final soil depth of at least 0.8m have a bulk density not exceeding 1700kg/m³ and an organic carbon content matching 0.7% or more.
- 4.3 An active campaign for controlling invasive species must be implemented within disturbed zones to ensure that it does not become a conduit for the propagation and spread of invasive exotic plants, even after mine closure.
- 4.4 The Provincial Head must sign a release form indicating that rehabilitation was done satisfactory according to specifications as per this licence.
- 4.5 A photographic record must be kept as follows and submitted to the Provincial Head with reports as set out in Section 5.
 - 4.5.1 Dated photographs of all the sites to be impacted before construction commences;
 - 4.5.2 Dated photographs of all the sites during construction on a monthly basis; and
 - 4.5.3 Dated photographs of all the sites after completion of construction, seasonally.
- 4.6 A Wetland Management and Rehabilitation Plan must be compiled by a wetland specialist when wetlands are affected (also after closure) and submitted to the Provincial Head for a written approval within six (6) months after commencement of the Project.
- 4.7 Wetland crossing(s) must be visited by a wetland specialist prior to construction to determine baseline conditions. This should be repeated during and after rehabilitation measures have been implemented to assess the success of rehabilitation and erosion control measures. .

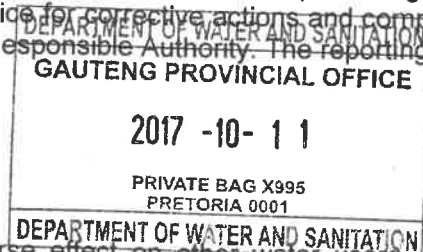
5. MONITORING AND REPORTING

- 5.1 The Provincial Head must be notified in writing one week before commencement of the licensed activity and again upon completion of the activity.
- 5.2 A comprehensive and appropriate environmental monitoring programme (including bio-monitoring) to determine the impact, change, deterioration and improvement of the aquatic system associated with the ash backfilling activities listed under condition 1.1 (Appendix II) as well as compliance to these water use licence conditions must be developed and submitted, within ninety (90) days after issuance of this licence, to the Provincial Head for approval before commencement and must subsequently be implemented as directed. The monitoring programme shall be compared against the Recommended Ecological Class (REC) of a D for the stream.
- 5.3 Six (6) monthly monitoring reports must be submitted to the Provincial Head until otherwise agreed in writing with the Provincial Head.
- 5.4 A qualified scientist must be retained by the Licensee who must give effect to various licence conditions and to ensure compliance thereof pertaining to all



activities impeding and/or diverting flow of watercourses as well as alterations to watercourses on the properties as set out in condition 1.1 (Appendix II).

- 5.5 The external/internal WUL audit reports as per condition 10 & 11 of appendix I must include but are not limited to:
- 5.5.1 Reporting in respect of the monitoring programme referred to in condition 5.2 (Appendix II) and all other reporting and compliance conditions outlined in this licence;
- 5.5.2 A record of implementation of all mitigation measures including a record of corrective actions; and
- 5.5.3 Compensation measures for damage where mitigation measures have failed to adequately protect the in-stream and riparian habitat or any other characteristic of the watercourses.
- 5.6 The Licensee must apply in writing to the Provincial Head for alternative reporting arrangements should the Licensee want to change this. Written approval must be provided by the Provincial Head.
- 5.7 A wetland specialist must be appointed to monitor the compliance to the wetland management and rehabilitation plan and conditions in this licence pertaining to impact on wetlands and provide specialist advice for corrective actions and compile audit reports which must be submitted to the Responsible Authority. The reporting is part of condition 5.5 (Appendix II).



6 OTHER WATER USERS

- 6.1 The Licensee must attempt to prevent adverse effect on other water users. All complaints must be investigated by a suitable qualified person and if investigations prove that the Licensee has impaired the rights of other water users, the Licensee must initiate suitable compensative measures.

7. POLLUTION PREVENTION, INCIDENTS AND MALFUNCTIONS

- 7.1 Pollution incidents shall be dealt with in accordance with Section 19 and 20 of the Act.
- 7.2 Any incident that may cause pollution of any water resource shall immediately be reported to the Responsible Authority
- 7.3 If surface or groundwater pollution has occurred or may possibly occur, the Licensee must conduct, and/or appoint specialists to conduct the necessary investigations and implement additional monitoring, pollution prevention and remediation measures to the satisfaction of the Provincial Head.
- 7.4 The Licensee shall keep all records relating to the compliance or non-compliance with the conditions of this licence in good order. Such records shall be made

available to the Provincial Head within fourteen (14) days of receipt of a written request by the Department for such records.

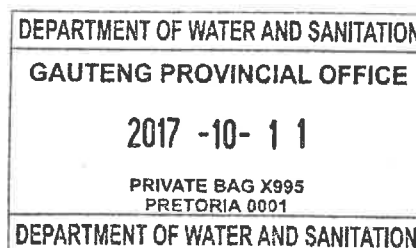
- 7.5 The Licensee shall keep an incident report and complaints register, which must be made available to any auditors and the Department on request.

8. BUDGETARY PROVISIONS

- 8.1 The Licensee must ensure that there is sufficient budget to complete and maintain the water use and for successful implementation of the rehabilitation programme as set out in this licence.

- 8.2 The Department may at any stage of the process request proof of the budgetary provision for rehabilitation and closure of project.

- 8.3 The Licensee is fully responsible and accountable for any negative impacts on the watercourse(s) and the modelling, monitoring and mitigation thereof, until such time that no negative impacts are experienced or foreseen



APPENDIX III

Section 21 (g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource

1. CONSTRUCTION, OPERATION AND MAINTENANCE

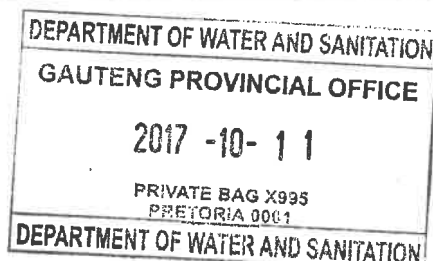
- 1.1 The Licensee shall carry out and complete all the activities, including the construction and operation of the facilities and pipelines indicated in Table 3, according to the Report and according to the final plans submitted with the Integrated Water Use Licence Application as approved by the Provincial Head.
- 1.2 Within 30 days after the completion of the activities referred here in accordance with the relevant provisions of this licence, the Licensee shall in writing; under reference 27/2/2/C1022/5/1 inform the Provincial Head thereof. This shall be accompanied by a signature of approval from the designer referred to in 1.2 that the construction was done according to the design plans referred to in the Report.

2. STORAGE OF WASTE OR WATER CONTAINING WASTE

- 2.1 The Licensee is authorised to dispose of waste or water containing waste underground on the property described in Table 3:

Table 3: Disposal of Water containing Waste and Waste Materials

Purpose/ Description	Property Description	Coordinates
The disposal of slurry into underground void for backfilling purposes	Alfresco 202, Portion 1	S 26°50'59.886" E 27°48'11.263"
The disposal of slurry into underground void for backfilling purposes	Alfresco 202, Portion RE	S 26° 51' 12.126" E 27° 48' 17.370"
The disposal of slurry into underground void for backfilling purposes	Alicedale 301, Portion 1	S 26°51'44.778" E 27°48'7.130"
The disposal of slurry into underground void for backfilling purposes	Begninsel 310, remainder of the portion	S 26°50'28.318" E 27°47'19.650"
The disposal of slurry into underground void for backfilling purposes	Bersheba 01, portion 05	S 26°47'7.11" E 27°47'49.357"
The disposal of slurry into underground void for backfilling purposes	Bersheba 01, portion 06	S 26°47'7.116" E 27°47'52.083"



Purpose/ Description	Property Description	Coordinates
The disposal of slurry into underground void for backfilling purposes	Bersheba 01, portion 07	S 26°47'8.413" E 27°47'52.101"
The disposal of slurry into underground void for backfilling purposes	Boschbank 12 Portion 1	S 26° 47' 37.976" E 27° 48' 3.051"
The disposal of slurry into underground void for backfilling purposes	Boschbank 12 Portion 2	S 26° 47' 53.219" E 27° 48' 9.236"
The disposal of slurry into underground void for backfilling purposes	Boschbank 12 Portion 3	S 26° 47' 53.965" E 27° 48' 9.339"
The disposal of slurry into underground void for backfilling purposes	Boschbank 12 Portion 5	S 26° 47' 58.050" E 27° 48' 9.328"
The disposal of slurry into underground void for backfilling purposes	Boschbank 12 Portion 6	S 26° 47' 58.134" E 27° 48' 9.198"
The disposal of slurry into underground void for backfilling purposes	Boschbank 12 Portion RE	S 26° 48' 6.763" E 27° 47' 50.634"
The disposal of slurry into underground void for backfilling purposes	Brakkuil 401 Portion RE	S 26° 50' 32.215" E 27° 47' 23.040"
The disposal of slurry into underground void for backfilling purposes	Clifton 316 Portion RE	S 26° 51' 16.667" E 27° 48' 17.500"
The disposal of slurry into underground void for backfilling purposes	Die Pan 440 Portion RE	S 26° 51' 32.837" E 27° 46' 7.306"
The disposal of slurry into underground void for backfilling purposes	Die Pan 225 Portion RE	S 26° 51' 32.831" E 27° 46' 7.129"
The disposal of slurry into underground void for backfilling purposes	Goedehoop 272 Portion 4	S26° 47' 0.140" E 27° 47' 49.235"
The disposal of slurry into underground void for backfilling	ERF A 32 Portion RE	S 26° 48' 32.271"

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Purpose/ Description	Property Description	Coordinates
purposes		E 27° 48' 6.343"
The disposal of slurry into underground void for backfilling purposes	Gouverneur's Kraal 333 Portion RE	S 26° 49' 27.037" E 27° 48' 37.253"
The disposal of slurry into underground void for backfilling purposes	Donkerhoek 323 Portion RE	S 26° 51' 34.332" E 27° 46' 39.235"
The disposal of slurry into underground void for backfilling purposes	Donkerhoek 323 Portion RE	S 26° 51' 26.610" E 27° 51' 3.734"
The disposal of slurry into underground void for backfilling purposes	Gysbert 1161 Portion RE	S 26° 51' 18.817" E 27° 49' 22.065"
The disposal of slurry into underground void for backfilling purposes	Gysbertshoek 315 Portion 1	S 26° 51' 15.496" E 27° 48' 58.082"
The disposal of slurry into underground void for backfilling purposes	Gysbertshoek 315 Portion2	S 26° 51' 14.593" E 27° 48' 54.481"
The disposal of slurry into underground void for backfilling purposes	Gysbertshoek 315 Portions2; 5 RE; Zwaneberg 366 Portion RE	S 26° 52' 52.530" E 27° 50' 35.757"
The disposal of slurry into underground void for backfilling purposes	Herewarde 409 Portion 42	S 26° 51' 47.656" E 27° 48' 2.115"
The disposal of slurry into underground void for backfilling purposes	Herewarde 409 Portion RE	S 26° 52' 13.203" E 27° 47' 11.553"
The disposal of slurry into underground void for backfilling purposes	Herewarde 409 Portion 6	S 26° 51' 32.744" E 27° 51' 4.182"
The disposal of slurry into underground void for backfilling purposes	Kruidfontein 67 Portion 5	S 26° 51' 32.096" E 27° 46' 6.319"
The disposal of slurry into underground void for backfilling purposes	Kruidfontein 67 Portion6	S 26° 51' 29.105" E 27° 46' 3.344"

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Purpose/ Description	Property Description	Coordinates
The disposal of slurry into underground void for backfilling purposes	Kruidfontein 67 Portion7	S 26° 51' 27.847" E 27° 51' 4.182"
The disposal of slurry into underground void for backfilling purposes	Mullersrust 352 Portion 17	S 26° 47' 13.752" E 27° 47' 53.859"
The disposal of slurry into underground void for backfilling purposes	Mullersrust 352 Portion 18	S 26° 47' 26.714" E 27° 47' 56.744"
The disposal of slurry into underground void for backfilling purposes	Lilian-Dale 348 Portion 1	S 26° 48' 12.721" E 27° 47' 57.841"
The disposal of slurry into underground void for backfilling purposes	Lilian-Dale 348 Portion RE	S 26° 48' 31.564" E 27° 48' 6.195"
The disposal of slurry into underground void for backfilling purposes	Londondale 442 Portion 8	S 26° 45' 32.678" E 27° 46' 51.809"
The disposal of slurry into underground void for backfilling purposes	Londondale 442 Portion RE	S 26° 45' 28.230" E 27° 46' 54.173"
The disposal of slurry into underground void for backfilling purposes	Rietfontein 251 Portion 4	S 26° 45' 40.387" E 27° 46' 50.740"
The disposal of slurry into underground void for backfilling purposes	Rietfontein 251 Portion19	S 26° 45' 37.997" E 27° 46' 50.485"
The disposal of slurry into underground void for backfilling purposes	Rietfontein 251 Portion20	S 26° 45' 35.407" E 27° 46' 50.729"
The disposal of slurry into underground void for backfilling purposes	Rietfontein 251 Portion21	S 26° 45' 34.717" E 27° 46' 50.884"
The disposal of slurry into underground void for backfilling purposes	Roseberry Plain 250 Portion 1	S 26° 52' 13.825" E 27° 51' 6.697"
The disposal of slurry into underground void for backfilling	Roseberry Plain 250 Portion5	S 26° 52' 22.665" E 27° 51' 0.399"

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Purpose/ Description	Property Description	Coordinates
purposes		
The disposal of slurry into underground void for backfilling purposes	Roseberry Plain 250 Portion6	S 26° 52' 40.479" E 27° 50' 43.290"
The disposal of slurry into underground void for backfilling purposes	Roseberry Plain 250 Portion7	S26° 52' 40.784" E 27° 49' 40.200"
The disposal of slurry into underground void for backfilling purposes	Uitkomst 413 Ptn RE	S 26° 48' 46.886" E 27° 48' 5.853"
The disposal of slurry into underground void for backfilling purposes	Tweelingfontein 386 Ptn RE	S 26° 49' 21.987" E 27° 48' 34.319"
The disposal of slurry into underground void for backfilling purposes	Weltevreden 182 Ptn RE	S 26° 50' 1.210" E 27° 48' 3.231"
The disposal of slurry into underground void for backfilling purposes	Wilgefontein 431 Portion RE	S 26° 51' 14.446" E 27° 48' 17.616"
The disposal of slurry into underground void for backfilling purposes	The Star 387 Portion 1	S 26° 52' 16.925" E 27° 47' 2.732"
The disposal of slurry into underground void for backfilling purposes	The Star 387 Portion RE	S 26° 51' 53.519" E 27° 46' 48.819"
The disposal of slurry into underground void for backfilling purposes	Saltberry Plain 137 Portion RE	S 26° 51' 56.891" E 27° 49' 44.989"
The disposal of slurry into underground void for backfilling purposes	Saltberry Plain 422 Portion RE	S26° 51' 44.442" E 27° 49' 43.863"
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion 3	S 26° 45' 37.917" E 27° 47' 28.522"
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion9	S 26° 45' 47.026" E 27° 47' 23.617"

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Purpose/ Description	Property Description	Coordinates
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion10	S 26° 45' 47.518" E 27° 47' 22.914"
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion22	S 26° 45' 51.545" E 27° 47' 5.048"
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion23	S 26° 45' 55.600" E 27° 46' 52.595"
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion24	S 26° 45' 55.592" E 27° 46' 52.318"
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion25	S 26° 45' 54.952" E 27° 46' 50.870"
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion26	S 26° 45' 54.572" E 27° 46' 50.544"
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion27	S 26° 45' 53.856" E 27° 46' 50.250"
The disposal of slurry into underground void for backfilling purposes	Wonderwater 180 Portion RE	S 26° 45' 50.989" E 27° 46' 49.498"
The disposal of slurry into underground void for backfilling purposes	Wonderfontein 350 Portion 23	S 26° 45' 50.150" E 27° 46' 49.407"
The disposal of slurry into underground void for backfilling purposes	Wonderfontein 350 Portion 24	S 26° 45' 48.835" E 27° 46' 49.602"
The disposal of slurry into underground void for backfilling purposes	Wonderfontein 350 Portion RE	S 26° 45' 45.978" E 27° 46' 51.524"
The disposal of slurry into underground void for backfilling purposes	Zaaiplaats 203 Portion RE	S 26° 50' 42.784" E 27° 47' 29.493"
The disposal of slurry into underground void for backfilling	Zamdela 449 Portion 7	S 26° 52' 29.383" E 27° 49' 37.759"

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Purpose/ Description	Property Description	Coordinates
purposes		
The disposal of slurry into underground void for backfilling purposes	Zamdela 449 Portion RE	S 26° 52' 24.349" E 27° 49' 37.205"
The disposal of slurry into underground void for backfilling purposes	Zwanenberg 450 Portion 2	S 26° 51' 29.110" E 27° 49' 36.779"

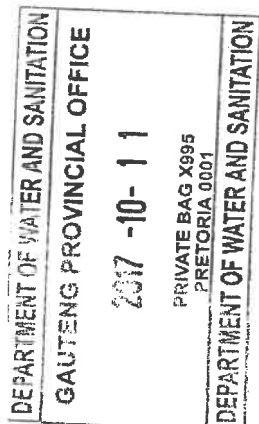
- 2.2 The Licensee must update the Geohydrological studies and model for its operations annually and take into consideration all relevant conditions outlined in this licence. The effectiveness of the current monitoring system must also be evaluated and the requirements to drill more monitoring boreholes indicated. The annual updates must be issued to the Provincial Head for written approval on or before 31 March annually.
- 2.3 The Licensee shall measure groundwater quality (notably pH, Electrical Conductivity (mS/m), Calcium (Ca) (mg/l), Magnesium (Mg) (mg/l), Potassium (K) (mg/l), Sodium (Na) (mg/l), Chloride (Cl) (mg/l), Sulphate (SO₄) (mg/l), Aluminium (Al) (mg/l), iron in all monitoring boreholes indicated in Table 4 within a 1km radius around all the ash backfilling process on a quarterly basis to establish any pollution impacts on the watercourses, notably the pans and must be evaluated by a professional, registered wetland specialist and geohydrologist when water quality levels increase and/or deteriorated more than 50% from the previous monitoring event and be reported to the Provincial Head for written comment within thirty (30) days after each monitoring event.

3. MONITORING

- 3.1 The Licensee shall monitor on quarterly basis the water resources at groundwater monitoring points set out in Table 4 to determine the impact of the facility and other ash backfilling activities on the water quality by taking samples at the monitoring points as indicated in Table 4:

Table 4: Groundwater monitoring points

Monitoring point	X Coordinates	Y Coordinates	Z Coordinates
B12/179	7898.19	-2965042	1430.39
B12/180	79103.01	-2965271	1425.86
B12/182	79785.18	-2965341	1443.23
C316/41	78900.27	-2966078	1442.5
UG032	78863.06	-2965218	1424.12
UG033	7856.71	-2964360	1438.78
UG034	78490.45	-2964377	1437.66
UG041	78540.53	-2966379	1452.88
UG048	77307.98	-2967220	1471.74
UG049	77072.47	-2967386	1473.14
UG069	77965.73	-2964789	1428.64
B12/178	78962.07	-2965232	1425.05
B12/181	79752.43	-2965338	1442.19



Monitoring point	X Coordinates	Y Coordinates	Z Coordinates
B12/183	79616.47	-2965435	1436.02
B12/185	78399.25	-2964877	1424.95
B12/186	78666.57	-2964795	1427.64
C316/21	77818.95	-2966852	1463.2
C316/22	78477.56	-2966382	1453.2
C316/24	78715.47	-2966355	1448.96
C316/25	78700.69	-2966327	1448.65
C316/30	78708.32	-2966240	1447.9
C316/31	78164.05	-2966593	1458.23
C316/42	79017.34	-2965996	1438.85
C316/44	78289.49	-2966504	1456.8
C316/46	78974.63	-2966024	1440.46
C316/47	78974.63	-2966024	1440.5
UG047	77555.39	-2967042	1467.81
UG054	78329.74	-2966486	1455.9
UG055	78024.46	-2966706	1459.61
UG056	77673.23	-2966957	1468.12
UG063	77868.3	-2967057	1467.6
UG064	77933.53	-2967119	1466.5
UG065	77862.68	-2966991	1466.59
UG066	77215.79	-2967307	1472.74
UG067	76878.49	-2967642	1476.39
C316/51	79680.92	-2966876.16	1430.09
C316/52	79684.47	-2966761.13	1429.31
C316/53	79709.81	-2966519.97	1428.35
C316/54	79729.29	-2966304.91	1428.33
NW025	73945.9	-2967309.79	1444.63
UG003	74869.29	-2970131.45	1462.75
UG004	75944.23	-2969659.58	1466.93
UG005	75865.56	-2970578.44	1465.93
UG008	74408.31	-2968527.33	1453.6
UG009	74864.11	-2968952.3	1450.71
UG014	77711.04	-2971730.49	1484.75
UG017	77255.85	-2970610.62	1484.52
UG037	76731.34	-2968449.82	1467.71
UG038	75192.95	-2968864.22	1451.01
UG040	76368.27	-2966012.76	1448.87
UG053	74578.87	-2967631.7	1440.64
UG061	74807.69	-2968620.51	1447.98
UG051	79465.1	-2965915.61	1428.93
VVW005	77692.89	-2961324.07	1436.97
VVW012	79111.1	-2963821.32	1449.65
VVW018	77981.78	-2960547.38	1426.06
VVW039	78168.22	-2961194.4	1435.41
VVW048	79075.78	-2964108.06	1447.34
VVW049	78430.31	-2964191.82	1439.41

3.2 The date, time and monitoring point in respect of each sample taken shall be recorded together with the results of the analysis.

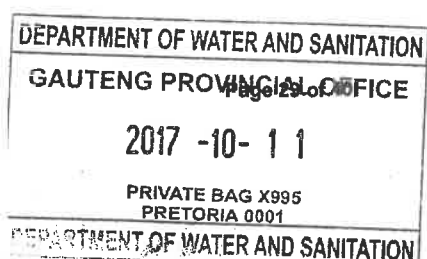
- 3.3 Monitoring points must not be changed prior to notification to and written approval by the Provincial Head.
- 3.4 An Aquatic Scientist approved by the Provincial Head must establish a monitoring programme for the following indices: Invertebrate Habitat Assessment System (IHAS) and the latest SASS (South African Scoring System). Sampling must be done once during the summer season and once during the winter season, , to reflect the status of the river upstream and downstream of the wastewater contaminated facilities as indicated in **Table 3**
- 3.5 The methods of analysis shall not be changed without prior notification to and written approval by the responsible authority.
- 3.6 A ground and surface water monitoring network shall be established to monitor the quality and quantity of groundwater as per the Report recommendation and ensuring that water used by other water users are safeguarded in accordance to Chapter 14 of the National Water Act, 1998.
- 3.7 A detailed groundwater model for the mine must be calibrated and updated within a year of licence issuance.
- 3.8 Groundwater remediation measures to be taken if groundwater is polluted.

4. REPORTING

- 4.1 The Licensee shall submit the results of analysis for the monitoring requirements to the Provincial Head every six months under the reference number 27/2/2/C1022/5/1.
- 4.2 The Licensee shall submit the nature and the quality of waste disposed underground.

5. STORMWATER MANAGEMENT

- 5.1 Storm water leaving the Licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.
- 5.2 Increase runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the stream.
- 5.3 Where necessary storm water control works must be constructed, operated and maintained in a sustainable manner throughout the impacted area.



6. CONVEYANCES

- 6.1 Pollution caused by ash spills from the pipelines must be prevented through proper maintenance and effective protective measures especially near all stream crossings.
- 6.2 Any access roads or temporary crossings must be:
 - 6.2.1 Non-erosive, structurally stable and shall not induce any flooding or safety hazard and;
 - 6.2.2 Be repaired immediately to prevent further damage.

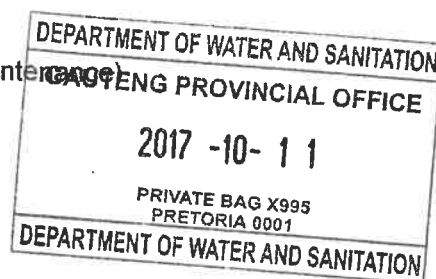
7. ACCESS CONTROL

- 7.1. Notices prohibiting unauthorised persons from entering the controlled access areas as well as internationally acceptable signs indicating the risks involved in case of an unauthorised entry must be displayed along the boundary fence of these areas.

8. CONTINGENCIES

- 8.1 Accurate and up-to-date records shall be kept of all system malfunctions resulting in non-compliance with the requirements of this licence. The records shall be available for inspection by the Provincial Head upon request. Such malfunctions shall be tabulated under the following headings with a full explanation of all the contributory circumstances:

- 8.1.1 Operating errors
- 8.1.2 Mechanical failures (including design, installation or maintenance)
- 8.1.3 Environmental factors (e.g. flood)
- 8.1.4. Loss of supply services (e.g. power failure) and
- 8.1.5 Other causes.



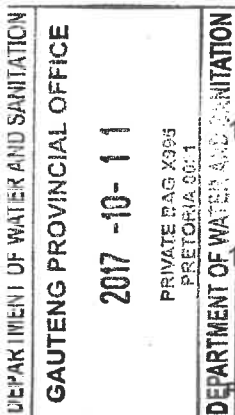
- 8.2 The Licensee must, within 24 hours, notify the Provincial Head of the occurrence or potential occurrence of any incident which has the potential to cause, or has caused water pollution, pollution of the environment, health risks or which is a contravention of the licence conditions.
- 8.3 The Licensee must, within 14 days, or a shorter period of time, as specified by the Provincial Head, from the occurrence or detection of any incident referred above, submit an action plan, which must include a detailed time schedule, to the satisfaction of the Provincial Head of measures taken to:
 - 8.3.1 Correct the impacts resulting from the incident
 - 8.3.2 Prevent the incident from causing any further impacts and
 - 8.3.3 Prevent a recurrence of a similar incident.

9. INTEGRATED WATER AND WASTE MANAGEMENT

- 9.1 The Licensee must, at least 180 days prior to the intended closure of any facility, or any portion thereof, notify the Provincial Head of such intention and submit any final amendments to the IWWMP and RSIP as well as a final *Closure Plan*, for approval.
- 9.2 The Licensee shall make full financial provision for all investigations, designs, construction, operation and maintenance for a water treatment plant should it become a requirement as a long-term water management strategy.

10. SITE SPECIFIC CONDITIONS

- 10.1 The groundwater management plan in terms of quality and quantity must always be implemented and ensure that there are monitoring boreholes up-gradient and down-gradient of the mine void to be backfilled during operational, decommissioning and closure phase;
- 10.2 Groundwater monitoring should commence at least one year prior to commencement of backfilling to establish seasonal variations in the baseline groundwater quality and level results;
- 10.3 The groundwater quality for all private boreholes used for domestic, irrigation and livestock watering must be sampled to update the hydrocensus baseline groundwater quality of the area;
- 10.4 Additional groundwater monitoring boreholes which must be incorporated into the existing monitoring programme must be sited and drilled to a depth that penetrates the whole aquifer for both shallow and deep groundwater;
- 10.5 Boreholes should be drilled along the pipeline route before backfilling commence and must be incorporated into the existing monitoring programme;
- 10.5.1 Each borehole should be constructed with solid casings from the top to end of the borehole to minimise the risk of cross contamination;
- 10.5.2 Water in the mine voids should be removed at a rate of 1:3 to provide a void space for the ash and thus prevent pressurising the compartment during the ash backfilling activities;
- 10.5.3 The groundwater quality which must also include Al, Ba, B, Mn, Fe, Zn, Pb, Cu, Cr, Cr (VI), Mo, Cd, Ni, Se and SO₄ must be monitored (including water inflow into the mine workings, private boreholes for other users adjacent to the mine) on a monthly basis during backfilling and on a quarterly basis after backfilling by using approved groundwater sampling techniques and analysed by an accredited laboratory. Undue long-term trends in the quality of the water will indicate actions;
- 10.5.4 During the operational phase ensure local aquifers are not artificially recharged by the ash seepage emanating from the backfilling underground mine void and leakages from the pipes transporting ash;
- 10.5.5 Emergency action plans, in cases of groundwater pollution emanating from the underground backfill void or leakage occurred along the pipeline should be developed to protect groundwater quality from degradation;



- 10.5.6 A groundwater remediation plan must be developed to ensure that the corrective measures are implemented. This plan must be submitted to DWS for approval;
- 10.5.7 This action plan should inter alia identify the sources of potential groundwater contamination, the potential impacts should be quantified and their contribution factored into the remedial strategy of groundwater;
- 10.5.8 In the event pollution occurs due to backfilling process and the pollution plume migrated further away from the backfilled void, all the abstraction boreholes closer to the backfilled void should be avoided so that contaminants will not migrate away from the site towards the abstraction boreholes used by other groundwater users until remediation is conducted and the quality is good for consumption;



APPE NDIX IV

Section 21 (j) of the Act: Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people

1. General

1.1 This licence authorises the removal, discharging or disposing of water found underground at a rate of 1:3 for the efficient ash backfilling activity as shown in Table5:

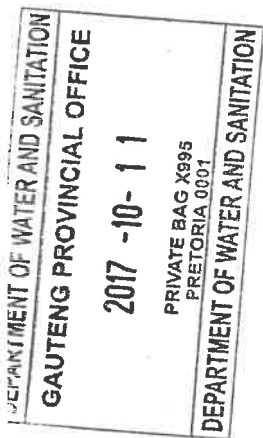
Table 5: Section 21 (j) water use activities

Description	Properties	Co-ordinates
Removal of water underground for reuse in Sasolburg Sasolburg Operations	Alfresco 202, Portion 1	S 26°50'59.886" E 27°48'11.263"
Removal of water underground for reuse in Sasolburg Operations	Alfresco 202, Portion RE	S 26° 51' 12.126" E 27° 48' 17.370"
Removal of water underground for reuse in Sasolburg Operations	Alicedale 301, Portion 1	S 26°51'44.778" E 27°48'7.130"
Removal of water underground for reuse in Sasolburg Operations	Begninsel 310, remainder of the portion	S 26°50'28.318" E 27°47'19.650"
Removal of water underground for reuse in Sasolburg Operations	Bersheba 01, portion 05	S 26°47'7.11" E 27°47'49.357"
Removal of water underground for reuse in Sasolburg Operations	Bersheba 01, portion 06	S 26°47'7.116" E 27°47'52.083"
Removal of water underground for reuse in Sasolburg Operations	Bersheba 01, portion 07	S 26°47'8.413" E 27°47'52.101"
Removal of water underground for reuse in Sasolburg Operations	Boschbank 12 Portion 1	S 26° 47' 37.976" E 27° 48' 3.051"

Removal of water underground for reuse in Sasolburg Operations	Boschbank 12 Portion 2	S 26° 47' 53.219" E 27° 48' 9.236"
Removal of water underground for reuse in Sasolburg Operations	Boschbank 12 Portion 3	S 26° 47' 53.965" E 27° 48' 9.339"
Removal of water underground for reuse in Sasolburg Operations	Boschbank 12 Portion 5	S 26° 47' 58.050" E 27° 48' 9.328"
Removal of water underground for reuse in Sasolburg Operations	Boschbank 12 Portion 6	S 26° 47' 58.134" E 27° 48' 9.198"
Removal of water underground for reuse in Sasolburg Operations	Boschbank 12 Portion RE	S 26° 48' 6.763" E 27° 47' 50.634"
Removal of water underground for reuse in Sasolburg Operations	Brakkuil 401 Portion RE	S 26° 50' 32.215" E 27° 47' 23.040"
Removal of water underground for reuse in Sasolburg Operations	Clifton 316 Portion RE	S 26° 51' 16.667" E 27° 48' 17.500"
Removal of water underground for reuse in Sasolburg Operations	Die Pan 440 Portion RE	S 26° 51' 32.837" E 27° 46' 7.306"
Removal of water underground for reuse in Sasolburg Operations	Die Pan 225 Portion RE	S 26° 51' 32.831" E 27° 46' 7.129"
Removal of water underground for reuse in Sasolburg Operations	Goedehoop 272 Portion 4	S26° 47' 0.140" E 27° 47' 49.235"
Removal of water underground for reuse in Sasolburg Operations	ERF A 32 Portion RE	S 26° 48' 32.271" E 27° 48' 6.343"

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Removal of water underground for reuse in Sasolburg Operations	Gouverneur's Kraal 333 Portion RE	S 26° 49' 27.037" E 27° 48' 37.253"
Removal of water underground for reuse in Sasolburg Operations	Donkerhoek 323 Portion RE	S 26° 51' 34.332" E 27° 46' 39.235"
Removal of water underground for reuse in Sasolburg Operations	Donkerhoek 323 Portion RE	S 26° 51' 26.610" E 27° 51' 3.734"
Removal of water underground for reuse in Sasolburg Operations	Gysbert 1161 Portion RE	S 26° 51' 18.817" E 27° 49' 22.065"
Removal of water underground for reuse in Sasolburg Operations	Gysbertshoek 315 Portion 1	S 26° 51' 15.496" E 27° 48' 58.082"
Removal of water underground for reuse in Sasolburg Operations	Gysbertshoek 315 Portion2	S 26° 51' 14.593" E 27° 48' 54.481"
Removal of water underground for reuse in Sasolburg Operations	Gysbertshoek 315 Portions2; 5 RE; Zwaneberg 366 Portion RE	S 26° 52' 52.530" E 27° 50' 35.757"
Removal of water underground for reuse in Sasolburg Operations	Herewarde 409 Portion 42	S 26° 51' 47.656" E 27° 48' 2.115"
Removal of water underground for reuse in Sasolburg Operations	Herewarde 409 Portion RE	S 26° 52' 13.203" E 27° 47' 11.553"
Removal of water underground for reuse in Sasolburg Operations	Herewarde 409 Portion 6	S 26° 51' 32.744" E 27° 51' 4.182"



Removal of water underground for reuse in Sasolburg Operations	Kruidfontein 67 Portion 5	S 26° 51' 32.096" E 27° 46' 6.319"
Removal of water underground for reuse in Sasolburg Operations	Kruidfontein 67 Portion6	S 26° 51' 29.105" E 27° 46' 3.344"
Removal of water underground for reuse in Sasolburg Operations	Kruidfontein 67 Portion7	S 26° 51' 27.847" E 27° 51' 4.182"
Removal of water underground for reuse in Sasolburg Operations	Mullersrust 352 Portion 17	S 26° 47' 13.752" E 27° 47' 53.859"
Removal of water underground for reuse in Sasolburg Operations	Mullersrust 352 Portion 18	S 26° 47' 26.714" E 27° 47' 56.744"
Removal of water underground for reuse in Sasolburg Operations	Lilian-Dale 348 Portion 1	S 26° 48' 12.721" E 27° 47' 57.841"
Removal of water underground for reuse in Sasolburg Operations	Lilian-Dale 348 Portion RE	S 26° 48' 31.564" E 27° 48' 6.195"
Removal of water underground for reuse in Sasolburg Operations	Londondale 442 Portion 8	S 26° 45' 32.678" E 27° 46' 51.809"
Removal of water underground for reuse in Sasolburg Operations	Londondale 442 Portion RE	S 26° 45' 28.230" E 27° 46' 54.173"
Removal of water underground for reuse in Sasolburg Operations	Rietfontein 251 Portion 4	S 26° 45' 40.387" E 27° 46' 50.740"
Removal of water underground for reuse in Sasolburg Operations	Rietfontein 251 Portion19	S 26° 45' 37.997" E 27° 46' 50.485"

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The disposal of slurry into underground void for backfilling purposes	Rietfontein Portion20	251	S 26° 45' 35.407" E 27° 46' 50.729"
The disposal of slurry into underground void for backfilling purposes	Rietfontein Portion21	251	S 26° 45' 34.717" E 27° 46' 50.884"
The disposal of slurry into underground void for backfilling purposes	Roseberry Plain Portion 1	250	S 26° 52' 13.825" E 27° 51' 6.697"
The disposal of slurry into underground void for backfilling purposes	Roseberry Plain Portion5	250	S 26° 52' 22.665" E 27° 51' 0.399"
Removal of water underground for reuse in Sasolburg Operations	Roseberry Plain Portion6	250	S 26° 52' 40.479" E 27° 50' 43.290"
Removal of water underground for reuse in Sasolburg Operations	Roseberry Plain Portion7	250	S26° 52' 40.784" E 27° 49' 40.200"
Removal of water underground for reuse in Sasolburg Operations	Uitkomst 413 Ptn RE		S 26° 48' 46.886" E 27° 48' 5.853"
Removal of water underground for reuse in Sasolburg Operations	Tweelingfontein 386 Ptn RE		S 26° 49' 21.987" E 27° 48' 34.319"
Removal of water underground for reuse in Sasolburg Operations	Weltevreden 182 Ptn RE		S 26° 50' 1.210" E 27° 48' 3.231"
Removal of water underground for reuse in Sasolburg Operations	Wilgefontein 431 Ptn RE		S 26° 51' 14.446" E 27° 48' 17.616"
Removal of water underground for reuse in Sasolburg Operations	The Star 387 Ptn 1		S 26° 52' 16.925" E 27° 47' 2.732"

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Removal of water underground for reuse in Sasolburg Operations	The Star 387 Ptn RE	S 26° 51' 53.519" E 27° 46' 48.819"
Removal of water underground for reuse in Sasolburg Operations	Saltberry Plain 137 Ptn RE	S 26° 51' 56.891" E 27° 49' 44.989"
Removal of water underground for reuse in Sasolburg Operations	Saltberry Plain 422Ptn RE	S26° 51' 44.442" E 27° 49' 43.863"
Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn 3	S 26° 45' 37.917" E 27° 47' 28.522"
Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn9	S 26° 45' 47.026" E 27° 47' 23.617"
Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn10	S 26° 45' 47.518" E 27° 47' 22.914"
Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn22	S 26° 45' 51.545" E 27° 47' 5.048"
Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn23	S 26° 45' 55.600" E 27° 46' 52.595"
Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn24	S 26° 45' 55.592" E 27° 46' 52.318"
Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn25	S 26° 45' 54.952" E 27° 46' 50.870"
Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn26	S 26° 45' 54.572" E 27° 46' 50.544"

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Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn27	S 26° 45' 53.856" E 27° 46' 50.250"
Removal of water underground for reuse in Sasolburg Operations	Wonderwater 180 Ptn RE	S 26° 45' 50.989" E 27° 46' 49.498"
Removal of water underground for reuse in Sasolburg Operations	Wonderfontein 350 Ptn23	S 26° 45' 50.150" E 27° 46' 49.407"
Removal of water underground for reuse in Sasolburg Operations	Wonderfontein 350 Ptn24	S 26° 45' 48.835" E 27° 46' 49.602"
Removal of water underground for reuse in Sasolburg Operations	Wonderfontein 350 Ptn RE	S 26° 45' 45.978" E 27° 46' 51.524"
Removal of water underground for reuse in Sasolburg Operations	Zaaipplaats 203 Ptn RE	S 26° 50' 42.784" E 27° 47' 29.493"
Removal of water underground for reuse in Sasolburg Operations	Zamdela 449 Ptn 7	S 26° 52' 29.383" E 27° 49' 37.759"
Removal of water underground for reuse in Sasolburg Operations	Zamdela 449 Ptn RE	S 26° 52' 24.349" E 27° 49' 37.205"
Removal of water underground for reuse in Sasolburg Operations	Zwanenberg 450 Ptn 2	S 26° 51' 29.110" E 27° 49' 36.779"

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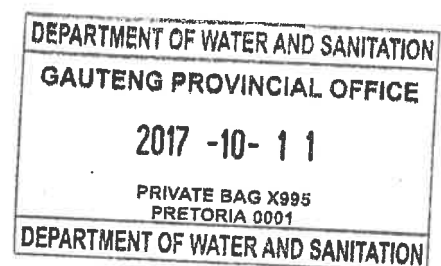
- 1.2 The Licensee shall provide any water user whose water supply is impacted by the water use with an alternative source of water of the same quantity and quality.
- 1.3 The quantity of water removed from underground must be metered and recorded on a daily basis.
- 1.4 Groundwater levels shall be monitored every six months (once in the beginning of the dry season and once in the beginning of the wet season).

- 1.5 Self-registering flow meters must be installed in the delivery lines at easily accessible positions near the dewatering points.
- 1.6 The flow metering devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than once in two (2) years. Calibration certificates shall be available for inspection by the Provincial Head or his/her representative upon request.
- 1.7 The date and time of monitoring in respect of each sample taken shall be recorded
- 1.8 The methods of analysis shall not be changed without prior notification to the Licensee and written approval by the Minister or his/her delegated nominee.
- 1.9 The Provincial Head must be informed of any incident that may lead to groundwater being disposed of contrary to the provisions of this license, by submitting a report containing the following information:
 - 1.10 Nature of the incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc)
 - 1.11 Actions taken to rectify the situation and to prevent pollution or any other damage to the environment and
 - 1.12 Measures must be taken to prevent re-occurrence of any similar incident.
 - 1.13 The Licensee shall follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the groundwater removal system.
 - 1.14. Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.

1.2 WATER CONSERVATION AND WATER DEMAND MANAGEMENT

- 1.2.1 Licensee shall update the WC/WDM plan on an annually basis and submit to the Provincial Head for approval.
- 1.2.2 The Licensee shall report on annually basis the implementation of water conservation and water demand management measures including retrofitting with water efficient technologies and devices, reduction of total water demand, improvement in water use efficiency benchmarks and targets.

[END OF LICENCE]





the detea

the department of economic
development, tourism and
environmental affairs
FREE STATE PROVINCE

Environmental Authorisation

Authorisation register number: *EMB/9(i)(ii)11(iii)(vi)/13/42*

Holder of authorisation: Sasol Mining (Pty) Ltd

Location of activity: Sasolburg, Metsimaholo Local Municipality.

107 -10- 01
Head of Department
Department of Economic Development
Tourism and Environmental Affairs
Private Bag X20801
Bloemfontein, 9300

Office of the Deputy Director: Environmental Impact Management

Private Bag X 20801
Bloemfontein
9300

Tel +27 (0)51 400 4843
Fax +27 (0)51 400 4842
e-mail: mkhosansg@deteca.fs.gov.za

Decision

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this environmental authorisation, that the applicant should be authorised to undertake the activity specified below.

Details regarding the basis on which the Department reached this decision are set out in Annexure 1.

Activities authorised

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2010 the Department hereby authorises –

Mr. Trevor Davids

with the following contact details –

P.O. Box 32
Sasolburg
1947

Tel: (017) 614 2313
Cell: 082 410 7409

Email: trevor.davids@sasol.com

12-04-2014
Department of Economic Development
Tourism and Environmental Affairs
Pretoria, 0000

On behalf of, Sasol Mining (Pty) Ltd.

To undertake the following activities (hereafter referred to as “the activities”) indicated in Listing Notice 1 (GNR 544), activity 9 “the construction of facilities or infrastructure exceeding 1000

metres in length for the bulk transportation of water, sewage or storm water (i) with an internal diameter of 0.36 metres or more; or (ii) with a peak throughput of 120 litres per second or more, “Activity 11 “The construction of (iii) bridges; (vi) bulk storm water outlet structures; where such construction occurs within a watercourse or within 32 metres of a watercourse, excluding where such construction will occur behind the development setback line.”

As described in the Basic Assessment report dated February 2014 as Sasol Sigma Colliery Ash Backfilling Project in Sasolburg, Metsimaholo Local Municipality, hereafter referred to as “the property”.

This application and project is aimed at backfilling additional mine voids with ash from the Infrachem. The project will be undertaken in order to stabilise old underground mine workings which are deemed to have a high potential for land subsidence.

The ash backfilling process will utilise several pipelines located above-ground to transport the ash slurry (comprising 20% fine ash and 80% water) from the Sasol Ash pump station at Infrachem, to the mined out voids areas. The return water pipelines (already in place) will be used to dewater the voids prior to backfilling to prevent decant as a result of hydrostatic pressure. The water that will be pumped out could be sent for treatment at Sasol’s Sasolburg Complex water treatment plant.

The ash material will be pumped in the form of slurry (consisting of 20% ash and 80% water) into areas at risk of subsidence via purposely drilled boreholes after which excess water will be removed through dewatering boreholes and reused. The ash material will then be left to settle and solidify.

Department of Economic Development, Tourism and Environmental Affairs
Private Bag X20861
Meyertonfontein, 9300
18-04-2014

Site Co-ordinates:

Major Pipeline	Major Pipeline Points	Position on Pipeline	Latitude	Longitude
Potential Ash & Water Pipeline	A1	Start	26° 50' 56.550" S	27° 50' 11.271" E
Potential Ash & Water Pipeline	A2	Middle	26° 49' 39.179" S	27° 48' 46.759" E
Potential Ash & Water Pipeline	A3	End	26° 48' 1.364" S	27° 47' 20.374" E
Existing Ash & Water Pipeline	B1	Start	26° 50' 14.406" S	27° 48' 50.822" E
Existing Ash & Water Pipeline	B2	Middle	26° 49' 13.199" S	27° 47' 55.492" E
Existing Ash & Water Pipeline	B3	End	26° 48' 0.780" S	27° 47' 18.339" E
Existing Ash & Water Pipeline	C1	Start	26° 48' 0.780" S	27° 47' 18.339" E
Existing Ash & Water Pipeline	C2	Middle	26° 47' 2.391" S	27° 47' 59.527" E
Existing Ash & Water Pipeline	C3	End	26° 45' 48.816" S	27° 48' 7.257" E
Potential Ash & Water Pipeline	D1	Start	26° 45' 48.852" S	27° 48' 7.020" E
Potential Ash & Water Pipeline	D2	Middle	26° 45' 12.791" S	27° 47' 45.383" E
Potential Ash & Water Pipeline	D3	End	26° 45' 50.132" S	27° 46' 51.746" E
Potential Ash & Water Pipeline	E1	Start	26° 47' 56.251" S	27° 47' 13.769" E
Potential Ash & Water Pipeline	E2	Middle	26° 48' 22.355" S	27° 46' 16.830" E
Potential Ash & Water Pipeline	E3	End	26° 48' 48.452" S	27° 45' 19.885" E
Potential Ash & Water Pipeline	F1	Start	26° 48' 25.216" S	27° 47' 27.774" E
Potential Ash & Water Pipeline	F2	Middle	26° 49' 13.216" S	27° 46' 13.752" E
Potential Ash & Water Pipeline	F3	End	26° 49' 49.154" S	27° 44' 51.485" E
Potential Ash & Water Pipeline	G1	Start	26° 50' 8.269" S	27° 49' 46.288" E
Potential Ash & Water Pipeline	G2	Middle	26° 50' 25.770" S	27° 48' 16.491" E
Potential Ash & Water Pipeline	G3	End	26° 50' 57.735" S	27° 46' 40.220" E
New Potential Ash & Water Pipeline	H1	Start	26° 50' 54.696" S	27° 50' 11.056" E
New Potential	H2	Middle	26° 51' 25.927" S	27° 50' 3.330" E



10-04-2014

Ash & Water Pipeline New Potential Ash & Water Pipeline	H3	End	26° 52' 12.111" S	27° 50' 2.984" E
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The granting of this environmental authorisation is subject to the conditions set out below.

Conditions

Scope of authorisation

- 1.1 Authorisation of the activity is subject to the conditions contained in this document, which conditions form part of the environmental authorisation and are binding on the holder of the authorisation.
- 1.2 The holder of the authorisation shall be responsible for ensuring compliance with the conditions by any person acting on his or her behalf, including but not limited to, an agent, sub-contractor, employee or person rendering a service to the holder of the authorisation.
- 1.3 The authorised activity may only be carried out at the property/site indicated above.
- 1.4 Any changes to, or deviations from, the project description set out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.
- 1.5 If commencement of the activity does not occur within a period of 3 (three) years from the date of issue, the authorisation lapses and a new application for an Environmental Authorisation (EA) must be made.
- 1.6 This authorisation does not negate the holder of the authorisation's responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

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Head of
5
Department
Tourism
Private
Blanco

Appeal of authorisation

- 1.7 The holder of the authorisation must notify every registered interested and affected party, in writing and within 12 (twelve) calendar days of the date of this environmental authorisation, of its decision to authorise the activity.
- 1.8 The notification referred must –
 - 1.8.1 specify the date on which the authorisation was issued;
 - 1.8.2 inform the interested and affected party of the appeal procedure provided for in Chapter 7 of the regulations;
 - 1.8.3 advise the interested and affected party that a copy of the authorisation will be furnished on request; and
 - 1.8.4 give the reasons for the decision.
- 1.9 The holder of the authorisation must publish a notice –
 - 1.9.1 informing interested and affected parties of the decision;
 - 1.9.2 informing interested and affected parties where the decision can be accessed; and drawing the attention of interested and affected parties to the fact that an appeal may be lodged against this decision in the newspapers contemplated and used in terms of regulation 54(2)(c) and (d) and which newspaper was used for the placing of advertisements as part of the public participation process.
- 1.10 A person affected by the decision who wishes to appeal against the decision must lodge a notice of intention to appeal with the MEC of the Department of Economic Development, Tourism and Environmental Affairs within 20 days after being notified of the decision. The notice of intent to appeal should be directed to:

MEC (Economic Development, Tourism and Environmental Affairs)

Private Bag X20801

Bloemfontein

9300

Fax (051) 400 4709

12-04-2014

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Department
of Economic Development
and Environmental Affairs
Private Bag X20801
Bloemfontein, 9300

Appeal notices not submitted to the above mentioned address will not be regarded as valid.

- 1.11 The applicant shall not commence with the proposed activity once an appeal has been lodged with the office of the MEC

Management of the activity

- 1.12 The Environmental Management Programme (EMPr) submitted as part of Application for Environmental Authorisation is hereby approved.
- 1.13 The provisions of the Environmental Management Programme (EMPr) included in the Basic Assessment Report are an extension to the conditions of authorisation, and non-compliance with the conditions of the EMPr would accordingly constitute non-compliance with the conditions of this authorisation.
- 1.14 The Department must be notified, within 30 days thereof, of any change of ownership and/or project developer. Conditions imposed in this EA must be made known to the new owner and/or developer and are binding on the new owner and/or developer.
- 1.15 The recommendations and mitigation measures recorded in the Basic Assessment Report dated February 2014 must be adhered to and incorporated as part of the EMPr where applicable.
- 1.16 Any updates or amendments to the EMPr must be submitted to the Department of Economic Development, Tourism and Environmental Affairs and must be decided upon within a period of 30 days of the submission.

Monitoring

- 1.17 The applicant must appoint a suitably experienced Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation / rehabilitation measures and recommendations referred to in this authorisation are implemented and to ensure compliance with the provisions of the EMPr.
- 1.18 The ECO shall be appointed before commencement of any construction activities.

- 1.19 The ECO shall keep record of all activities on site, problems identified, transgressions noted and a task schedule of tasks undertaken by the ECO.
- 1.20 The ECO shall remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.
- 1.21 Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

Recording and reporting to the Department

- 1.22 The applicant must appoint an independent auditor to conduct an environmental audit to ensure that the conditions, mitigation measures and recommendations stipulated in this environmental authorization are complied with. The environmental audit report must –
 - 1.22.1 Indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation.

Commencement of the activity

- 1.23 The authorised activity shall not commence within twenty (20) days of the date of signature of the authorisation.
- 1.24 Should you be notified by the MEC of a suspension of the authorisation pending appeal procedures, you shall not commence with the activity unless authorised by the MEC in writing.

Notification to authorities

- 1.25 Fourteen (14) days prior written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.

Specific conditions

- 1.26 An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste shall be disposed of at a landfill licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No. 59 of 2008) as amended.
- 1.27 Efforts must be made to ensure that preventative actions are taken to ensure that any water bodies present on and around the site will not be negatively impacted by the commencement of the activity.
- 1.28 All solid waste material from construction will be disposed of at a permitted waste disposal facility.
- 1.29 Maintenance plans and line emergency shutdown procedures.
- 1.30 Emergency spillage handling procedures
- 1.31 Proposed pipeline should be painted earthy colours (blacks, browns, greens, etc.) to reduce the visibility of the pipeline
- 1.32 Vegetation surrounding the pipeline should be left intact.
- 1.33 Bright shiny pipe fittings with high reflectance should be avoided as far as possible. It is further recommended that the height of the pipeline should not be increased beyond 1 m.
- 1.34 Mobile noise barriers should be erected as soon as construction reaches 200m from the sensitive receptor properties for the duration until construction is further than 200m away from the properties.
- 1.35 All points along the pipeline that cross over wetlands should be fitted with steel sleeves and the pipeline should be positioned above ground, on supports in order to minimise the impact on the wetland.
- 1.36 A 32m buffer around the wetlands is recommended for the route, with exception of the wetland crossings.
- 1.37 Erosion control measures should be implemented by re-seeding bare areas of wetland and grassland buffer strips with mixed seed spray of indigenous sedges and grasses.

- 1.38 Monitoring must take place on a weekly basis during construction in order to detect leakages or damage to pipes as well as any potential decant into wetlands.
- 1.39 During operation, monitoring should include an assessment of wetland health on a monthly basis.
- 1.40 It is recommended that *Atyidae* (shrimp) population be monitored for changes in water quality and habitat sensitivity, a decline in their population may be an indication of increased pollution and/or habitat modification.
- 1.41 The establishment of monitoring points on the Vaal Barrage at the confluences for both affected river courses (Rietspruit and Leeuspruit) as well as within the potentially affected water courses.
- 1.42 Boreholes for the pumping of ash into the voids should be encased in steel to prevent groundwater contamination.
- 1.43 Ensure regular groundwater monitoring and establish a spill Management Plan
- 1.44 Workers on and around the site must be trained in fire fighting techniques and fire safety, as well as emergency procedures and will be provided with adequate PPE as per legislation.
- 1.45 The site must comply with the Occupational Health and Safety regulations at all times.

Department of Economic Development, Tourism and Environmental Affairs
P.O. Box 20801
Sandton, 2008
10-04-2014

General

- 1.46 A copy of this authorisation must be kept at the property where the activity (i.e.) will be undertaken. The authorisation must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.
- 1.47 Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.
- 1.48 The holder of the authorisation must notify the Department, in writing and within 48 (forty eight) hours, if any condition of this authorisation cannot be or is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance. Non-compliance with a condition of this authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the regulations.
- 1.49 National government, provincial government, local authorities or committees appointed in terms of the conditions of this authorisation or any other public authority shall not be held responsible for any damages or losses suffered by the applicant or his successor in title in any instance where operation be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of authorisation as set out in this document or any other subsequent document emanating from these conditions of authorisation.

Approved / ~~Not Approved~~:



Mr. M.R Seleke
(HOD, DETEA)

Department of Economic Development,
Tourism and Environmental Affairs
Private Bag X20801
Cape Town, 7700

08/04/2014
Date:

Annexure 1: Reasons for Decision

1. Background

The applicant, Mr. Trevor Davids of Sasol Mining (Pty) Ltd, applied for authorisation to commence with the following activity –

The proposed construction of pipelines for backfilling of mine voids with ash, in order to stabilise old underground mine workings which are deemed to have a high potential for land subsidence.

The applicant appointed Digby Wells Environmental to undertake Basic Assessment process, for the activity as described under Regulation Notice 543 and R 544 of 2010.

2. Information considered in making the decision

In reaching its decision, the Department took, *inter alia*, the following into consideration -

- a) The information contained in the Basic Assessment Report dated February 2014, completed by Digby Wells Environmental.
- b) The objectives and requirements of relevant legislation, policies and guidelines and section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).
- c) The findings of the site visit undertaken by Ms. T. Lekgari from the Department of Economic Development, Tourism and Environment Affairs.

3. Key factors considered in making the decision

All information presented to the Department was taken into account in the Department's consideration of the application. Factors considered in making the decision are the following:

- Waste
- Ground water and surface water
- Wetlands
- Visual

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Department of Economic Development
Tourism and Environmental Affairs
Private Bag X20901
Bloemfontein, 9300

4. Findings

After consideration of the information and factors listed above, the Department made the following findings -

- a) All solid waste material will be disposed of at a licensed waste disposal facility.
- b) Boreholes for the pumping of ash into the voids should be encased in steel to prevent groundwater contamination.
- c) Monitoring of the pipeline must take place on a weekly basis during construction in order to detect leakages or damage to pipes as well as any potential decant into wetlands, and a spill management plan will be in plan.
- d) Proposed pipeline should be painted earthy colours (blacks, browns, greens, etc.). to reduce the visibility of the pipeline.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the proposed activity will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended) and that any potentially detrimental environmental impacts resulting from the proposed activity can be mitigated to acceptable levels. The application is accordingly granted.

13-04-2016

Head of Department
Department of Economic Development
Tourism and Environmental Affairs
Private Bag X20601
Bloemfontein, 9300



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001 • Environment House, 473 Steve Biko Road, Pretoria, 0002. Tel: +27 12 399 9000, Fax: +27 86 625 1042

Ref. 12/9/11/L1369/2

EDMS Reference: WL161334

Enquiries: Mr Bonginkosi Dlamini

Tel: (012) 399 9778 Fax: (012) 310-3753 Email: brdlamini@environment.gov.za

www.environment.gov.za

LICENCE NUMBER : 12/9/11/L1369/2

SECTOR : CLASS A (WASTE DISPOSAL FACILITY)

WASTE MANAGEMENT FACILITY : DISPOSAL FACILITY

LOCATION : WARD 14, SASOLBURG RESIDENTIAL AREA, AS WELL AS ZAMDELA, METSIMAHOLO LOCAL MUNICIPALITY,
FREE STATE PROVINCE

LICENCE HOLDER : SASOL MINING

ADDRESS : P.O. BOX 32, SASOLBURG, 1947

CONTACT PERSON : TRAVOR DAVIDS

CONTACT DETAILS : TEL: 017 6142313 FAX: 011 52205279,
EMAIL: trevor.davids@sasol.com.

WASTE MANAGEMENT LICENCE IN TERMS OF SECTION 49(1)(a) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008(ACT NO. 59 OF 2008)

In terms of National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM: WA) read with the Environmental Impact Assessment Regulations and Environmental Management Framework Regulations, 2010, published in Government Notice No. R.543 of 18 June 2010 (the Regulations), the Deputy Director General: Chemicals and Waste Management, hereby grants Sasol Mining a Waste Management Licence for the following waste management

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activities as listed in Category B of the List of Waste Management Activities that have, or are Likely to have a Detrimental Effect of the Environment published in: GN No. 718 of 3 July 2009 for Category B waste management activities:

Category B

(9) "The disposal of any quantity of hazardous waste to land."

In this Licence, "Director" means the Director: Licencing of the National Department of Environmental Affairs who may be contacted at the address below:

Director: Licencing
Department of Environmental Affairs
Private Bag X447
PRETORIA
0001

In this Licence, "Director: RPW" means the Director: Resource Protection and Waste of the National Department of Water and Sanitation (DWS) who may be contacted at the address below:

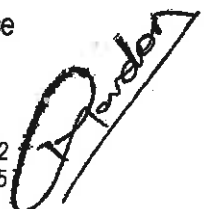
Director: Resource Protection and Waste
Department of Water and Sanitation
Private Bag X 313
PRETORIA
0001

1. SITE DETAILS

1.1 LOCATION

1.1.1 This Licence authorises the ash backfilling project (Disposal) Ward 14, Sasolburg residential area, as well as Zamdela within the jurisdiction of Metsimagolo Local Municipality, Gauteng Province (hereafter referred to as "the Site").

1.1.1 The location of the Site must be according to the co-ordinates indicated on the licence





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application form, which is defined as follows:

Number of corners	Latitude	Longitude
A	26° 45'4.12"	27° 49' 16.98"
B	26° 46'1.46"	27° 44' 2.85"
C	26° 53'55.31"	27° 43' 8.30"
D	26° 54'46.52"	27° 52' 49.06"

1.2 DOCUMENTS CONSIDERED

1.2.1 The Waste Management Licence Application Form dated 23 October 2013;

1.2.2 The Final Environmental Impact Assessment Report for the proposed Sasol Sigma Colliery Ash Backfilling Project, compiled by Digby Wells Environmental dated July 2014, hereafter referred to as the "Report";

1.2.3 The Record of Decision from Department of Water Affairs dated 27 July 2015;

LICENCE CONDITIONS

1.3 SITE SECURITY AND ACCESS CONTROL

1.3.1 The Licence Holder must ensure effective access control of the Waste Management Site to prevent unauthorised entry.

1.3.2 Weatherproof, durable and legible signs in at least three official languages applicable in the area must be displayed at each entrance to the site.

1.3.3 The signs must indicate the risks involved in entering the Site, include the name, address and telephone number of the Licence Holder and the person responsible for the operation of the Site.

2. MANAGEMENT



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2.1 GENERAL MANAGEMENT

2.1.1 The activities shall be managed and operated:

- a) In accordance with a documented Environmental Management Programme (EMPr), that, *inter alia*, identifies and minimises the risk of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformance as well as those drawn to the attention of the Licence Holder as a result of complaints;
- b) In accordance with conditions of this Licence and any other written instruction by the Director; and
- c) By an adequate, competent staff complement.

2.1.2 Any persons having duties that are or may be affected by this Licence must have convenient access to a copy thereof, which copy must be kept at or near the place where those duties are carried out.

2.1.3 A copy of this Licence may be published by the Department, in its discretion, on any website or other media.

2.2 DESIGNATION OF WASTE MANAGEMENT CONTROL OFFICER

2.2.1 A Waste Management Control Officer (WMCO) must be designated in writing to monitor and ensure compliance and correct implementation of all mitigation measures and provisions as stipulated in the licence and standard operation procedures. Proof of designation must be kept by the licence Holder.

2.2.2 The WMCO must record any non-compliance with any Licence conditions or requirements or provisions of NEM: WA and must be incorporated into the internal and external audit report referred to in condition 10.

2.2.1 The duties and responsibilities of the WMCO should not be seen as exempting the Licence Holder from any other legal obligations in terms of the NEM:WA.



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2.3 **EMERGENCY PREPAREDNESS PLAN**

2.3.1 The Licence Holder must maintain and implement an emergency preparedness plan and review it annually when conducting an audit, after each emergency incident and major accident. The plan must include measures to address:

- a) Power failure;
- b) Equipment malfunction;
- c) Site fires;
- d) Spillage (on Site);
- e) Industrial Action
- f) Natural disasters such as floods; and
- g) The plan must include contact details of the nearest police station, ambulance services and the emergency centre.

3. **PERMISSIBLE WASTE**

3.1 Any portion of the site, which has been constructed or developed according to condition 4 below, may be used for the disposal ash. No organic or inorganic elements or compound which may have a definite acute or chronic negative effect on human health and/or environment, due to its toxic, physical, chemical or persistence characteristics and which corresponds with the UNEP definition of hazardous waste.

3.2 The licence holder must ensure that only ash slurry from Sasol Sigma Colliery will be used to backfill the mined out voids as mentioned in the Sasol Sigma Colliery Ash Backfilling Project Environmental Impact Assessment Report with Project number 1691 compiled by Digby Wells Environmental dated July 2014.

4. **GENERAL IMPACT MANAGEMENT AND OPERATION**



CLASS: A – LICENSE: Sasol Sigma Waste Management Facility

- 4.1 IMPACT MANAGEMENT
- 4.1.1 Waste, which is not permissible under condition 3, must be dealt with according to relevant legislation or the Department's policies and practices.
- 4.1.2 The ash slurry may only be used for backfilling of mine voids if the Site or any such portion has been maintained or developed according to the conditions listed under condition 2 of this Licence.
- 4.1.3 The Licence Holder must ensure that subsurface water does not decant to the surface water environment.
- 4.1.4 After the development of the Site or backfilling of the mine voids has been completed, the Licence Holder shall notify the Responsible Authority to examine how the development has been done in ensuring protection of the water resources.
- 4.1.5 The activities at the site must be carried out in such a manner that the stability of the site remains intact.
- 4.1.6 The Licence Holder must take all reasonable steps to ensure that the slurry does not escape to the environment. All runoff, if any, must be prevented from entering local watercourses.
- 4.1.7 The issuance of this Waste Management Licence does not exempt the Licence Holder from compliance with any other legislation including Section 40 of the National Water Act, 1998 (Act 36 of 1998).
- 4.2 OPERATION



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- 4.2.1 The Licence Holder must ensure that wastes that cannot be disposed on site are sent to waste management facilities licenced to handle such wastes.
- 4.2.2 The Licence Holder must take all steps to ensure that-
- 4.2.2.1 No organic or inorganic element or compound which may have a definite acute or chronic negative effect on human health and/or the environment, due to its toxic, physical, chemical or persistent characteristics and which corresponds with the UNEP definition of hazardous waste;
 - 4.2.2.2 No medical waste; and
 - 4.2.2.3 No scheduled pharmaceutical products registered in terms of the Medicines and Related Substances Control Act, 1965 (Act 101 of 1965) or associated containers, are used for backfilling purpose.
- 4.3 **WATER QUALITY MANAGEMENT**
- 4.3.1 All runoff water (storm water) arising as a result of precipitation on land adjacent to the Site must be prevented from coming into contact with any substance, including leachate and must be diverted and drained from the Site, by means of works constructed by the Licence Holder in accordance with condition 4.
- 4.3.2 All runoff water (storm water) arising as a result of precipitation on the Site must be prevented from coming into contact with any substance, as enumerated in condition 5.3.1 and must be diverted and drained from the Site and working face of the Site, by means of works constructed by the Licence Holder in accordance with condition 4.
5. **MONITORING**



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5.1 MONITORING METHODS AND PARAMETERS

5.1.1 The Licence Holder must carry out all tests required in terms of this Licence in accordance with published laboratory analysis methods or those prescribed by and obtainable from the South African Bureau of Standards (SABS), referred to in the Standards Act, 2008 (Act 08 of 2008).

5.1.2 The Licence Holder may only use another method of analysis if approved by the Department.

5.2 WATER QUALITY MONITORING

5.2.1 GENERAL REQUIREMENTS

5.2.1.1 Monitoring of ground water, surface water and contaminated runoff must be conducted at the locations specified in conditions 6.2.2 and 6.2.3 and at any other location or locations that may from time to time be specified by the Director.

5.2.1.2 The licence holder must monitor the groundwater levels monthly and rainfall daily on rainy days.

5.2.2 GROUNDWATER QUALITY MONITORING WORK

5.2.2.1 A monitoring borehole network for the Site must be established at least up gradient and down gradient of the Site and maintained by the Licence Holder so that unobstructed sampling can be undertaken. The baseline groundwater quality data must be provided as soon as the monitoring boreholes have been drilled.



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- 5.2.2.2 Monitoring boreholes must be equipped with lockable caps. The Responsible Authority reserves the right to take water samples at any time and to analyse these samples or have them analysed.
- 5.3 DETECTION MONITORING
- 5.3.1 Groundwater and surface water quality monitoring must be conducted
(a) for variables listed in Annexure III - quarterly
(b) for variables listed in Annexure IV – annually or such frequency as may be determined by the Responsible Authority
- 5.4 Pipeline and Failure detection monitoring
- 5.4.1 The pipelines used for transporting ash slurry must be monitored on daily basis for possible leakages. Should a leak or failure be suspected or detected during monitoring or at any time, it must be regarded as an incident according to condition 9.1 below and be addressed to the satisfaction of the Responsible Authority.
- 5.5 INVESTIGATIVE MONITORING
- 5.5.1 If, in the opinion of the Director or Director: CM, a water quality variable at any monitoring point referred to in condition 6.3 above shows an increasing trend, the Licence Holder shall initiate a monthly monitoring programme.
- 5.6 INVESTIGATIONS
- 5.6.1 If, in the opinion of the Director, groundwater and/or surface water pollution have occurred or may possibly occur, the licence holder must conduct and/or appoint specialists to conduct the necessary investigations and implement additional monitoring and rehabilitation measures to the satisfaction of the Director.

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6. RECORDS

- 6.1 The Licence Holder must keep records and update all the information referred to in Annexure I and submit this information to the Director on an annual basis.
- 6.2 All records required or resulting from activities required by this Licence must:
- (a) Be legible;
 - (b) Be made as soon as reasonably practicable and should form part of the external audit report;
 - (c) If amended, be amended in such a way that the original and any subsequent amendments remain legible and are easily retrievable; and
 - (d) Be retained in accordance with documented procedures.
- 6.3 Records demonstrating compliance with condition 2.1.1 must be maintained for five years.

7. REPORTING

- 7.1 The Licence Holder must, within 24 hours, notify the Director of the occurrence or detection of any incident on the Site, or incidental to the operation of the site, which has the potential to cause, or has caused pollution of the environment, health risks, nuisance conditions or water pollution.
- 7.2 The Licence Holder must, within 14 days, or a shorter period of time, if specified by the Director, from the occurrence or detection of any incident referred to in condition 9.1, submit an action plan, which must include a detailed time schedule, and resource allocation, signed off by top management, to the satisfaction of the Director and/or the Director: RPW of measures taken to –
- a) Correct the impact resulting from the incident;
 - b) Prevent the incident from causing any further impact; and
 - c) Prevent a recurrence of a similar incident.





CLASS: A – LICENSE: Sasol Sigma Waste Management Facility

- 7.3 In the event that measures have not been implemented within 21 days of the incident to address impacts caused by the incident referred to in condition 9.1, or measures which have been implemented are inadequate, the Director may implement the necessary measures at the cost and risk of the Licence Holder.
- 7.4 The Licence Holder must keep an incident and complaints register, which must be attached to the external audit report, as well as the Department and DWS for audit purposes.
- 7.5 The Department must be notified without delay in the case of the following:
- Any malfunction, breakdown or failure of equipment or techniques, accident or fugitive emission which has caused, is causing or may cause significant pollution;
 - The breach of this Licence; and
 - Any significant adverse environmental and health effects.
- 7.6 The Department must be notified within 14 days of the following changes:
- Licence Holder's trading name, registered name or registered office address;
 - Particulars of the licence Holder's ultimate holding company (including details of an ultimate holding where a licence holder has become a subsidiary); and
 - Steps taken with a view to the Licence Holder, or any one of them, going into bankruptcy, entering into arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.
8. **AUDITING**
- 8.1 **INTERNAL AUDITS**
- 8.1.1 Internal audits must be conducted quarterly by the Licence Holder and on each audit occasion an official report must be compiled by the relevant auditor to report the findings of the audits, which must be made available to the external auditor specified in condition 10.2.1.



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8.2 EXTERNAL AUDITS

8.2.1 The Licence Holder must appoint an independent external auditor to audit the site bi-annually in the first year of operation and annually thereafter. The auditor must compile an audit report documenting the findings of the audit, which must be submitted by the licence holder according to condition 10.2.3 below.

8.2.2 The audit report must:

- a) Specifically state whether conditions of this licence are adhered to;
- b) Include an interpretation of all available data and test results regarding the operation of the site and all its impacts on the environment;
- c) Specify target dates for the implementation of the recommendations by the Licence Holder to achieve compliance;
- d) Contain recommendations regarding non-compliance or potential non-compliance and must specify target dates for the implementation of the recommendations by the Licence Holder and whether corrective action taken for the previous audit non conformities was adequate; and
- e) Show monitoring results graphically and conduct trend analysis.

8.2.3 Each external audit report referred to in condition 10.2.1 above must be submitted to the Director within 30 days from the date on which the external auditor finalised the audit report.

8.3 DEPARTMENTAL AUDITS AND INSPECTIONS

8.3.1 The Department reserves the right to audit and/or inspect the Site without prior notification at any time and at such frequency as may be determined by the Director.

8.3.2 The Licence Holder must make any records or documentation available to the Director upon request, as well as any other information he/she may require.

8.3.3 The Department will make the inspection report available to the Licence Holder when



CLASS: A – LICENSE: Sasol Sigma Waste Management Facility

completed.

9. LEASING AND ALIENATION OF THE SITE

9.1 Should the Licence Holder want to alienate or lease the Site, he/she must notify the Director in writing of such an intention at least 120 days prior to the said transaction for approval.

9.2 Should the approval be granted, the subsequent Licence Holder shall remain liable for compliance with all licence conditions.

10. TRANSFER OF WASTE MANAGEMENT LICENCE

10.1 Should the Licence Holder want to transfer the Licence, he/she must apply in terms of Section 52 of NEM:WA (Act No 59 of 2008).

10.2 Any subsequent Licence Holder shall be bound by conditions of the Licence.

11. GENERAL

11.1 The construction of the facility of the existing slimes dam may not commence within twenty (20) days the date of signature of this Licence.

11.2 Should the Licence Holder be notified by the Minister in writing of a suspension of the Licence pending any appeals decision, you may not commence with the activities licenced by the Minister.

11.3 After the appeal period has expired and no good cause to extend the appeal period has been submitted, the activity may commence provided a notice has been submitted to the Department. The notice must include a date on which it is anticipated that the activity will commence.



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- 11.4 The activity must commence within a period of two (2) years from the date of issue. If commencement of the activity does not occur within that period, the Licence lapses and a new application for a Licence must be made in order for the activity to be undertaken.
- 11.5 If the Licence Holder anticipates that commencement of the activity would not occur within two (2) year period, he/she must apply and show good cause for an extension of the licence six (6) months prior to its expiry date.
- 11.6 This Licence shall not be transferable unless such transfer is subject to condition 11.1.
- 11.7 This Licence shall not be construed as exempting the Licence Holder from compliance with the provisions of National and Provincial Legislation and any relevant Ordinance, Regulation, By-law or relevant National Norms and Standards.
- 11.8 Transgression of any condition of this Licence could result in the Licence being withdrawn by the Department.
- 11.9 Non-compliance with a condition of this Licence may result in criminal prosecution or other actions provided for in Section 67 (1) of the National Environmental Management: Waste Act, 2008.
- 11.10 In terms of section 28 and 30 of the NEMA and section 19 and 20 of the National Water Act No.36 of 1998, any costs incurred to remedy environmental damage must be borne by the person responsible for the damage. It is therefore imperative that the Licence Holder reads through and understands the legislative requirements pertaining to the project. It is the Applicant's responsibility to take reasonable measures which include informing and educating contractors and employees about the environmental risks of their work and training them to operate in an environmentally acceptable manner.



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11.11 This Licence is valid for a period of ten (10) years and shall be reviewed every five (05) years from the date of issue or at any time before or after that date. The Licence Holder must initiate the review process within six (06) months prior the due date of the intended review period. Based on the results of the review, especially compliance to Licence conditions or recommendations from the audit reports and or changing legislation, the Licence could be amended or withdrawn or the validity thereof extended.

12. APPEAL OF LICENCE

12.1 The Licence Holder must notify every registered interested and affected party, in writing and within twelve (12) days, of receiving the Department's decision.

12.2 The notification referred to in 2.1 must –

12.2.1 Specify the date on which the Licence was issued;

12.2.2 Inform the registered interested and affected party of the appeal procedure provided for in the National Appeal Regulations, GN 993 of 08 December 2014 (see Annexure 1);

12.2.3 Advise the interested and affected party that a copy of the Licence and reasons for the decision will be furnished on request; and



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12.3 An appeal against the decision must be lodged in terms of the National Appeal Regulations GN 993 of 08 December 2014 within twenty (20) days from the date of this license, with: The Minister, Department of Environmental Affairs, Private Bag X 447, PRETORIA, 0001, Tel No.: 086 111 2445, Email address: AppealsDirectorate@environment.gov.za.

MR MARK GORDON

DEPUTY DIRECTOR-GENERAL: CHEMICALS AND WASTE MANAGEMENT

DATE: 20/06/2017



ANNEXURE I

APPEALS PROCEDURE IN TERMS OF THE NATIONAL APPEAL REGULATIONS GN 993 TO BE FOLLOWED BY THE APPLICANT AND INTERESTED AND AFFECTED PARTIES UPON RECEIPT OF NOTIFICATION OF A WASTE MANAGEMENT LICENCE

1. **LODGING OF AN APPEAL**
 - 1.1 An appellant must submit the appeal submission (the Appeal Questionnaire and Appeal and Response Form) to the appeal administrator, and a copy to the applicant, and registered interested and affected parties within twenty (20) days from:
 - 1.1.1 the date that the notification of the decision for an application for an environmental authorisation or a waste management licence was sent to the registered interested and affected parties by the applicant; or
 - 1.1.2 the date that the notification of the decision was sent to the applicant by the competent authority, issuing authority or licencing authority, in the case of decisions other than those referred to above.
 - 1.2 An appeal submission must be submitted in writing in the form of the appeal questionnaire annexed to this guideline as "Appendix A" and accompanied by:
 - 1.2.1 a completed Appeal and Response Form setting out the grounds of the appeal; and
 - 1.2.2 supporting documentation that is referred to in the appeal which did not form part of the documentation considered when the original decision was made

Appendix A

APPEAL QUESTIONNAIRE

An electronic copy of this questionnaire may be obtained from:

Mr Z Hassam at telephone: 012 399 9356 or e-mail:

AppealsDirectorate@environment.gov.za

Once completed, this document must be forwarded to:

E-mail: AppealsDirectorate@environment.gov.za

Physical Address: Department of Environmental Affairs, 473 Steve Biko Road, Environment House, Arcadia, Pretoria, 0002

Appellant's contact information:

Name:

Address:

Phone:

Cell:

Email:

Project information:

Project name: _____

Authorisation register number as on environmental authorisation:

Authorisation date as on environmental authorisation:





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IMPORTANT! Please note:

The decision of the department is reflected in the letter of authorisation or rejection. The conditions of approval are contained in the environmental authorisation document, attached to the authorisation letter.

The appeal must be accompanied by all relevant supporting documents or copies of these that are certified as true by a commissioner of oaths.

The grounds of your appeal and the facts upon which they rest must be set out. You should formulate your objections or concerns as averments and not as questions about the project. Please therefore refrain from material or remarks that do not contribute to the merits of your appeal.

To assist in this regard, the following questions are listed as a guideline only – more space may be used if necessary:

1. Are you lodging this appeal as an individual or on behalf of a community/organisation?

Individual Community/ organisation

If on behalf of a community or organisation, please provide proof of mandate to do so.

2. Is your appeal based on factors associated with the process that was followed by the applicant in obtaining authorisation?

Yes No

Please provide reasons:



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3. Is your appeal based on factors associated with environmental impacts not taken into account by the department in refusing or authorising the application?

Yes No

Please provide reasons:

4. Would you agree to the activity proceeding if your concerns can be addressed by rectifying the process or mitigating or eliminating the impacts of the activity?

Yes No

Please provide reasons:

5. Are you fundamentally opposed to any development activity on the site?

Yes No

Please provide reasons:

6. Do you have an objection in principle against the development?

Yes No



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Please provide reasons:

7. Does your appeal contain any new information that was not submitted to the environmental consultant or department prior to the department's consideration of the application?

Yes No

If the answer above is yes, please explain why it should be considered by the Minister and why it was not made available to the environmental consultant or department during the application process.

8. **DECLARATION:**

I declare that the contents of this submission are to the best of my knowledge the truth and I regard this declaration as binding on my conscience.

APPELLANT

DATE:

ANNEXURE II

INFORMATION WHICH SHALL BE SUBMITTED ON AN ANNUAL BASIS (CONDITION 8.1)

* = Indicate with an X. Please print legibly

NAME OF SITE: _____	DATE OF REPORT : _____ (y/m/d)
---------------------	---------------------------------

1. Registered owner(s) of property on which the waste management facility is situated is situated:

Name	Telephone	
Postal Address	Fax	
	Postal Code	

2. Operator in control of the waste management facility

Name	Telephone	
Identity number	Tel. After hours	
Educational Qualifications		
Other Relevant competencies:		

3. Indicate the type of waste and approximate quantities of waste disposed on Site

Type of waste (Specify)	Quantity (m ³ annum ⁻¹)	Source
TOTAL		

4. Indicate the type of waste and approximate quantities of waste transferred for recycling, treatment and disposal during the year:

Type of waste	Quantity (m ³ annum ⁻¹)	Reused or Disposed



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TOTAL		

I, the undersigned, declare that the information stated above below is to my knowledge a true reflection of the status at Sasol Sigma Facility.

Signature: _____

Name: _____

Capacity: _____

Place: _____

ANNEXURE III

WATER QUALITY VARIABLES REQUIRED FOR DETECTION MONITORING:

Monitor at quarterly intervals for:

- Alkalinity (P.AIk)
- Ammonia (NH₃-N)
- Chemical Oxygen Demand (COD) Chlorides (Cl)
- Electrical Conductivity (EC) Nitrate (NO₃-N)
- pH
- Potassium (K)
- Total Dissolved Solids (TDS) Sodium (Na)
- Calcium (Ca) Flouride (F)
- Magnesium (Mg) Sulphate (SO₄)



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Chromium (hexavalent) (Cr⁶⁺) Chromium (Total) (Cr)

ANNEXURE IV

WATER QUALITY VARIABLES REQUIRED FOR DETECTION MONITORING AND INVESTIGATIVE MONITORING

Monitor at annual intervals for:

Alkalinity (P.Alk0)
Boron (B)
Cadmium (Cd)
Fluoride (F)
Chemical Oxygen Demand (COD)
Biological Oxygen Demand (BOD)
Chromium (hexavalent) (Cr⁶⁺)
Chromium (Total) (Cr)
Chloride (Cl)
Cyanide (CN)
Electrical Conductivity (EC)
Free and Saline ammonia as N (NH₄.N)
Lead (Pb)
Magnesium (Mg)
Mercury (Hg)
Nitrate (NO₃-N)
pH
Phenolic compounds (Phen)
Potassium (K)
Sodium (Na)
Sulphate (SO₄)
Total Dissolved Solids (TDS)
Total Organic Carbon (TOC)
Total Organic Halogen (TOX)
Volatile Organic Compounds

