water & forestry
Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

Ref. No. 16/2/7/B100/C09
Licence Number: 24084535

By Registered Mail

Private Bag X313, Pretoria, 0001, Sedibeng Building, 185 Schoeman Street, Pretoria
Tel: (012) 336 7500 Fax: (021)323 4472 / (021) 326 2715

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

I, ***Deborah Gabaakelwe Mochatlhi,*** in my capacity as Chief Director: Water Use in the Department of Water Affairs and Forestry and acting under authority of the powers delegated to me by the Minister of Water Affairs and Forestry, hereby authorise the following water uses in respect of this licence.

Signature: .....

Date: 10/10/2008

LICENCE No. 24084535

1. **Water User:** **DOUGLAS COLLIERY SERVICES LIMITED**
   Postal Address of applicant: **P.O. Box 1**
   Witbank
   Mpumalanga Province
   1035

2. **Water Uses**

2.1	Section 21(b) of the Act:	Storage of water, subject to the conditions set out in Appendices I and II.
2.2	Section 21(c) of the Act:	Impeding or diverting the flow of water in a watercourse, subject to the conditions set out in Appendices I and III.
2.3	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 IV.
2.4	Section 21(i) of the Act:	Altering the bed, banks course or characteristics of a watercourse, subject to the conditions set out in Appendices I and V.
2.5	Section 21(j) of the Act:	Removing, discharging or disposing of water found underground, subject to the conditions set out in Appendices I and VI.

3. **Properties on which the use will be exercised**

3.1	Section 21(b) of the Act:	Vandyksdrift 19 IS
3.2	Section 21(c) of the Act:	Vandyksdrift 19 IS, Kleinkopje 15 IS, Steenkoolspruit 18 IS
3.3	Section 21(i) of the Act:	Vandyksdrift 19 IS, Kleinkopje 15 IS, Steenkoolspruit 18 IS
3.4	Section 21(g) of the Act:	Vandyksdrift 18 IS
3.5	Section 21(j) of the Act:	Vandyksdrift 19 IS, Kleinkopje 15 IS, Steenkoolspruit 18 IS

4. Registered owners of the Properties

4.1 Ingwe Surface Holdings Limited

5. Licence and Review Period

This licence is valid for a period of twenty (20) years as from the date of issuance and this licence shall be reviewed after 12 months and thereafter every two (2) years.

6. Definitions

"Any word or term defined under the Act, shall have the same meaning as defined in the Act, unless otherwise specifically stated."

"Regional Director" means the Regional Director: Mpumalanga, Department of Water Affairs and Forestry, Private Bag X11259, Nelspruit, 1200.

"Regulation GN 704" refers to the Regulations on use of water for mining and related activities aimed at the protection of water resources made in terms of section 26 of the Act and promulgated under Government Notice 704 of June 1999 published in Government Gazette No. 20119.

"Report" refers to the following documentations as well as communications (emails, reports, letters, verbal etc) related thereto:

(a) Douglas EMP Amendment; Integrated Water Use License (IWULA) application for new opencast and pillar mining operations on the farms Kleinkopje 15IS, Steenkoolspruit 18IS and Vandyksdrift 19IS dated February 2006 for Douglas colliery as compiled by Pulles Howard & De Lange.

7. Acronyms used in licence

CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
IWWMP	Integrated Water and Waste Management Plan
RSIP	Rehabilitation Strategy and Implementation Programme
ROD	Record of Decision
RQO	Resource Quality Objective
SABS	South African Bureau of Standards
SASS	South African Scoring System
WC	Water Conservation
WDM	Water Demand Management

Chief Director: Water Use

APPENDIX I

Conditions for all Water Uses

1. The responsibility for complying with the provisions of the licence is vested in the licensee and not any other person or body.

2. The licence shall not be construed as exempting the licensee from compliance with the provisions of the National Environmental Management Act, 1998 (Act 107 of 1998), Health Act, 2003 (Act 61 of 2003), the Environment Conservation Act, 1989 (Act 73 of 1989), the Occupational Health and Safety Act, 1993 (Act 85 of 1993) or any other applicable act, ordinance, regulation or by-law.

3. Any incident that causes or may cause water pollution shall immediately be reported to the Regional Director or his representative within 24 hours.

4. The licensee shall immediately inform the Regional Director: Mpumalanga of any change in his name, address and/or premises and legal status.

5. If a water user association is established in the area to manage the resource, membership of the licensee to this association is compulsory and rules, regulations and water management stipulations of the association must be adhered to.

6. The licensee shall be responsible for any water use charges or levies imposed from time to time by a responsible authority or Department in terms of the Raw Water Pricing Strategy, Waste Discharge Charges, Water Resource Management Charge of the Department, or any other water charge or levies that might be imposed in terms of the appropriate legislation.

7. The licensee shall be responsible for appointment of a Responsible Person (s) who will give effect to the various licence conditions and to ensure compliance thereof.

8. This licence and the 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.

9. The licensee must perform annual internal compliance audits to endure adherence to the conditions contained in this integrated licence and biannual external audits must be performed by a suitably qualified person to verify compliance.

10. If the water use authorised in terms of this licence cannot be carried out and completed in accordance with the relevant provisions of this licence, the licensee shall stop all activities immediately and take the necessary steps to prevent the possibility of-

    (a) Pollution of any water resource, if the water resource has already been polluted from being further polluted; or
    (b) Damaging of the environment, or if the environment has already been damaged, from being further damaged:

11. The licence is issued subject to the compliance to the Mining Charter as required in terms of the Mineral and Petroleum Resources Development Act, 2002. The approved Social and Labour Plan shall be submitted to the Regional Chief Director of the Department of Water Affairs and Forestry not later than October 2009.

Chief Director: Water-Use

APPENDIX II

Section 21(b) of the Act: Storing of water

1. Storage of Water

1.1 The licensee is authorised to store a maximum quantity of 313 000 (m^3) (three hundred and thirteen thousand cubic metres) of water in the dam(s) at the geographic position at unnamed tributary of Olifants River (Vleishaft Tributary) Vandyksdrift 19 IS with a storage capacity of 313 000 (m^3) (three hundred and thirteen thousand cubic metres)

1.2 The licensee must obtain any proprietary rights or servitudes at his own cost.

1.3 The licensee is not indemnified from any detrimental effect that the dam(s) may have on other properties. The Department does not accept any responsibility or liability for any damages or losses that may be suffered by any other party as a result of the construction and utilisation of the dams.

2. Monitoring Requirements

2.1 Suitable measuring structures must be constructed up stream and down stream of the dams to measure the flow entering and leaving the dams and this information must be available on request.

2.2 The licensee shall establish a monitoring programme and the date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis as well as other significant information (low flow, flooding, pollution incident, etc.).

3. Dam Safety Requirements

3.1 The construction, operation, and maintenance of all dam facilities classified as a dam with a safety risk, must be carried out under supervision of a Professional Civil Engineer, registered under the Engineering Profession of South Africa Act, 1990 (Act 114 of 1990).

3.2 All storage facilities (for water not containing waste) with a safety risk will comply to the following control measures:

3.1 The licensee shall supply any information, drawings, specifications, design assumptions, calculations, documents and test results when requested by the Chief Director.

3.2 An approved professional person must be appointed to carry out a dam safety evaluation annually and must:

3.2.1 Consider whether the safety norms pertaining to the design, construction, monitoring, operation, performance and maintenance of the dam satisfy acceptable dam engineering practices.

3.2.2 Compile a report on the matters contemplated above according to the prescribed requirements and submit the signed and dated report to the owner of the dam within the prescribed period.

3.5 The licensee is not exempted from compliance with the provisions of the Regulations published under Government Notice R1560 of 25 July 1986, read with Chapter 12 of the Act.

4. Construction of Dam(s)

4.1 The as-built plans and specifications of the dam(s) must be submitted to the Chief Director for his/her records.

Chief Director: Water Use

4.2 Construction of the dam(s) may not commence before authorisation in terms of the Environment Conservation Act, 1989 (Act 73 of 1989) is issued.

4.3 The Government reserves the right to construct storage works at any time in any stream and to store all surplus water reaching the dam(s) and to control the allocation of such water.

4.4 Construction of the dam(s) may not commence unless the required authorisation to build has been issued by the Dam Safety Office of this Department.

Chief Director: Water Use

APPENDIX III

Section 21(c) of the Act: Impeding or diverting the flow of water in a watercourse;
Section 21(i) of the Act: Altering the bed, banks, course or characteristic of a watercourse

1. Construction, Operation and Maintenance

1.1 The licensee shall carry out and complete all the activities according to the following:
- 1.1.1 Report(s) submitted to the Department or the Responsible Authority;
- 1.1.2 Conditions of this licence; and
- 1.1.3 Any other written direction issued by the Chief Director in relation to this licence.

1.2 The conditions of the authorisation shall be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of this activity and the applicant shall take such measures that are necessary to bind such persons to the conditions of this licence.

1.3 Construction activities must not take place within the 1:100 year flood-line or within a horizontal distance of 100 meters from any watercourse, estuary, borehole or well, whichever is the greatest, unless authorised by this licence (as part of the activities described in the report(s) (referred to in condition 1.2) submitted to the Department.

1.4 Compensation measures for damage to and or mitigation measures must be recommended if avoidance or minimisation of the impacts of the proposed development is not possible or if mitigation measures fail to adequately protect the in-stream and riparian habitat.

1.5 No material with pollution generating potential will be used in any construction activities.

1.6 The necessary erosion prevention mechanisms shall be employed to ensure the sustainability of all structures.

1.7 The licensee must ensure that structures such as the river diversions, river road crossings, weirs and the culverts shall not be damaged excessively by floods exceeding the magnitude of floods occurring on average once in every 100 years.

1.8 The structure of temporary crossings must be non-erosive, structurally stable and must not induce any flooding or safety hazard. Temporary crossings 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.

1.9 Construction activities shall start up-stream and proceed into a down-stream direction, so that the recovery processes can start immediately, without further disturbance from upstream construction works.

1.10 Construction activities must be scheduled to take place during the dry seasons when flows are lowest.

1.12 The natural migration of aquatic biota and upstream movement of fish in the Olifants River must not be disturbed.

1.13 The development may not impede natural drainage lines, other than that approved within this license.

1.14 The construction camp shall not be located within the 1:100 year flood line or within 100 meters of any watercourse whatever the greatest.

1.15 Vehicles and other machinery must be serviced well above the 1:100 year flood line or within a horizontal distance of 100 meters from any watercourse or estuary. Oils and other potential pollutants must be disposed off at an appropriate licensed site, with the necessary agreement from the owner of such a site.

Chief Director: Water Use

1.16 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps return the spilled material back into the system.

1.17 The system shall be maintained in a state of good repair and standby pumps must be provided.

1.18 Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance.

1.19 Pollution caused by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all stream crossings.

1.20 Any access roads or temporary crossings should be:
1.20.1 non-erosive, structurally stable and should not induce any flooding or safety hazard;
1.20.2 any damage be repaired immediately to prevent further damage.

2. **Stormwater Management**

2.1 Stormwater shall be diverted from the construction works and roads and shall be managed in such a manner as to disperse runoff and to prevent the concentration of stormwater flow.

2.2 Where necessary works must be constructed to attenuate the velocity of the stormwater discharge and to protect the banks of the Olifants Rviver

2.3 Stormwater control works must be constructed, operated and maintained in a sustainable manner throughout the project.

2.4 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 Olifants River

2.5 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. **Water Quality and Quantity**

3.1 The in-stream water quality must be analysed on weekly basis during the construction of the activities of the river diversion, at the monitoring points for both upstream and downstream of the activities for the river diversion for the following variables: pH, Electrical conductivity (mS/m), suspended solids (mg/l), and total dissolved solids (mg/l). Monitoring shall continue on a monthly basis for after the cessation of the construction activities (during mining)

3.2 Activities (such as maintenance) that lead to elevated levels of turbidity of any watercourse must be minimised.

3.3 The licensee shall ensure that the quantity of the water to downstream water users does not decrease because of the existence of the river diversions, river crossings, culverts and road crossings.

4. **General Specifications**

4.1 A suitably qualified person, appointed by the licensee, and approved, in writing, by the Chief Director, must be responsible for ensuring that the structures are maintained in line with the design specifications.

4.2 The licensee shall have a full time Civil Engineer Supervisor on the site during construction of river diversions, river crossings and culverts. The contractor shall have an approved Site Agent on the site during construction.

Chief Director: Water Use

4.3 Where temporary crossings are included their structure must be non-erosive, structurally stable and may not induce any flooding or safety hazard. Temporary crossings must be inspected regularly for accumulation of debris, blockage, erosion of abutments and overflow areas. Damaged areas shall be repaired and reinforced immediately.

4.4 The licensee must submit a set of as-built detailed drawings (not schematic layouts) to the Chief Director of all river diversions, road crossings, and weirs, when required.

5. **Protective Measures**

5.1 The diversion structures may not restrict river flows by reducing the overall river width or obstructing river flow.

5.2 Operation and storage of equipment within the riparian zone must be limited as far as possible.

5.3 All activities within the riparian zone should be restricted as far as possible.

5.4 Any material removed from the in stream or riparian habitat, may not be stored within the riparian zone, and may not be stored in such a way that will cause damming of water or wash-away.

5.5 Alien vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be eradicated or controlled, using standard methods approved by the Department.

5.5 Soils that have become compacted through the activities of the development must be loosened to an appropriate depth to allow seed germination.

5.6 The proposed development must not impede the upstream movement of fish in the Olifants River

5.7 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 Olifants River

5.8 Riparian vegetation, including dead trees, may not be removed from the area. In particular, snags (fallen trees and branches) in the river must be protected (i.e. not collected for firewood or any other purpose).

5.9 All reasonable steps should be made to minimise noise and mechanical vibrations in the vicinity of the river.

6. **Rehabilitation**

6.1 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.

6.2 The vegetation of the surrounding catchment should also be managed to prevent erosion and siltation of the water course.

6.3 The licensee shall take steps necessary to allow movement of aquatic species, including migratory species during the rehabilitation programme.

6.4 The licensee shall embark on a systematic long-term rehabilitation programme to restore natural watercourses to environmentally acceptable and sustainable conditions after construction, which shall include, but not be limited to:

6.4.1 The rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem; and

6.4.2 Annually assess the habitat to monitor the sustainability of the diversions and compliance with these conditions. Action must be taken to rectify any negative impacts.

6.5 The licensee shall ensure that the volume of flow is not reduced except for natural evaporative losses and the authorised attenuation volumes.

7. General Surface Water Design Requirements and Criteria

7.1 The licensee shall determine flood lines (1:50 and 1:100 year) prior to construction to ensure risks are adequately managed. Flood lines shall be clearly indicated on the layout plans.

7.2 The licensee shall schedule construction activities at or close to river crossings, streams or wetlands to take place during low flow periods.

7.3 The licensee shall clearly indicate all wetlands boundaries within the project area on layout plans.

7.4 Design and planning of all proposed construction activities adjacent to or in the vicinity of rivers, streams and wetlands shall consider the following measures:

7.4.1 Impact of alignment on springs and wetlands shall be investigated the necessary mitigation measures determined, in this case off site wetland mitigation.

7.4.2 Where appropriate, large individual indigenous riparian trees shall be avoided during construction and shall be clearly marked on site.

7.4.3 All construction roads in or adjacent to the riparian zone shall be minimised and if required, shall be aligned and managed so as to minimise disturbance of the riparian zone and in-stream habitats.

7.5 The licensee shall do bio-monitoring to determine the impact, change, deterioration and improvement of the aquatic system associated with the activities that of impeding, altering or diverting the water resource.

8. Wetlands

8.1 Diversions (at Northern water canal) shall be designed and engineered to function as channelled valley bottom wetlands in close collaboration with a wetland specialist and submitted for approval by the Chief Director in consultation with DWAF Wetland Task Group.

8.2 Due to the destruction of the 355,4 ha of wetlands and the fact that no mitigation is possible due to the change in geo-hydrology or residual impact, the following conditions must be adhered to for offsite mitigation.

8.3 The extent of the offsite mitigation will be a ratio of 1:2, in other words for every one hectare of wetland lost, 2 hectares need to be rehabilitated. The licensee shall in consultation with appropriate wetland specialists, the Chief Director and the DWAF Wetland Task Group identify such wetland systems that consist of the same function as those lost and that are twice the size of the wetland system that is lost.

8.3.1 Accountability for this mitigation and long-term management of this land shall remain with the licensee.

8.3.2 The licensee shall develop a wetland rehabilitation plan in conjunction with Working for Wetland 6 months of the issuance of this licence and submit this plan for approval by the Chief Director in collaboration with the DWAF Wetland Task Group.

8.3.3 The licensee shall commence with the implementation of the wetland rehabilitation plan within 4 months of approval of the wetland rehabilitation plan.

Chief Director: Water Use

8.3.4 The licensee shall establish an Environmental Monitoring Committee for the implementation of this water use license relating to the wetlands. This committee shall monitor the progress and success of the on and offsite mitigation relating to wetlands including the establishment of wetlands associated with the river diversions. The Environmental Monitoring committee's members shall include representatives from DWAF Mpumalanga Regional Office, the DWAF Wetland Task Group, Working for Wetlands, Mpumalanga Department of Environmental Affairs and agriculture and the Mpumalanga Parks Board. This committee shall be assisted by the wetland and stormwater specialist specified in this license. The first meeting of the Environmental Monitoring committee should occur within the first 3 months after the issuance of this license. This committee shall at least meet quarterly in the first three years of its inception.

8.3.5 Douglas Colliery mine services shall liaise with Xstrata Coal-Goedgevonden Colliery regarding their required offsite mitigation to investigate the potential for the larger site or for rehabilitation within the same sub-catchment to avoid patchwork rehabilitation.

Chief Director: Water Use

APPENDIX IV

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

1. **Construction and Operation**

1.1 The licensee shall carry out and complete all the activities, including the construction and operation of the Dirty Water Dam according to the Report and according to the final plans in the Integrated Water Use License dated February 2006 as approved by the Chief Director.

1.2 The construction of the Dirty Water Dam must be carried out under the supervision of a professional Civil Engineer, registered under the Engineering Profession of South Africa Act, 1990 (Act 114 of 1990), as approved by the designer.

1.3 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 16/2/7/B100/09, inform the Chief Director thereof. This shall be accompanied by a signature of approval from the designer referred to above that the construction was done according to the design plans referred to in the Report.

1.4 The licensee must ensure that the disposal of the dirty water and the operation and maintenance of the system are done according to the provisions in the Report.

1.5 The licensee shall as well submit a set of as-built drawings to the Chief Director after the completion of the Dirty Water Dam.

1.6 The Dirty Water Dam shall be operated and maintained to have a minimum freeboard of 0.8 metres above full supply level and all other water systems related thereto shall be operated in such a manner that it is at all times capable of handling the 1:50 year flood-event on top of its mean operating level.

1.7 The licensee shall use acknowledged methods for sampling and the date, time and sampler must be indicated for each sample.

1.8 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 years. Calibration certificates shall be available for inspection by the Chief Director or his representative upon request.

2. **Storage of Water Containing Waste**

The licensee is authorised to dispose into the Dirty Water Dam a maximum quantity of 2 190 000 (two million and one hundred and ninety thousand) cubic metres (m^3) of waste water per month into the dirty water dam on Portion 2 of the Farm Steenkoolspruit 181S

3. **Quality of Waste Water to be disposed**

The quality of water containing waste disposed of into the Dirty Water Dam shall not exceed the following limits:

Table 3.1

Substance/Parameter	Limit
pH	5-8
Electrical conductivity (Ec) in mS/m	400
Total Dissolved Solids (TDS) in mg/l	400
Chlorides (Cl) in mg/l	100
Sulphate (SO_4) in mg/l	2500
Sodium (Na) in mg/l	100

Chief Director: Water Use

Nitrate as Nos	5
Potassium as K	50
Calcium as Ca	500
Magnesium as Mg	300
Manganese as Mn	10
Iron as Fe	5
Total Alkality	250
Aluminum as Al	2
Silika as Si	5

4. Monitoring

4.1 The Licensee shall monitor surface water quality at the following 5 monitoring points on a quarterly basis.

Table 2: Surface Water Monitoring points

	Locality	Coordinates	
Douglas No		Latitude	Longitude
W02	Olifants River at Wolvekrans Weir.	25444.464	-2877305.117
W04	Pit 2, ponded water on eastern side.	25817.396	-2877532.272
W05	Olifants River, vicinity of Pit 2, Pit 2A at bridge.	26451.091	-2878433.840
W06	Pit 2A outflow, ponded water	26429.274	-2878741.008
W08	Pit 3A outflow, ponded water	27102.324	-2877650.814
W09	Olifants River downstream of Pit 3 and Pit 3A.	27106.382	-2877907.425
W10	Pit 3 outflow, ponded water.	28194.120	-2878030.697
W11	Pit 1 outflow, ponded water.	27855.768	-2877228.082
W13	Tributary originating at Wolvekrans Discard Dump.	28025.077	-2877094.011
W16	Tributary to Olifants River downstream of Pit 4A.	30346.486	-2878192.370
W17	Pit 4A outflow, ponded water.	30908.170	-2878587.461

Chief Director: Water Use

W19	Olifants River Bridge exit from mine property (Bethal Bridge).	29236.546	-2876754.556
W20	Witbank Dam (Duvha Bridge).	28545.430	-2873612.697
W21	Tributary to Olifants River upstream of Pit 4A.	31233.252	-2879596.229
W22	Tributary of Olifants River, upstream of Douglas with Goedehoop Colliery.	31229.626	2880313.975
W32	North Shaft Pollution Control Dam	29288.687	2880499.882

4.2 The licensee shall monitor groundwater quality at the following monitoring points on a quarterly basis:

Table 3: Groundwater Monitoring Points

Locality	Coordinates	
	Longitude	Latitude
DGM-BB121	-28,377.43	2,886,212.63
DGM-BB122	-28,317.19	2,885,851.35
DGM-BB123	-30,138.20	2,886,680.77
DGM-BB124	-29,911.49	2,886,509.64
DGM-BB125	-26,583.73	2,879,746.86
DGM-BB126	-26,776.65	2,880,855.08
DGM-BB127	-26,333.22	2,882,360.83
DGM-BB128	-25,493.16	2,883,079.26
DGM-BB129	-30,999.88	2,881,084.88
DGM-BB130	29,703.66	2,882,880.99
DGM-BB131	-31,145.15	2,883,971.14
DGM-BB132	-31,477.03	2,885,760.00

Chief Director: Water Use

4.3 The following variables (constituents) must be analysed for surface water quality groundwater quality monitoring:

pH	
Electrical conductivity (EC)	mS/m
Total dissolved solids (TDS)	mg/ℓ
Alkalinity	mg/ℓ
Calcium (Ca)	mg/ℓ
Magnesium (Mg)	mg/ℓ
Sodium (Na)	mg/ℓ
Potassium (K)	mg/ℓ
Chloride (Cl)	mg/ℓ
Sulphate (SO_4)	mg/ℓ
Nitrate (N)	mg/ℓ
Fluoride (F)	mg/ℓ
Iron	mg/ℓ
Managanese	mg/ℓ
Ammonia (NH_3)	mg-N/ℓ
Phosphate (PO_4)	mg/ℓ
Silica (Si)	mg/ℓ

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

4.5 Monitoring points shall not be changed prior to notification to and written approval by the Chief Director.

4.6 An Aquatic Scientist approved by the Chief Director 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, annually, to reflect the status of the river upstream and downstream of the mining activities.

4.7 Toxicity testing to be performed on the monitoring boreholes from the tailings disposal dams on a quarterly basis in order to determine the risks to the receiving environment. The data gathered in the investigation must be reported annually during March of each year to the Chief Director. If any toxicity levels as specified is exceeded, the licensee must institute an investigation to determine the cause of toxicity.

4.8 Toxicity testing must be conducted quarterly on the wastewater stream from the tailings disposal dams when returned back to the mine for use as process water.

4.9 The licensee shall participate in any initiative such as Direct Estimation of Ecological Effect Potential (DEEEP) to determine the toxicity of complex tailings waste discharges. Both acute and chronic toxicity must be addressed and at least three taxonomic groups must be present when toxicity tests are performed.

4.10 Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards (SABS), in terms of the Standards Act, 1982 (Act 30 of 1982).

4.11 Samples from the relevant boreholes of the different sites, where the groundwater in the borehole is at an expected higher hydraulic pressure level than the hydraulic pressure level in the groundwater under the Sites, shall be considered as background monitoring.

Chief Director: Water Use

4.12 Monitoring boreholes shall be clearly marked and numbered, and must be equipped with lockable caps. The Department reserves the right to sample monitoring boreholes at any time and to analyse these samples, or to have samples taken and analysed.

4.13 The Licensee shall maintain the groundwater quality monitoring network to the satisfaction of the Chief Director, so that unobstructed sampling, as required in terms of this Licence, can be undertaken.

5. Water Resource Protection

5.1 The impact of the activities of the mine on the groundwater resource shall not exceed the following in-stream water quality objectives groundwater management objectives as stipulated in the water quality reserve for the area:

Table 5.1

Variables	RQO
pH	5.0 – 9.5
Total Dissolved Solids	462 mg/l
Sulphate (SO4)	152 mg/l
Chloride (Cl)	23 mg/l
Sodium (Na)	36 mg/l
Magnesium (Mg)	24 mg/l
Calcium (Ca)	45 mg/l
Toxics	<TWQO

6. Reporting

6.1 The licensee shall update the water balance annually and calculate the loads of waste emanating from the activities. The licensee shall determine the contribution of their activities to the mass balance for the water resource and must furthermore co-operate with other water users in the catchment to determine the mass balance for the water resource reserve compliance point.

6.2 The licensee shall submit the results of analysis for the monitoring requirements to the Chief Director on a quarterly basis under Reference number 16/2/7/B100/09.

7. Storm Water Management

7.1 Stormwater 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.

7.2 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 Olifants River

7.3 Storm-water shall be diverted from the Dirty Water Dam complex site and roads and shall be managed in such a manner as to disperse runoff and to prevent the concentrating of storm-water flow.

7.4 Where necessary works must be constructed to attenuate the velocity of any storm-water discharge and to protect the banks of the affected Olifants River.

7.5 Storm-water control works must be constructed, operated and maintained in a sustainable manner throughout the impacted area.

Chief Director: Water Use

7.6 Increased 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 Olifants River.

7.7 All storm-water that would naturally run across the pollution areas shall be diverted via channels and trapezoidal drains designed to contain the 1:50 year flood.

7.8 The polluted storm water system shall be designed and implemented to provide suitable routing and pumping capacity for contaminated storm water from the individual facilities to the respective storm water dams in accordance with the design specifications as contained in the Integrated Water Use License dated February 2006.

7.9 The polluted storm water captured in the storm water control dams shall be pumped to the process water treatment plant for reuse and recycling.

8. **Plant Areas and Conveyances**

8.1 Pollution caused by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all stream crossings.

8.2 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system. The system shall be maintained in a state of good repair and standby pumps must be provided.

8.3 Any hazardous substances must be handled according to the relevant legislation relating to the transport, storage and use of the substance.

8.4 Any access roads or temporary crossings must be:

8.4.1. non-erosive, structurally stable and shall not induce any flooding or safety hazard; and

8.4.2. be repaired immediately to prevent further damage.

9. **Access Control**

9.1 Strict access procedures must be followed in order to gain access to the property. Access to the Dirty Water Dam must be limited to authorised employees of the licensee and their Contractors only.

9.2 Notices prohibiting unauthorised persons from entering the areas referred to in condition 9.1, 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.

10. **Contingencies**

10.1 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 Chief Director upon request. Such malfunctions shall be tabulated under the following headings with a full explanation of all the contributory circumstances:

(a) operating errors;
(b) mechanical failures (including design, installation or maintenance);
(c) environmental factors (e.g. flood);
(d) loss of supply services (e.g. power failure); and
(e) other causes.

Chief Director: Water Use

10.2 The licensee must, within 24 hours, notify the Chief Director 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.

10.3 The licensee must, within 14 days, or a shorter period of time, as specified by the Chief Director, 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 Chief Director of measures taken to: –
correct the impacts resulting from the incident;
prevent the incident from causing any further impacts; and
prevent a recurrence of a similar incident.

11. **Auditing**

11.1 The licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Chief Director within one month of finalisation of the report, and shall be made available to an external auditor should the need arise.

11.2 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 annually of the date this license was issued and a report on the audit shall be submitted to the Chief Director within one month of finalisation of the report.

12. **Integrated Water and Waste Management**

12.1 The licensee must prepare an *Integrated Water and Waste Management Plan (IWWMP)*, which must together with the *Rehabilitation Strategy* and *Implementation Programme (RSIP)*, be submitted to the Chief Director for approval within one (1) year from the date of issuance of this licence.

12.2 The IWWMP and RSIP shall thereafter be updated and submitted to the Chief Director for approval, annually.

12.3 The licensee must, at least 180 days prior to the intended closure of any facility, or any portion thereof, notify the Chief Director of such intention and submit any final amendments to the IWWMP and RSIP as well as a final *Closure Plan*, for approval.

12.4 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.

Chief Director: Water Use

APPENDIX V

Section 21(j) of the Act: Removing of Water Found Underground

1. The licensee is authorised to remove a total volume of 2 092 000 (two million, nine hundreds and two thousands) cubic metres (m^3) per annum of underground water from Douglas opencast mine based on an average quantity of 8000 (eight thousand) cubic metres (m^3) per day, and dispose of the underground water into the Dirty Water Dam on the farm Vandyksdrift 18IS and re-use this water in the operations.

2. The disposal of water into the Dirty Water Dam shall take place at the following location:

Location	Latitude	Longitude
Dirty Water Dam	S26°03' 24.4"	E29°16' 45.5"

3. The quantity of the water authorised to be removed and disposed of into the dirty water dam in terms of this license may not be exceeded without prior authorisation by the Chief Director.

4. The quality of the water disposed into the Dirty water dam shall not exceed the quality as specified in the Table below:

Variable	Maximum concentration
pH	5.0 – 8.0
Electrical Conductivity as Ec in mS/m	400
Total dissolved solids as TDS	4000
Sulphate as SO_4	2500
Sodium as Na	100
Nitrate as No3	5
Potassium as K	50
Calcium as Ca	500
Magnesium as Mg	300
Manganese as Mn	10
Iron as Fe	5
Total Alkalinity	250
Aluminum as Al	2
Silika as Si	5

5. The licensee shall provide any water user whose water supply is impacted by the water use with potable water.

6. The quantity of water removed from underground must be metered and recorded on a daily basis.

7. The 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).

8. Self registering flow meters must be installed in the delivery lines at easily accessible positions near the dewatering points.

9. 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 years. Calibration certificates shall be available for inspection by the Chief Director or his/her representative upon request.

10. Calibration certificates in respect of the pumps must be submitted to the Chief Director after installation thereof and thereafter at intervals of two years.

11. The date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis. Monitoring shall be done on a monthly basis and the sample be taken from the

dirty water.

12. Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards, in terms of the Standards Act, 1982 (Act 30 of 1982).

13. The methods of analysis shall not be changed without prior notification to the licensee and written approval by the Chief Director or his/her delegated nominee.

14. The Chief Director must be informed of any incident that may lead to under-groundwater being disposed of contrary to the provisions of this license, by submitting a report containing the following information: -

14.1 nature of the incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc);

14.2 actions taken to rectify the situation and to prevent pollution or any other damage to the environment; and

14.3 measures to be taken to prevent re-occurrence of any similar incident.

15. The licensee shall follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the underground water removal system.

16. Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.

END OF LICENCE

Chief Director: Water Use

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) 326-4472/ (012) 326-2715

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

I, ***Trevor Balzer,*** in my capacity as Deputy Director-General: Special Projects in the Department of Water and Sanitation: and acting under authority of the powers sub- delegated to me by the Acting Director- General of Water and Sanitation, hereby authorizes the following water uses in respect of this licence.

SIGNED: _____

DATE: 19/07/2018

LICENCE NO: 06/B11F/GCIJ/7943
FILE NO: 27/2/2/B611/7/1

1. Licensee :	**South32 SA Coal Holdings (Pty) Limited: Vandyksdrift Central Dewatering**
Postal Address:	South32 SA Coal Holdings (Pty) Limited PO Box 61075 Marshalltown 2107

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 if it is necessary for the efficient continuation of an activity or for the safety of people, subject to the conditions as set out in Appendices I and IV

B 08181

3. Properties in respect of which this licence is issued

Table 1: Properties where water uses are exercised

Farm Name & No	Portion	Owner (Lessee)	Title Deed	Extent (Ha)
Kleinkopje 15 IS	RE	Anglo Operation (Pty) Ltd	T35745/1974	146.2285
Kleinkopje 15 IS	RE of Ptn 4	Ingwe Surface Holdings (Pty) Limited	T76581/1999	360.9797
Kleinkopje 15 IS	Ptn 6	Anglo Operation (Pty) Ltd	T35745/1974	342.6128
Kleinkopje 15 IS	RE of Ptn 8	Anglo Operation (Pty) Ltd	T35745/1974	403.2057
Kleinkopje 15 IS	Ptn 9	Anglo Operation (Pty) Ltd	T35745/1974	146.2285
Kleinkopje 15 IS	Ptn 11	Anglo Operation (Pty) Ltd	T27780/1977	89.9359
Kleinkopje 15 IS	Ptn 12	Anglo Operation (Pty) Ltd	T27780/1977	89.9359
Kleinkopje 15 IS	Ptn 13	Anglo Operation (Pty) Ltd	T27780/1977	89.9359
Kleinkopje 15 IS	Ptn 14	Anglo Operation (Pty) Ltd	T27780/1977	89.9359
Steenkoolspruit 18 IS	Ptn 2	Ingwe Surface Holdings (Pty) Limited	T76581/1999	917.0541
Steenkoolspruit 18 IS	Ptn 5	Ingwe Surface Holdings (Pty) Limited	T76581/1999	216.6084
Van Dyksdrift 19 IS	RE of Ptn 1	Ingwe Surface Holdings (Pty) Limited	T76546/1999	579.5417
Van Dyksdrift 19 IS	RE of Ptn 3	Ingwe Surface Holdings (Pty) Limited	T76548/1999	1494.0760
Van Dyksdrift 19 IS	Ptn 9	Ingwe Surface Holdings (Pty) Limited	T76547/1999	23.7749
Van Dyksdrift 19 IS	Ptn 10	Ingwe Surface Holdings (Pty) Limited	T76547/1999	44.5858
Vlaklaagte 21 IS	RE	Ingwe Surface Holdings (Pty) Limited	T76553/1999	1194.7279
Vlaklaagte 21 IS	2	Ingwe Surface Holdings (Pty) Limited	T76553/1999	582.3775
Vlaklaagte 21 IS	3	Ingwe Surface Holdings (Pty) Limited	T76553/1999	256.9582
Wolvekrans 17 IS	RE	Ingwe Surface Holdings (Pty) Limited	T76586/1999	1016.6296
Wolvekrans 17 IS	RE of Ptn 6	Ingwe Surface Holdings (Pty) Limited	T76586/1999	325.8345

4. Registered owner of the Properties

4.1 South323 SA Coal Holdings (Pty) Ltd and Anglo Operation (Pty) Ltd.

5. Licence and Review Period

5.1 This licence is valid for a period of twenty one (21) years from the date of issuance and it may be reviewed at interval of not more than five (5) years.

6. Definitions

"Any terms, words and expressions as defined in the National Water Act, 1998 (Act 36 of 1998) shall bear the same meaning when used in this licence."

"IWWMP" means South32 SA Coal Holding (Pty) Limited Water Use Licence Application for Vandyksdrift Central Dewatering compiled by Jaco-K Consulting dated August 2016.

"The Provincial Head" means the Head of Provincial Operation: Mpumalanga, Department of Water and Sanitation, Private Bag X 11259, MBOMBELA, 1200.

"Report" refers to the report entitled South32 SA Coal Holding (Pty) Limited Water Use Licence Application for Vandyksdrift Central Dewatering compiled by Jaco-K Consulting dated August 2016 as well as all other related documentations and communication (emails, letters, verbal, etc) related thereto.

7. Description of the activity

This licence authorises the activities related to Section 21 (c), (g), (i) and (j) in terms of the National Water Act No 36 of 1998 at South32 SA Coal Holdings (Pty) Limited: Vandyksdrift Central Dewatering is located at the properties listed in table 1.

The Vandyksdrift Central (VDDC) area falls within the footprint of historic underground mining operations known as Douglas Colliery. In 2007 an amendment of the Environmental Management Programme Report (EMPR) for the Douglas Colliery operations was approved to allow the opencast mining of the remaining 5, 4, 2 and 1-seam coal reserves (historic workings) (DMR Ref. No. OT 5/3/2/460). These workings are now earmarked for mining (remaining pillars, roof and floor extraction) via open pit methods and this forms part of the life of mine (LOM) asset for Wolvekrans Colliery. However, areas of 2 seam workings are now flooded with water. Dewatering is therefore needed to enable the open pit development. Water in the order of 30 million m^3 is currently stored in the underground workings. Including the expected recharge and ingress into the workings over the life of the project, the total volume of water to be dewatered is approximately 55 million m^3.

Water will be pumped from the boreholes accessing different underground compartments and will be transferred via the borehole connector pipelines to the respective closest water storage/transfer tanks. From there, the water will be transferred through the main connector pipelines to the Vleishaft dam and/or directly to the evaporation tanks that will be located at the evaporation sites. Some water will be pumped and stored in the Steenkoolspruit Pit void once the pit is mined out. A total of 57 boreholes will be drilled of which 16 are located within the underground compartments which were backfilled with coal slurry historically. A PVC casing will be installed from ground level to the bottom of the hole drilled into the seam floor. Of these 16 boreholes it is estimated, based on the piezocone testing that was carried out previously, that only nine are located at positions where slurry was located in the underground workings. All boreholes will be equipped with positive displacement pumps for the pumping of water from the workings and will be located in a typical precast concrete borehole pump house. The borehole pump capacities will vary between 30 and 108 m^3/h.

Electrical boreholes and surface pumps will be used and the borehole pump will require 293 KW per pump and the surface pump 351 KW. Electrical power will be supplied to the various points via an overhead 22 KV powerline. Existing electrical power currently present at the Vleishaft PCD will be used to power the electrical pumps that will power the pumps pumping the water from the Vleishaft PCD to the evaporator sites, to SKS and also to the MWRP. A transfer tank will be installed close to Pit 4 to join the new pipeline from the Vleishaft PCD to the current pipeline to the MWRP; this tank will have a capacity of 80 000 m^3. In total

approximately 38 km of pipelines will be constructed with nominal diameters ranging from 110 mm to 630 mm. In general all pipes will be buried high density poly ethylene (HDPE) pipes. Exceptions are where pipes will be above surface such as at pump stations, surface tanks and where pipes are laid on surface due to other practical reasons, e.g. such as in areas underlain with shallow rock, or where existing services need to be avoided. In the majority of the cases the pipelines will be installed along existing service, access and haul roads with few exceptions.

During the initial stages of the project the total volume abstracted from all the boreholes will vary between 16 Mℓ to 35 Mℓ per day with an average of 24 Mℓ per day. Once adequate dewatering is done and mining can commence the dewatering rate will reduce to 9 Mℓ/day.

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 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 must 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 month of the finalisation of the audit.

11. The Licensee must 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 3 (three) months of the date this licence is issued and a report on the audit shall be submitted to the Provincial Head within one 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 component person at intervals of not more than two years. Calibration certificates shall be available for inspection by the Regional Head or his/her representative upon request.

13. Any incident that causes or may cause water pollution shall be reported to the Provincial Head or his/her designated representative within 24 hours.

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 Responsible Authority.

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

Purpose	Capacity/ Volume (m^3, tonnes and/or m^3/annum)/Dimensions	Property Description	Co-ordinates
Drilling of a borehole within 500 m of a wetland.	N/A	Portion 3 of the Farm Van Dyksdrift 19 IS	26° 04' 15.179"S 29° 18' 46.847"E
Installation of borehole connector pipes within 500 m of a wetland.	N/A	Portion 3 of the Farm Van Dyksdrift 19 IS	**Start Point:** 26° 04' 15.179"S 29° 18' 46.847"E **End Point:** 26° 04' 24.337"S 29° 18' 55.724"E
Installation of main connector pipes within 500 m of wetlands.	31.5 km for all the pipelines	Portion 3 of the Farm Van Dyksdrift 19 IS	**Start Point PM11:** 26° 04' 37.002"S 29° 18' 9.518"E **End Point PM11:** 26° 04' 55.952"S 29° 18' 11.534"E **Start Point PM12:** 26° 04'53.105"S 29° 18' 11.83"E **End Point PM13:** 26° 04' 51.15"S 29° 18'

Purpose	Capacity/ Volume (m^3, tonnes and/or m^3/annum)/Dimensions	Property Description	Co-ordinates
			14.486"E
Boreholes within wetlands.	N/A	Portion 2 of the Farm Steenkoolspruit 18 IS	**BH1-A** 26° 03' 34.322"S 29° 17' 17.279"E **BH1-E** 26° 03' 40.406"S 29° 17' 19.453"E **BH1-F** 26° 03' 38.207"S 29° 17' 28.09"E **BH1-H** 26° 03' 44.212"S 29° 17' 36.186"E
Connector pipes within wetlands.	31.5 km for all the pipelines	Portion 2 of the Farm Steenkoolspruit 18 IS	Start and end coordinates below: **PM10 (Start)** 26° 4' 43.025"S 29° 16' 44.872"E **PM07 (End)** 26° 3' 34.434"S 29° 16' 52.838"E **PM05 (Start)** 26° 3' 22.856"S 29° 16' 45.145"E **PM08 (End)** 26° 3' 35.467"S 29° 16' 52.831"E **PM01 (Start)** 26° 1' 50.707"S 29° 18' 42.408"E **PM02 (End)**

Purpose	Capacity/ Volume (m^3, tonnes and/or m^3/annum)/Dimensions	Property Description	Co-ordinates
			26° 1' 50.722"S 29° 18' 40.406"E **PM11 (Start)** 26° 4' 37.002"S 29° 18' 9.518"E **PM12 (End)** 26° 4' 55.952"S 29° 18' 11.534"E
Main connector pipes within wetlands.	31.5 km for all the pipelines	Portion 2 of the Farm Steenkoolspruit 18 IS	**PM11 (start)** 26° 04' 37.002"S 29° 18' 9.518"E **PM12 (end)** 26° 04' 55.952"S 29° 18' 11.534"E **PM13 (start)** 26° 04' 53.105"S 29° 18' 11.83"E **PM14 (end)** 26° 04' 51.15"S 29° 18' 14.486"E
Activities within 500 m from wetlands.	N/A	Portion 3 of the Farm Van Dyksdrift 19 IS	**Haul road** 26° 05' 09.535"S 29° 16' 46.733"E **Haul road** 26° 03' 45.403"S 29° 18' 17.737"E **Haul road** 26° 03' 53.759"S 29° 18' 24.656"E **Service road**

Purpose	Capacity/ Volume (m^3, tonnes and/or m^3/annum)/Dimensions	Property Description	Co-ordinates
			26° 04' 04.483"S 29° 17' 56.616"E **Service road** 26° 04' 39.223"S 29° 19' 6.985"E
Activities within 500 m from wetlands. **Tank H**	341	Portion 3 of the Farm Van Dyksdrift 19 IS	26° 05' 7.537"S 29° 18' 10.012"E
Activities within 500 m from wetlands. **Tank I**	96	Portion 3 of the Farm Van Dyksdrift 19 IS	26° 04' 28.553"S 29° 18' 57.632"E
Activities within 500 m from wetlands. **Tank J**	163	Portion 3 of the Farm Van Dyksdrift 19 IS	26° 04' 33.028"S 29° 18' 05.18"E
Activities within 500 m from wetlands.	N/A	Portion 2 of the Farm Steenkoolspruit 18 IS	**Haul road** 26° 4' 23.279"S 29° 16' 51.1"E **Haul road** 26° 3' 46.984"S 29° 16' 50.426"E **Service road** 26° 3' 48.406"S 29° 17' 6.896" **Service road** 26° 4' 46.675"S 29° 16' 45.696"E
Activities within 500 m from wetlands. **Tank T01**	1 162	Portion 2 of the Farm Steenkoolspruit 18 IS Portion 4 of the Farm Kleinkopje 15 IS	26° 03' 23.9"S 29° 16' 56.348"E
Activities within 500 m from	453	Portion 2 of the Farm	26° 04'

Purpose	Capacity/ Volume (m^3, tonnes and/or m^3/annum)/Dimensions	Property Description	Co-ordinates
wetlands. **Tank A**		Steenkoolspruit 18 IS	30.954"S 29° 17' 01.799"E
Activities within 500 m from wetlands. **Tank F**	1 162	Portion 2 of the Farm Steenkoolspruit 18 IS	26° 04' 44.058"S 29° 16' 47.96"E

1.2 The Licensee must carry out and complete all the activities listed under condition 1.1 according to the following:

1.2.1. Reports submitted to the Department or the Responsible Authority, specifically:

1.2.1.1. Geo-hydrological investigation for the storage of water in the Steenkoolspruit pits compiled by Jones & Wagener Consulting Engineers dated 2016;
1.2.1.2. Baseline Specialist Studies for the Van Dyks Drift Colliery, Water Management Project Soils, Land Use and Land Capability by ESS Earth Science Solutions dated October 2013;
1.2.1.3. Floral, Faunal, Wetland and Aquatic Assessment As Part of the Environmental Assessment and Authorisation Process for the Proposed Vandyksdrift Central (VDDC) Project, Development At The Wolvekrans Colliery, Mpumalanga Province by Scientific Aquatic Services CC dated June 2013;
1.2.1.4. Geohydrological Impact Assessment as specialist input to the Environmental Management Programme for BHP Billiton Energy Coal South Africa (Pty) Ltd (BECSA)'s Vandyksdrift Central (VDDC) Project by Groundwater Complete, dated September 2013;
1.2.1.5. Hydropedological study for The Vandyksdrift Central (VDDC) Project compiled by Geo-Pollution Technologies dated July 2017;
1.2.1.6. Hydropedological assessment as part of the environmental authorisation process for the proposed Vandyksdrift Central Dewatering Project by Scientific Aquatic Services dated July 2017;
1.2.1.7. Surface Water Impact Study for the BHP Billiton Energy Coal South Africa (Pty) Ltd (BECSA) Vandyksdrift Central (VDDC) Project by SRK dated November 2013; and
1.2.1.8. Public Participation by Jaco K Consulting dated 2015-2016.

1.2.2. Conditions of this licence; and the Environmental Authorisation to be issued, and any other written direction issued by the Provincial Head in relation to this licence.

1.3 No activity must take place within the 1:100 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 (employees, sub-consultants, contractors etc.) associated with the undertaking of these activities and the licensee 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 under condition 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 the 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 impeding and/or diverting flow of watercourses as well as alterations to watercourse(s) on the property must be submitted to the Provincial Head for 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 sediment, controls and measures;

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

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

2.1.4. Revised master plan must be submitted to the Provincial Head before the commencement of the activity incorporating the following: the 1:100 year floodline, riparian zones, buffer zones, all affected water courses, wetlands, borrow-pits, bridges and stormwater infrastructure.

2.2 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. These plan(s) and drawing(s) must indicate the watercourse(s) including wetland boundaries and layout and structure location(s) of all infrastructure impeding and/or diverting flow of watercourses as well as alterations to watercourse(s) on the property.

2.3 An Environmental Management Plan (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.

3. PROTECTIVE MEASURES

3.1 Storm Water Management

3.1.1 Stormwater 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 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 the stormwater enters the river systems, sediment and debris trapping, as well as energy dissipation control structures must be put in place.

3.1.1.3. Stormwater must be diverted from activities such as construction works, mining areas, and roads, and must be managed in such a manner as to disperse runoff and to prevent the concentration of stormwater flow;

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

3.1.1.5. 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;

3.1.1.6. Drainage next to the construction works and mining area 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;

3.1.1.7. Erosion down verges shall be minimised by including frequent discharge points with energy dissipaters before discharging stormwater into the adjacent grasslands;

3.1.1.8. Infiltration down the verges of the roads rather than surface runoff must be encouraged;

3.2 Structures, Construction Area and Materials

3.2.1. Necessary erosion prevention measures must be employed to ensure the sustainability of all structures

3.2.2. The height, width and length of structures must be limited to the minimum dimension necessary to accomplish the intended function.

3.2.3. Structures must not be damaged by floods exceeding the magnitude of floods occurring on average once in every 100 years.

3.2.4. Structures must be non-erosive, structurally stable and must not induce any flooding or safety hazard.

3.2.5. 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.

3.2.6. The construction camp must be located outside the extent of the watercourse(s) and must be recovered and removed one (1) month after construction has been completed.

3.2.7. During construction erosion berms shall be installed to prevent gully formation, according to the slope.

3.2.8. All areas affected by construction shall be rehabilitated upon completion of the construction phase of the development. Areas shall be reseeded with indigenous vegetation species as required, and the use of seed nets is recommended to prevent erosion.

3.2.9. During construction phase no vehicles shall be allowed to indiscriminately drive through any wetland areas.

3.3 Water Quality

3.3.1 The Licensee shall sample the water quality weekly (during construction) and monthly (during operation) for the indicated variables in Table 3 at monitoring points both upstream and downstream of the activities and report to the Provincial Head within thirty (30) days after the results of each sampling event is received:

Table 3: Water quality parameters relevant for sampling.

Variable	Limit
Temperature (°C)	<10% variation
Ph	6.0 – 8.5
Electrical conductivity (EC) (mS/m)	<50
Suspended solids (SS) (mg/ℓ)	<25
Dissolved oxygen (mg/ℓ)	≥6
Turbidity (NTU)	<50

The variables may be amended on discretion of the Responsible Authority. Only an accredited (SANS 17025) laboratory to be used for analysis.

3.3.2 Monitoring must continue for three (3) years after the cessation of the activities listed in condition 1.1.

3.3.3 Monitoring must be undertaken as set out in section 5.

3.3.4 Activities that lead to elevated levels of turbidity, sedimentation and chemical changes of any watercourse(s) must be prevented, reduced, or otherwise remediated. Activities must be scheduled to take place during dry seasons when flows are lowest where reasonably possible. If this is not possible and if management measures have not been provided the Licensee must submit such to the Provincial Head for a written approval before these activities commence. Natural in stream hydrology is to be used to determine which months constitute the low flow months.

3.3.5 The Licensee must ensure that the quality of the water to downstream water users does not decrease because of the of the water use activities listed under condition 1.1

3.3.6 A qualified person must be appointed to assess the quality of water both upstream and downstream of the activities prior to commencement of construction.

3.3.7 Pollution of and disposal/spillage of any material into the watercourse must be prevented, reduced, or otherwise remediated through proper operation, maintenance and effective protective measures.

3.3.8 The possibility of spillages must be catered for in the design of the roads.

3.3.9 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 off at an appropriate licensed site, with the necessary agreement from the owner of such a site.

3.3.10 Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance.

3.3.11 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system. The system must be maintained in a state of good repair and standby pumps must be provided.

3.3.12 The Licensee must submit a plan to the Provincial Head within sixty (60) days after issuance of this licence on the strategic placement of bio-swale, bio-filters, silt, litter and hydrocarbon (oil) traps to minimise the risk of pollutants entering the natural drainage system of the area.

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 Without compromising the safety of structures, bridge designs shall aim towards the construction of as few as possible in-stream pillars, where the pillars that do occur in-stream shall have rounded edges to aid in the prevention of the build-up of debris.

3.4.6 The development may not impede natural drainage lines.

3.4.7 Diversion structures may not restrict river flows by reducing the overall river width or obstructing river flow.

3.4.8 Bank filling must restore the channel shape and bed level to pre-construction condition.

3.4.9 Where flow in watercourse is permanent, the trench must be staged across part of the channel to maintain flows. Flows must not be stopped.

3.5 Riparian and Instream 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 licence.

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 minimize noise 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.

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 maintained. 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 paved.

3.5.19 Run-off from paved surfaces shall be slowed down by the strategic placement of berms.

3.5.20 Adequate measures must be implemented to prevent in-stream siltation during the construction phase.

3.5.21 Unless authorised by this licence, access roads must not encroach into the extent of the watercourse(s).

3.6 Biota

3.6.1 The Licensee must take all reasonable steps to allow movement of aquatic species, including migratory species.

3.6.2 All reasonable steps must be taken not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.

3.6.3 The current level of diversity of biotopes and communities of animals, plants and microorganisms must be maintained.

4. REHABILITATION AND MANAGEMENT

4.1 The Licensee must embark on a systematic long-term rehabilitation programme to restore the watercourse(s) to environmentally acceptable and sustainable conditions after completion of the activities, which must include, but not be limited to the rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem.

4.2 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.

4.3 An active campaign for controlling invasive species must be implemented within disturbed zones and its bordering areas (seed depots) to ensure that it does not become a conduit for the propagation and spread of invasive exotic plants.

4.4 Rehabilitation must be concurrent with construction.

4.5 Topsoil must be stripped and redistributed. A height restriction on stockpiles must be followed in line with the EMP conditions in order to preserve the soil's microbiological and nutrient characteristics. Topsoil must be placed immediately after stripping, if possible.

4.6 Compacted and disturbed areas must be shaped to natural forms and to follow the original contour. Cut and fill slopes and other disturbed areas must adhere to rehabilitation designs as per EMP conditions to ensure the areas are protected, vegetated, ripped and scarified parallel with the contour.

4.7 The Provincial Head must sign a release form indicating that rehabilitation was done satisfactory according to specifications as per this license.

4.8 A photographic record must be kept as follows and submitted with reports as set out in section 5:

4.8.1 Dated photographs of all the sites to be impacted before construction commences;
4.8.2 Dated photographs of all the sites during construction on a monthly basis; and
4.8.3 Dated photographs of all the sites after completion of construction, seasonally.

4.9 A Wetland Offset Plan must be compiled by a wetland specialist as committed under the Douglas Colliery water use licence (No. 24084535) issued in October 2008 and submitted to the Provincial Head for written approval.

5. MONITORING AND REPORTING

5.1 The Provincial Head must be notified in writing one week prior to commencement of the licensed activity(ies) and again upon completion of the activity(ies).

5.2 A comprehensive and appropriate environmental assessment and monitoring programme (including bio-monitoring) to determine the impact, change, deterioration and improvement of the aquatic system associated with the activities listed under condition 1.1 (Appendix III) as well as compliance to these water use licence conditions must be developed and submitted to the Provincial Head for a written approval before commencement and must subsequently be implemented as directed. The monitoring programme shall be compared against the Recommended Ecological Class (REC) of D for the road construction.

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 and responsible scientist must be retained by the Licensee who must give effect to various licence conditions and to ensure compliance thereof pertaining to all activities of impeding and/or diverting flow of watercourses as well as alterations to watercourses on the property (ies) as set out in condition 1.1.

5.5 The Licensee must conduct annual internal audit on compliance with the conditions of this licence. A report on the audit must be submitted to the Provincial Head within one month of the finalization of the audit. A qualified independent auditor must undertake this audit.

5.6 The audit reports must include but are not limited to:

5.6.1. Reporting in respect of the monitoring programme referred to in condition 5.2;

5.6.2. A record of implementation of all mitigation measures including a record of corrective actions; and

5.6.3. 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.

5.7 The Licensee must apply in writing to the Provincial Head for alternative reporting arrangements for which written approval must be provided.

5.8 The Environmental Compliance Officer (ECO) must in addition to monitoring compliance with the conditions of the EMP, monitor for the duration of its establishment compliance with the conditions of this water use licence.

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 the Act.

7.2 If surface and/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.

7.3 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.

7.4 The Licensee shall keep an incident report and complaints register, which must be made available to any external auditors and the Department.

8. MONITORING

8.1 Surface water quality

8.1.1. The Licensee shall submit within one month of the date of the issuance of the licence, a surface water quality monitoring programme, with the co-ordinates and the criteria used in the selection of the water monitoring points.

8.1.2. The location of additional monitoring points, which may from time to time be specified by the Provincial Head, shall be communicated in writing to the Licensee and this communication shall be regarded as part of the licence.

8.1.3. Monitoring for surface water quality shall only be carried out at the monitoring points as indicated in Table 4.

Table 4: Surface Water Monitoring Points

Name	Latitude (S)	Longitude (E)	Description	Frequency
V01	26° 06' 02.70"	29° 19' 10.80"	Upstream of Wolvekrans Colliery in Olifants River	Monthly
V40	26° 05' 50.58"	29° 17' 18.54"	In Olifants River downstream of weir	Monthly
V16	26° 05' 12.00"	29° 16' 37.14"	In Olifants River downstream of PSS dump	Monthly
V31	26° 03' 46.50"	29° 15' 10.70"	In Olifants River before confluence with Steenkoolspruit	Monthly
V30	26° 03' 40.70"	29° 15' 03.80"	In Olifants River after confluence with Steenkoolspruit	Monthly
W02	26° 00' 26.90"	29° 15' 14.70"	In Olifants River at the Wolvekrans Weir	Monthly
W10	26° 00' 44.40"	29° 17' 27.40"	In Olifants River at the R 544 bridge, downstream point	Monthly
W21	26° 01' 37.40"	29° 18' 40.90"	Upstream in tributary east of Pit 4	Monthly
W22	26° 01' 57.20"	29° 18' 41.30"	Downstream in tributary east of Pit 4	Monthly
USVShaft	26° 03' 37.70"	29° 17' 10.60"	Vleishaft PCD	Monthly
ATTB2	26° 03' 49.50"	29° 17' 36.96"	Upstream point in Vleishaft tributary	Monthly
VL Pan	26° 02' 08.03"	29° 19' 53.18"	Pan south of Vlaklaagte	Monthly

9. BUDGETARY PROVISIONS

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

9.2 The Provincial Head may at any stage of the process request proof of budgetary provisions for rehabilitation and closure of project.

10. SITE SPECIFIC CONDITIONS

The following mitigation strategies for borehole development must be implemented:

10.1 Hydrocarbon spills should be managed according to the spill procedure. Any contaminated soil will be collected into non-permeable bags and disposed of at an approved landfill site.

10.2 For future monitoring programmes, impact assessments and rehabilitation, the depth of water strikes must be recorded during drilling.

10.3 The static groundwater level will be monitored in boreholes that intersected water after completion and before rehabilitation for future monitoring, impact assessment and rehabilitation purposes.

10.4 If any drill hole meets an artesian flow, it will be permanently sealed from top to bottom to prevent surface discharge.

10.5 Any completed hole that is not required for groundwater monitoring, will be sealed to prevent groundwater contamination.

10.6 Monitoring must be on-going.

10.7 Discharging treated dewatering water back to same catchment to be investigated.

11. GN 704 EXEMPTION

11.1 Boreholes located inside a water course / wetland area (Regulation 4(a) and 4(b) of GN 704 of National Water Act);

APPENDIX III

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

1. CONSTRUCTION AND OPERATION

1.1 The Licensee shall carry out and complete all the activities, including the construction and operation of the facilities indicated in Table 5, according to the Report and according to the final plans submitted with the Integrated Water Use Licence Application as approved by the Provincial Head.

Table 5: Geographical positions of all the waste and waste water containment facilities

Facility/ Activity	Property	Capacity of the facility (m^3)	Volume per annum (m^3/a)	Coordinates
Storing of removed water from underground workings before being pumped to the Vleishaft PCD. **Tank G**	Portion 3 of the Farm Van Dyksdrift 19 IS	915	5 700	26° 05' 42.47" 29° 17' 34.63"
Storing of removed water from underground workings before being pumped to the Vleishaft PCD. **Tank H**	Portion 3 of the Farm Van Dyksdrift 19 IS	341	3 800	26° 05' 7.54" 29° 18' 10.01"
Storing of removed water from underground workings before being pumped to the Vleishaft PCD. **Tank I**	Portion 3 of the Farm Van Dyksdrift 19 IS	96	3 800	26° 04' 28.55" 29° 18' 57.63"
Storing of removed water from underground workings before being pumped to the Vleishaft PCD. **Tank J**	Portion 3 of the Farm Van Dyksdrift 19 IS	163	5 700	26° 04' 33.03" 29° 18' 05.18"
Storing of removed water from underground workings before	Portion 2 of the Farm Steenkoolspruit 18 IS	453	32 000	26° 04' 30.95" 29° 17' 01.80"

Facility/ Activity	Property	Capacity of the facility (m^3)	Volume per annum (m^3/a)	Coordinates
being pumped to the Vleishaft PCD. **Tank A**				
Storing of removed water from underground workings before being pumped to the Vleishaft PCD. **Tank D**	Portion 2 of the Farm Steenkoolspruit 18 IS	1 424	8 550	26° 04' 12.75" 29° 16' 50.88"
Storing of removed water from underground workings before being pumped to the Vleishaft PCD. **Tank E**	Portion 2 of the Farm Steenkoolspruit 18 IS	98	2 850	26° 04' 13.72" 29° 16' 13.49"
Storing of removed water from underground workings before being pumped to the Vleishaft PCD. **Tank F**	Portion 2 of the Farm Steenkoolspruit 18 IS	1 162	6 650	26° 04' 44.06" 29° 16' 47.96"
Storing of removed water from underground workings before being pumped to the Vleishaft PCD. **Tank T01**	Portion 4 of the Farm Kleinkopje 15 IS	1 162	64 000	26° 03' 23.9" 29° 16' 56.35"
Transfer tank used as part of the network to pump the water from Vleishaft PCD to MWRP. **Tank RH06**	RE of the Farm Wolvekrans 17 IS	80 000	10 000	26° 01' 49.67" 29° 18' 20.44"
Disposal of water removed from the old underground workings in the Steenkoolspruit mined out opencast pit.	Portion 4 of the Farm Kleinkopje 15 IS Portion 9 of the Farm Kleinkopje 15 IS Portion 14 of the Farm	N/A	Average of (10 000 m^3/day, 300 000 m^3/month 1 200 000 m^3/year), maximum of 10 000 m^3/day	**OC02:** 26° 02' 15.605" 29° 16' 11.795" **OC03:** 26° 02' 5.82" 29° 16' 44.072" **OC05:** 26° 02' 44.57" 29° 16' 8.288" **OC06:**

Facility/ Activity	Property	Capacity of the facility (m^3)	Volume per annum (m^3/a)	Coordinates
	Kleinkopje 15 IS Portion 2 of the Farm Steenkoolspruit 18 IS			26° 02' 26.372" 29° 16' 44.98" **OC05:** 26° 02' 44.57" 29° 16' 8.288" **OC06:** 26° 02' 26.372" 29° 16' 44.98" **OC07:** 26° 02' 52.354" 29° 16' 7.774" **OC08:** 26° 02' 54.899" 29° 16' 29.669"
Dust suppression Suppression of dust on roads, water abstracted from Vleishaft PCD	Portion 2 of the Farm Steenkoolspruit 18 IS; Portion 3 of the Farm Van Dyksdrift 19 IS; Portion 10 of the Farm Van Dyksdrift 19 IS; Portion 4 of the Farm Kleinkopje 15 IS; Portion 14 of the Farm Kleinkopje 15 IS; Portion 9 of the Farm Kleinkopje 15 IS; RE of the Farm Wolvekrans 17 IS	N/A	292 000 m^3/year).	Dust suppression on all haul roads and access roads
Pollution Control Dam. Disposal and storage of affected storm water and water pumped from the pit to the dam. Also the disposal and storage of water pumped form the old underground workings	Portion 2 of the Farm Steenkoolspruit 18 IS	313 000 m^3	19 236 230 m^3/year.	26° 03' 18.55" 29° 16' 50.35" 26° 03' 35.30" 29° 16' 43.56" 26° 03' 36.34" 29° 16' 53.94" 26° 03' 35.73" 29° 17' 08.16" 26° 03' 25.80" 29° 16' 58.56"

1.2 The construction listed in Table 5 must be carried out under the supervision of a professional Civil Engineer, registered under the Engineering Profession of South Africa Act, 1990 (Act 114 of 1990), as approved by the designer.

1.3 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/B611/12/1, inform the Provincial Head thereof. This shall be accompanied by a signature of approval from the designer referred in Condition 1.2 that the construction was done according to the design plans referred to in the Report.

1.4 The Licensee must ensure that the disposal of the waste water and the operation and maintenance of the system are done according to the provisions in the Report.

1.5 The Licensee shall as well submit a set of as-built drawings to the Provincial Head after the completion of the waste facilities listed in Table 5.

1.6 The waste facilities listed in Table 5 shall be operated and maintained to have a minimum freeboard of 0.8 metres above full supply level and all other water systems related thereto shall be operated in such a manner that it is at all times capable of handling the 1:50 year flood-event on top of its mean operating level.

1.7 The Licensee shall use acknowledged methods for sampling and the date, time and sampler must be indicated for each sample.

2. QUALITY OF WATER CONTAINING WASTE TO BE DISPOSED

2.1 The quality of water containing waste to be disposed of into the dams shall be of qualities as set out in Table 6.

Table 6: Quality of water containing waste to be disposed into waste water facility

Parameter	Water Quality limits For Waste Water containment Facilities
pH	6.61-7.78
Total Suspended Solids (mg/l)	66
Alkalinity	77
Aluminium in mg/l	5.54
Chloride in mg/l	12.1
Iron in mg/l	13.8
Sodium in mg/l	1707
Potassium in mg/l	20.4
Sulphate in mg/l	3174
Total dissolved solids in mg/l	4212
Calcium in mg/l	575
Magnesium in mg/l	363
Manganese in mg/l	2.65

3. MONITORING

3.1 The Licensee shall monitor on monthly basis the water resources at groundwater monitoring points to determine the impact of the facility and other mining activities on the water quality by taking samples at the monitoring points as set out in Table 7:

Table 7: Groundwater monitoring points

Sampling Location	Description	Longitude (S)	Latitude	Frequency
UB 113	Borehole into VDD Central UG	26° 04' 57.78"	29° 18' 28.20"	Monthly
UB 111	Borehole into VDD Central UG	26° 04' 42.12"	29° 16' 58.62"	Monthly
UB 110	Borehole into VDD Central UG	26° 04' 14.28"	29° 17' 55.50"	Monthly
UB 72	Borehole into VDD Central UG	26° 03' 47.10"	29° 17' 49.20"	Monthly
SB 21	Borehole into shallow aquifer east of SKS	26° 03' 14.94"	29° 16' 26.16"	Monthly
BB 125	Berm borehole between SKS and Olifants River	26° 01' 41.16"	29° 15' 57.12"	Monthly
BB 126	Berm borehole between SKS and Olifants River	26° 02' 19.08"	29° 16' 02.04"	Monthly
BB 127	Berm borehole between SKS and Olifants River	26° 03' 08.28"	29° 15' 46.26"	Monthly
BB 128	Berm borehole between SKS and Olifants River	26° 03' 30.00"	29° 15' 15.18"	Monthly
UB 88	Borehole into NH UG	26° 02' 03.12"	29° 17' 24.00"	Monthly
BB 60	Berm borehole between NH future pit and tributary east of Pit 4	26° 01' 53.34"	29° 18' 27.84"	Monthly
SB 65	Borehole into shallow aquifer at western section of Vlaklaagte pit	26° 01' 04.20"	29° 18' 43.62"	Monthly
BB 15	Berm borehole at western section of Vlaklaagte pit.	26° 01' 04.56"	29° 18' 49.56"	Monthly
SKS15-BH1F	Holes in the buffer area between SKS and the Olifants River	26° 02' 01.59"	29° 16' 04.09"	Monthly
SKS15-BH1W	Holes in the buffer area between SKS and the Olifants River	26° 02' 01.76"	29° 16' 04.07"	Monthly
SKS15-BH2F	Holes in the buffer area between SKS and the Olifants River	26° 03' 12.84"	29° 15' 52.31"	Monthly
SKS15-BH2W	Holes in the buffer area between SKS and the Olifants River	26° 03' 12.94"	29° 15' 52.18"	Monthly

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 Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards (SABS), in terms of the Standards Act, 1982 (Act 30 of 1982).

3.5 The methods of analysis shall not be changed without prior notification to and written approval by the Minister.

3.6 Proper ground and surface water monitoring network should 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.

4. REPORTING

4.1 The Licensee shall update the water balance annually and calculate the loads of waste emanating from the activities. The Licensee shall determine the contribution of their activities to the mass balance for the water resource and must furthermore co-operate with other water users in the catchment to determine the mass balance for the water resource reserve compliance point.

4.2 The Licensee shall submit the results of analysis for the monitoring requirements to the Provincial Head on a quarterly basis under the reference number 27/2/2/B611/7/1.

5. STORMWATER MANAGEMENT

5.1 Stormwater 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 stormwater does not lead to bank instability and excessive levels of silt entering the stream.

5.3 Stormwater shall be diverted from the mine complex site and roads and shall be managed in such a manner as to disperse runoff and concentrating the storm-water flow.

5.4 Where necessary works must be constructed to attenuate the velocity of any storm-water discharge and to protect the banks of the affected watercourses.

5.5 Stormwater control works must be constructed, operated and maintained in a sustainable manner throughout the impacted area.

5.6 All stormwater that would naturally run across the pollution areas shall be diverted via channels and trapezoidal drains designed to contain the 1:50 year flood.

5.7 Polluted stormwater captured in the stormwater control dams shall be pumped to the process water treatment plant for reuse and recycling.

6. PLANT AREAS AND CONVEYANCES

6.1 Pollution caused by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all stream crossings.

6.2 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back

into the system. The system shall be maintained in a state of good repair and standby pumps must be provided.

6.3 Any hazardous substances must be handled according to the relevant legislation relating to the transport, storage and use of the substance.

6.4 Any access roads or temporary crossings must be:

6.4.1. non-erosive, structurally stable and shall not induce any flooding or safety hazard and
6.4.2. be repaired immediately to prevent further damage.

7. ACCESS CONTROL

7.1 Strict access procedures must be followed in order to gain access to the property. Access to the waste water containment facilities must be limited to authorised employees of the Licensee and their Contractors only.

7.2 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. AUDITING

9.1 The Licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Provincial Head within one (1) month of finalisation of the report, and shall be made available to an external auditor should the need arise.

9.2 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 six (6) months of the date this licence was issued and a report on the audit shall be submitted to the Provincial Head within one month of finalisation of the report.

10. INTEGRATED WATER AND WASTE MANAGEMENT

10.1 The Licensee must update an Integrated Water and Waste Management Plan (IWWMP), which must together with the updated Rehabilitation Strategy and Implementation Programme (RSIP), be submitted to the Provincial Head for approval within one (1) year from the date of issuance of this licence.

10.2 The IWWMP and RSIP shall thereafter be updated and submitted to the Provincial Head for approval, annually.

10.3 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.

10.4 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.

11. GENERAL CONDITIONS

11.1 Water samples must be taken from all the monitoring boreholes by using approved sampling techniques and adhering to recognized sampling procedures. Samples should be analyzed for both organic as well as inorganic pollutants, as mining activity often lead to hydrocarbon spills in the form of diesel and oil. At least the water quality parameters on Table 4 should be analyzed.

11.2 These should be recorded on a data sheet. It is proposed that the data should be entered into an appropriate computer database and reported to the Department.

11.3 The Licensee should remove all coal from the opencast and as little as possible should be left.

11.4 The final backfilled opencast topography should be engineered such that runoff is directed way from the opencast areas.

11.5 The Licensee must ensure in advance that alternative water supply for external water users is provided to these users should groundwater resources be impacted.

11.6 Pollution control dam must be designed in such a manner that any spillage can be contained and reclaimed without any impact on the surrounding environment. A plan must be in place to stop overflowing in a dam in case of rainy seasons.

11.7 The Licensee must conduct routine monitoring of available boreholes on site on a monthly basis and the water quality on a quarterly basis.

12. SITE SPECIFIC CONDITIONS

12.1 The proposed mine activities and the associated effluent storage facilities should be conducted away from Olifants River and adjacent streams;

12.2 Berms should be constructed around the opencast pits to minimise the flow of any surface or flood water into the mine workings. The berms must be constructed to allow free drainage away from the pits;

12.3 Drains and cutoff trenches (stormwater management system) around the proposed opencast should be developed before mining commence to prevent clean runoff water from entering the mine workings and maintained through operational phase;

12.4 A geophysical survey must be conducted in an effort to optimise drilling positions for additional boreholes and to delineate the structural geological features which could act as preferential groundwater flow pathways;

12.5 Additional groundwater monitoring boreholes (shallow and deep) which must be incorporated into the existing monitoring programme must be sited and drilled to a depth that penetrates the whole aquifer system for both shallow and deep groundwater;

12.6 The monitoring network must follow the exponential spread, i.e. very dense around the opencast with a progressively less dense spread away from the opencast and the waste disposal facilities;

12.7 The boreholes to be sited and drilled on shallow aquifer must also be used as an early detection system;

12.8 The shallow aquifer zone must be cased and sealed off in the deeper boreholes to minimise the risk of cross contamination;

12.9 The boreholes must be sited, drilled and constructed such that they do not unnecessarily penetrate impermeable layers that could possibly create conduits for the migration of leachate pollution to groundwater;

12.10 A series of interception boreholes should be installed between the mining area and the adjacent streams or Olifants River to minimise the water quality impacts on the surface resources;

12.11 Groundwater monitoring boreholes must be properly sealed at the surface to prevent surface pollution into the groundwater system;

12.12 The groundwater management plan in terms of quality and quantity must be developed and implemented and ensure that there are monitoring boreholes up-gradient of the proposed opencast during operational, decommissioning and closure phases;

12.13 Groundwater monitoring programme defining the frequency of measurements, parameters to be monitored; database and reporting must be developed and implemented;

12.14 A numerical flow and transport model should continue to be updated, calibrated and used to adequately assess the monitoring results and possible impacts upon detection;

12.15 The monitoring data must be analysed by a hydrogeologist to establish quality and quantity status on an on-going basis and recommendation adjustment to abstraction rate or daily pump cycle if required;

12.16 During dewatering the groundwater levels in the monitoring boreholes should not be depleted to a level where boreholes start drying up;

12.17 A water balance for the entire mining operations should be estimated on a regular basis in order to obtain a background indication of seasonal changes in the area;

12.18 The groundwater quality around the opencast must be monitored on a quarterly basis by using approved groundwater sampling techniques and analysed by an accredited laboratory. Undue long-term trends in the quality of the water will indicate mitigation measures to be implemented;

12.19 The kinetic test and leachate test must be conducted on coal discard and slurry material to understand the long-term buffering or acid generating potential during operation;

12.20 The acid generating materials must be separated from non-acid materials as characterised by geochemical sampling and analyses during mining;

12.21 The materials that have potential to generate acid must always be balanced by the materials that have neutralising capacity;

12.22 During the operational phase ensure local aquifers are not artificially recharged by the seepage emanating from the mine workings, leaking tanks or pipes or any hazardous waste storage facilities (e.g. oil and diesel spills);

12.23 A groundwater remediation plan must be developed to ensure that the corrective measures are implemented. This plan must be submitted to DWS for approval;

12.24 This action plan should inter alia identify the resources of potential groundwater contamination, the potential impacts must be qualified and their contribution factored into the remedial strategy of groundwater;

12.25 The dewatering volumes must be recorded and groundwater levels be monitored especially during dewatering to avoid exploitation of groundwater within the area;

12.26 The leachate detection system, seepage interception trenches and pipelines must be monitored on a regular basis for the occurrence of leakages;

12.27 The groundwater recharge into the mine workings and Vleishaft pollution control dam should be managed and the water level in the storage facilities be monitored and kept to a minimum level to avoid decant of poor quality mine groundwater into the surface resources and ensure surface streams do not act as secondary sources of contamination during operational, decommission and closure phases;

12.28 During operational, decommissioning and closure phases ensure mine water does not decant into the surface. In the event mine water start to decant into the surface, the contaminated water must be treated to an acceptable quality standard before discharged to an authorised resource;

12.29 The water quality and quantity of the anticipated decant should be predicted through numerical transport model in order to establish the type of treatment system required to be incorporated in the closure planning for the site;

12.30 The Vleishaft pollution control dam must be operated and maintained effectively to prevent any spillage of polluted water migrating into groundwater system during floods and possible pollution by untreated effluent. Ensures no leaks occur along the pipeline or at any storage facilities;

12.31 The backfill materials that have potential to generate acid must always be balanced by the materials that have neutralising capacity. Backfill materials must not generate a hazardous leachate;

12.32 The final backfilled opencast topography should be engineered such that runoff is directed away from the opencast areas and should be capped effectively to minimise ponding;

12.33 Monitoring must be on-going; and

12.34 Discharging treated underground mine water back to the same catchment must be investigated.

13. GN 704 EXEMPTION

13.1 Disposal of dirty water from the old underground workings into the Steenkoolspruit mined out opencast workings (Regulation 4(c) of GN 704 of National Water Act).

APPENDIX 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. This licence authorises the removal, discharging or disposing of a maximum volume of 35 Mℓ per day with an average of 24 Mℓ per day of water found underground for the efficient continuation of an activity as indicated in Table 8:

Table 8: Water use activities

Description	Borehole name	Average Volume (m^3/a)	Property	Co-ordinates
Dewatering from underground workings compartment A for continuation of mining (the average volume is for all listed borehole combined for compartment A)	BH 2-A	3 381 053	Portion 3 of the Farm Van Dyksdrift 19 IS	26°0 4' 18.595" 29° 17' 54.168"
	BH 2-B			26° 04' 15.179" 29° 18' 46.847"
	BH 2-C			26° 04' 12.853" 29° 17' 51.756"
	BH 3-A			26° 04' 38.136" 29° 18' 39.092"
	BH 3-B			26° 04' 27.53" 29° 18' 57.384"
	BH 4-AB			26° 04' 27.055" 29° 17' 46.482"
	BH 5-B			26° 04' 36.469" 29° 17' 7.127"
	BH 5-EB			26° 04' 49.184" 29° 17' 8.138"
	BH 5-FB			26° 04' 47.896" 29° 17' 9.658"
	BH 5-GB			26° 05' 15.922" 29° 17' 15.594"
	BH 6-AB			26° 04' 48.684" 29° 17' 24.932"
	BH 6-B			26° 04' 48.227" 29° 17' 42.652"
	BH 6-C			26° 04' 46.535" 29° 17' 51.13"
	BH 6-DB			26° 04' 48.479" 29° 17' 54.51"
	BH 7-A			26° 04' 46.175" 29° 19' 13.523"
	BH 7-B			26° 04' 57.734" 29° 18' 28.782"
	BH 7-C			26° 05' 5.438" 29° 18' 2.83"
	BH 8-A			26° 05' 33.104" 29° 18' 4.19"
	BH 8-D			26° 05' 25.39" 29° 17' 21.53"
	BH 8-EB			26° 05' 35.459" 29° 17' 48.116"
	BH 10-A			26° 05' 30.311"

Description	Borehole name	Average Volume (m^3/a)	Property	Co-ordinates
				29° 18' 10.771"
	BH 10-B			26° 05' 48.084" 29° 18' 18.522"
Dewatering from underground workings compartment B for continuation of mining (the average volume is for all listed borehole combined for compartment B)	BH 8-B	307 368.4	Portion 10 of the Farm Van Dyksdrift 19 IS	26° 5' 18.802" 29° 18' 14.666"
	BH 8-C			26° 5' 14.69" 29° 18' 16.945"
Dewatering from underground workings compartment C for continuation of mining (the average volume is for all listed borehole combined for compartment C)	BH NS-A	768 421.1	Portion 4 of the Farm Kleinkopje 15 IS	26° 03' 24.664" 29° 16' 56.496"
	BH NS-B			26° 03' 25.592" 29° 17' 19.403"
	BH NS-C			26° 03' 25.661" 29° 17' 25.037"
	BH NS-D			26° 03' 16.445" 29° 17' 41.132"
	BH NS-E			26° 03' 12.024" 29° 17' 42.13"
Dewatering from underground workings compartment D for continuation of mining (the average volume is for all listed borehole combined for compartment D)	BH 1-A	4 303 158	Portion 2 of the Farm Steenkoolspruit 18 IS	26° 03' 34.322" 29° 17' 17.279"
	BH 1-B			26° 03' 33.084" 29° 17' 24.846"
	BH 1-C			26° 03' 33.512" 29° 17' 26.401"
	BH 1-D			26° 03' 29.707" 29° 17' 35.693"
	BH 1-E			26° 03' 40.406" 29° 17' 19.453"
	BH 1-F			26° 03' 38.207" 29° 17' 28.09"
	BH 1-G			26° 03' 49.795" 29° 17' 5.798"
	BH 1-H			26° 03' 44.212" 29° 17' 36.186"
	BH 1-I			26° 04' 0.527" 29° 16' 56.453"
	BH 1-J			26° 04' 4.336" 29° 16' 52.874"
	BH 1-K			26° 04' 7.489" 29° 16' 49.588"
	BH 1-L			26° 04' 11.86" 29° 16' 47.107"
	BH 5-A			26° 04' 21.983" 29° 17' 3.782"
	BH 5-C			26° 04' 40.649" 29° 16' 56.417"
	BH 5-D			26° 04' 41.455" 29° 16' 53.472"
	BH 12-A			26° 03' 42.7" 29° 16' 38.374"

Description	Borehole name	Average Volume (m^3/a)	Property	Co-ordinates
	BH 12-B			26° 03' 43.952" 29° 16' 33.355"
	BH 12-C			26° 03' 46.404" 29° 16' 31.213"
	BH 12-D			26° 03' 51.181" 29° 16' 27.606"
	BH 12-E			26° 04' 3.353" 29° 16' 47.849"
	BH 13-A			26° 03' 56.059" 29° 16' 24.899"
	BH 13-B			26° 04' 10.488" 29° 16' 15.622"
	BH 13-C			26° 04' 13.717" 29° 16' 40.022"
	BH 14-A			26° 04' 14.714" 29° 16' 46.394"
	BH 14-B			26° 04' 14.495" 29° 16' 6.949"
	BH 14-C			26° 04' 17.688" 29° 16' 9.527"
	BH 14-D			26° 04' 16.698" 29° 16' 58.552"
	BH 14-E			26° 04' 43.608" 29° 16' 39.763"

2. The quantity of water authorised to be removed and disposed off into the pollution control dam in terms of this license may not be exceeded without prior authorisation by the Minister.

3. The Licensee shall provide any water user whose water supply is impacted by the water use with potable water.

4. The quantity of water removed from underground must be metered and recorded on a daily basis.

5. 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).

6. Self-registering flow meters must be installed in the delivery lines at easily accessible positions near the dewatering points.

7. 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.

8. Calibration certificates in respect of the pumps must be submitted to the Provincial Head after installation thereof and thereafter at intervals of two years.

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

10. Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards, in terms of the Standards Act, 1982 (Act 30 of 1982).
11. 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.

12. The Provincial Head must be informed of any incident that may lead to groundwater being disposed of contrary to the provisions of this licence, by submitting a report containing the following information: -

    12.1 Nature of the incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc)
    12.2 Actions taken to rectify the situation and to prevent pollution or any other damage to the environment and
    12.3 Measures to be taken to prevent re-occurrence of any similar incident.

13. The Licensee shall follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the groundwater removal system.

14. Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.

[END OF LICENCE]