

## 10 WASTE MANAGEMENT LICENSE

### 10.1 Introduction

On the 6<sup>th</sup> of March 2009 the President assented to the National Environmental Management: Waste Act, 2008. This new Act came into effect on 1 July 2009.

Schedule 1 of the Act outlines waste management activities that are deemed to have or are likely to have a detrimental effect on the environment and for which a waste management license is required.

The schedule is divided into 2 categories where activities are equivalent to those either requiring a Basic Assessment (BA) or a full Environmental Impact Assessment (EIA).

Under the NEMWA, an applicant applies for a Waste Management License (WML) where the required basic assessment or full EIA process is followed in addition to any additional waste studies that may be requested by the Competent Authority (CA). This process is run as a single integrated process whereby a single application is made.

The activities associated with the establishment of the new wet ash disposal facility and associated infrastructure at Hendrina Power Station pertain more specifically to Category B activities.

### 10.2 Type of Application and Facility:

Type Of Activity	Mark
Recycling and/or recovery Facility	
Storage and or transfer Facility	
Treatment facility	
Disposal facility	X

### 10.3 Activities applied for in terms of the National Environmental Management: Waste Act

Due to the fact that the original application has been submitted while GN R 718 was still applicable and has subsequently been replaced by GN R 921 (While the EIA was in process), the original application and activities has been updated to also reflect the activities under the new legislation.

Under GN R. 718 the following:

<b>INDICATE THE NO. &amp; DATE OF THE RELEVANT NOTICE:</b>	<b>ACTIVITY NUMBERS (AS LISTED IN THE WASTE MANAGEMENT ACTIVITY LIST) :</b>	<b>DESCRIBE EACH LISTED ACTIVITY (and not as per the wording of the relevant Government Notice):</b>
No. R. 718 July 2009 Category A	19	The expansion of facilities of or changes to existing facilities for any process or activity, which requires an amendment of an existing permit or license. The expansion of the ADF will require changes to the Atmospheric Emissions licence and will require a new WULA.
No. R. 718 July 2009 Category B	1	The storage including the temporary storage of hazardous waste in lagoons will apply to the ash that will be stored at the ADF.
	9	According to NEMWA the Ash is classified as Type 3 hazardous waste and will be disposed of at the ADF.
	11	The construction of facilities for activities listed in Category B of this schedule (not in isolation to associated activity). The ADF and associated infrastructure will be constructed before the disposal processes can take place.

Under GN R. 921 the following:

<b>INDICATE THE NO. &amp; DATE OF THE RELEVANT NOTICE:</b>	<b>ACTIVITY NUMBERS (AS LISTED IN THE WASTE MANAGEMENT ACTIVITY LIST) :</b>	<b>DESCRIBE EACH LISTED ACTIVITY (and not as per the wording of the relevant Government Notice):</b>
No. R. 921 November 2013 Category B	1	The storage of hazardous waste in lagoons
	7	The disposal of any quantities of hazardous waste to land  <i>According to NEMWA Ash is classified as Type 3 hazardous waste.</i>
	10	The construction of a facility for a waste management activity listed in Category B of this schedule (not in isolation to associated waste management activity)  <i>The ADF and associated infrastructure would have to be constructed before the disposal processes can take place.</i>

## 10.4 Site Identification, Location and Land use

The following Surveyor-general Cadastral Code 21 digit site (erf/farm/portion) reference number is applicable to the proposed new Wet ash disposal facility at the Hendrina Power Station:

SG_CODE	FARM_NO	PORTION	FARM NAME
<b>Alternative E</b>			
TOIS0000000015400008	154	00008	BOSCHMANSKOP 154 IS

### 10.4.1 Size of Site and Classification

<b>Size of facility for a waste management activity</b>	209 ha
<b>Area where the waste management activity takes place</b>	Hendrina Power Station
<b>Classification of facility in terms of climatic water balance</b>	Please Refer to Appendix C (Conceptual Design)
<b>Classification of Facility in terms of the type and the quantity of waste received (using Minimum Requirements)</b>	Ash Disposal Facility (Wet) (H:H)
<b>Classification of Facility in terms of the type and the quantity of waste received (using DEA Waste Classification)</b>	Ash Disposal Facility (Wet) (G:L:B <sup>+</sup> )

- **Waste Disposal Risk Rating in Accordance with Government Gazette Notice 634 of 2013 – 23 August 2013 (Waste Classification and Management Regulations - Current)**

The ash sample was also classified in terms of the DEA waste classification and management regulations for disposal purposes (DEA, 2013).

The number of potentially hazardous substances in the new classification system has been significantly reduced from that listed in the Minimum Requirements of 1998 and brought in line with the potentially hazardous substances being used in other parts of the world to classify waste for disposal purposes. However, if a generator is aware of a hazardous substance other than those listed by the DEA, they are obliged to indicate and analyse for this.

GHT Consulting have compiled a report wherein they classified the ash from Hendrina Power Station according to the Waste Disposal Risk Rating outlined in Government Gazette Notice 433 of 2011. The content and properties of the ash with regards to permeability and pollutant potential to be expected to leach from the ash, were also determined.

In order to do a waste classification of the ash, the following methodology was employed, in line with the DEA requirements:

- Sampling and drilling of auger holes to obtain a representative sample distribution,

- XRD (X-ray diffraction) scan to obtain mineralogical composition,
- XRF (X-ray fluorescence) scan to determine scan to determine the chemical composition,
- Sieve analyses to obtain the particle size distribution and geohydrological parameters such as permeability,
- Leach test whereby the ash is mixed with water to determine the chemical components expected to be leached from the ash.
- Acid-Base Accounting (ABA)

According to the Waste Disposal Risk Rating, the four ash samples taken at Hendrina wet ash disposal facility were all classified as a Type 3 waste. Type 3 wastes are low risk waste with a low potential for contaminant release and requires some level of control and ongoing management to protect health and the environment (such as a G:L:B+ liner).

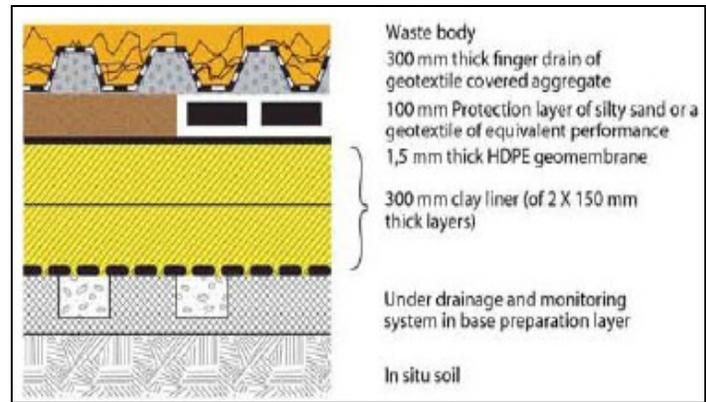
For the detailed description of all the tests undertaken during the DEA Ash Classification process please refer to the GHT Ash Classification Report included in **Appendix R**.

Following the promulgation of the DEA waste classification and management regulations (DEA, 2013), a further analysis and classification were also performed by Jones & Wagener 2014.

- **Results**

In terms of the DEA waste classification and management regulations (DEA, 2013), the Hendrina Ash was classified as Type 3 waste which is a low risk waste. The DEA Norms and Standards for disposal of waste to landfill prescribe the Class C liner.

Class C landfills are very similar in design to the G:L:B+ landfills (**Figure 10.2**) as prescribed in the DWAF Minimum Requirements, with the major difference being the HDPE layer added to the barrier system (**Figure 10.2**) which may be considered more appropriate.



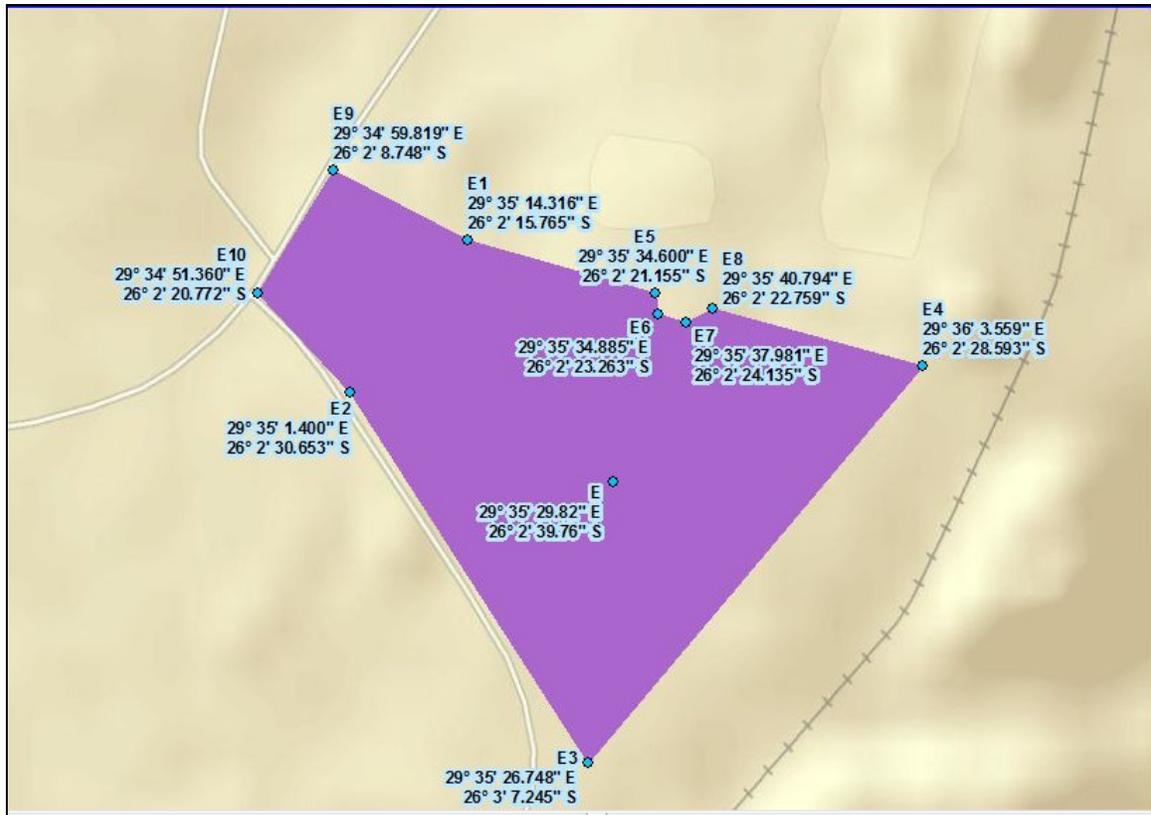
**Figure 10.2:** Proposed Class C landfill barrier system (DEA, 2013).

**10.4.2 Current land-use where the site is situated:**

Industrial	X	Recreation	
Agriculture	X	Commercial	
Residential		Mining & quarrying	
Forestry		Wilderness areas	
Wetlands	X	Nature area	
Open spaces			

**10.4.3 Geographical coordinates of all external corner points of the site:**

**Figure 10.3** shows the extent of the site that will be utilised for the proposed wet ash disposal facility. **Table 10.1** provides the relevant co-ordinates.



**Figure 10.3:** The proposed site for the proposed new wet ash disposal facility at Hendrina Power Station

**Table 10.1:** Co-ordinates of the external corner points of the proposed site

Number of corner	Latitude			Longitude		
	°	'	"	°	'	"
E1	29°	35'	14.316"	26°	02'	15.765"
E2	29°	35'	26.748"	26°	02'	30.653"
E3	29°	35'	26.748"	26°	03'	07.245"
E4	29°	36'	03.559"	26°	02'	28.593"
E5	29°	35'	34.600"	26°	02'	21.155"
E6	29°	35'	34.885"	26°	02'	23.263"
E7	29°	35'	37.981"	26°	02'	24.135"
E8	29°	35'	40.794"	26°	02'	22.759"
E9	29°	34'	59.819"	26°	02'	08.748"
E10	29°	34'	51.360"	26°	02'	20.772"

#### 10.4.4 Operational times

Period	From	Until
Weekdays	Due to the fact that the facility is supporting a continuous power generation the operation will be continuous.	
Saturdays		
Sunday		
Public holidays		

## 10.5 Process/Activity Description

The Hendrina Power Station, in the Mpumalanga Province currently uses a wet ashing system for the disposal of ash. Hendrina Power Station currently has five wet ash disposal facilities, of which two (Ash dam 3 and 5) are currently in operation, the other three (Ash dam 1, 2 & 4) are not in use for the following reasons:

- Having reached full capacity (Dam 1)
- Stability issues (Dam 2)
- Temporary decommissioning (Dam 4).

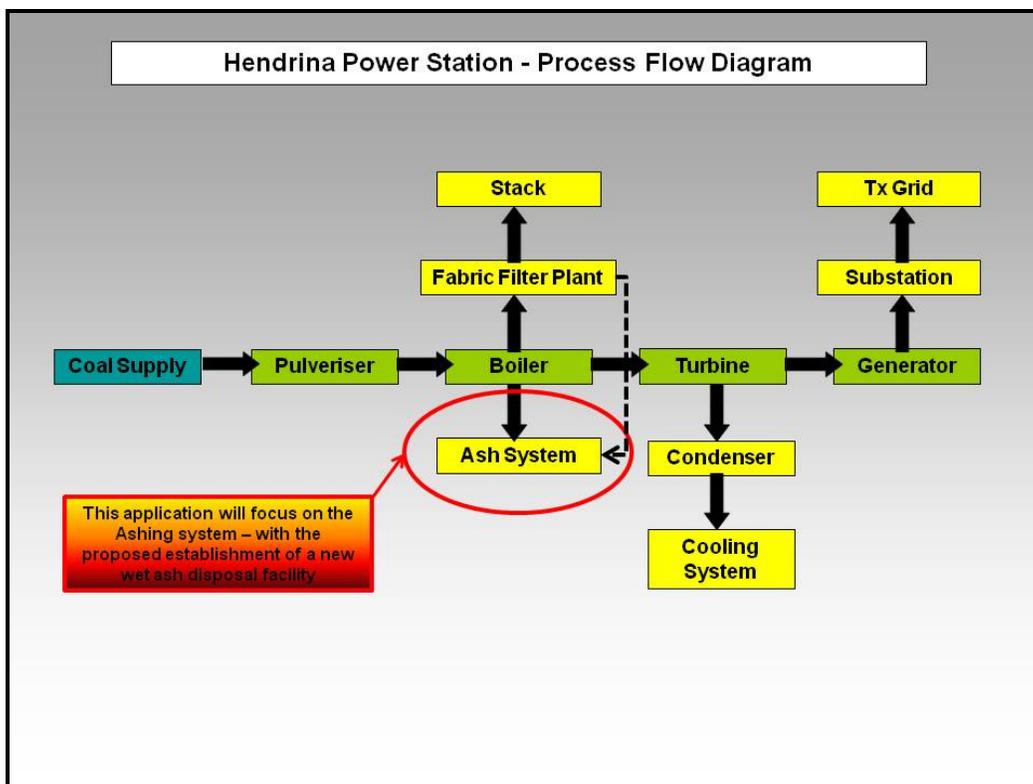
At the current rate of disposal on Dams 3 and 5, the rate-of-rise will exceed 4m/year in 2018, which is not acceptable in terms of structural stability. The Hendrina Power Station is anticipated to ash approximately 64.2 million m<sup>3</sup> until the end of its life span which is currently estimated to be 2035.

It has been determined, through studies, that the existing ashing facilities are not capable of providing sufficient ash disposal capacity for this amount of ash for the full life of the station. The existing facilities (Ash Dams 3 and 5) allow for the disposal of 20.9 million m<sup>3</sup>. Therefore, Hendrina Power Station proposes to extend its ashing facilities and associated infrastructure with the following development specifications:

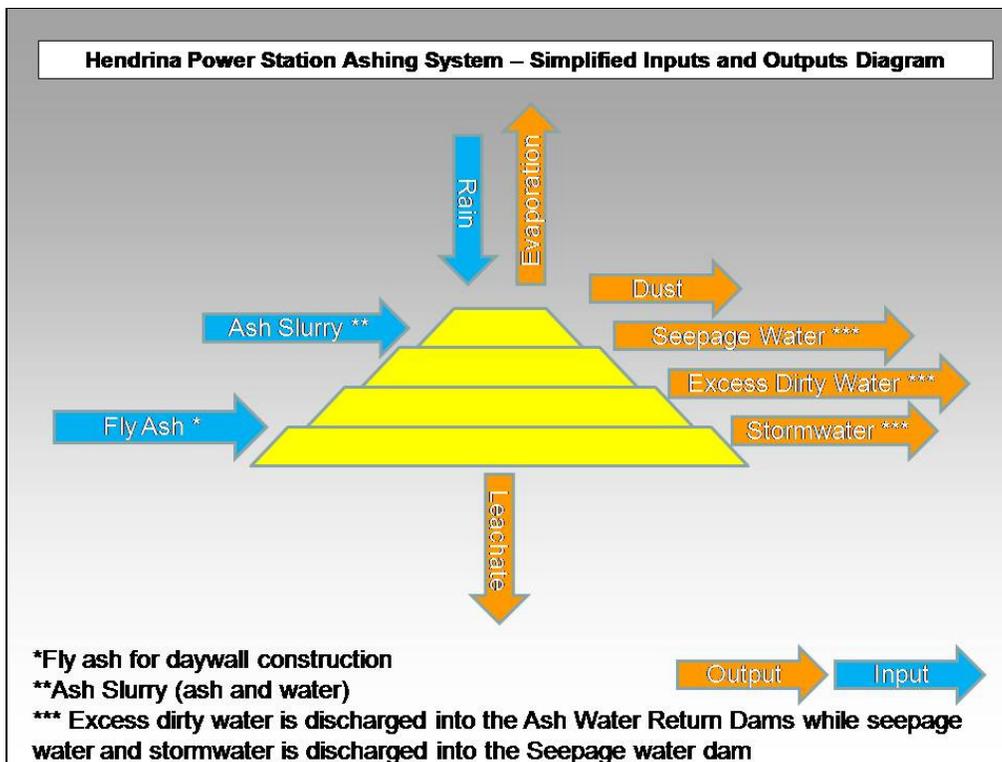
- Additional airspace of 43.3 million m<sup>3</sup>
- Wet ash disposal facility ground footprint of 139 ha
- Ground footprint of associated infrastructure such as Ash Water Return Dams of 70 ha pump stations, drainage channels, access roads, switchgear room, ash lines, etc

The need for this extension is to allow the Hendrina Power Station to continue ashing in an environmentally responsible way for the duration of the operating life of the Power Station. The need for the extension is related to the deteriorating coal quality, higher load factors, the installation of the Fabric filter plant (to meet requirements in terms of the National Environmental Management: Air Quality Act (Act 39 of 2004)) and the need to extend station life, among others.

The following diagram (**Figure 10.4**) provides an overview of the activities on site and where this project fits within the process. **Figure 10.5** also provides a simplified input and outputs diagram.



**Figure 10.4:** An overview of the activities on site and where this project fits within the process



**Figure 10.5:** Simplified inputs and outputs diagram of the wet ash disposal facility indicated by the yellow blocks.

## 10.6 Waste Quantities

The following estimated quantities of waste are expected to be managed daily at the proposed new wet ash disposal facility at Hendrina Power Station.

Hazardous waste	Non hazardous waste	Total waste handled (tonnes per day)
Ash	-	Approximately 6 590.56 m <sup>3</sup> per day. This translates to approximately 15 158.28 tons per day (utilising a specific gravity for fly ash of 2.3)

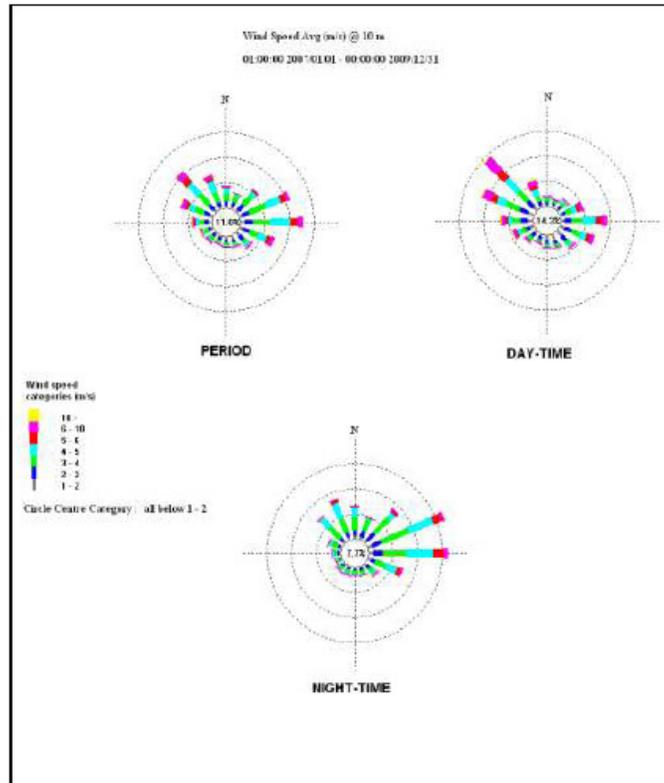
### 10.6.1 Recovery, Reuse, Recycling, treatment and disposal quantities:

Types of Waste	Main Source (Name Of Company)	Quantities		On-Site Recovery Reuse Recycling Treatment Or Disposal	Offsite Recovery Reuse Recycling Treatment Or Disposal	Offsite Disposal
		Tons/ Month	M <sup>3</sup> /Month	Method & Location	Method Location And Contractor Details	
Ash	Hendrina Power Station	-	Approximately 200 462.96m <sup>3</sup>	Wet Disposal at the ADF	-	-

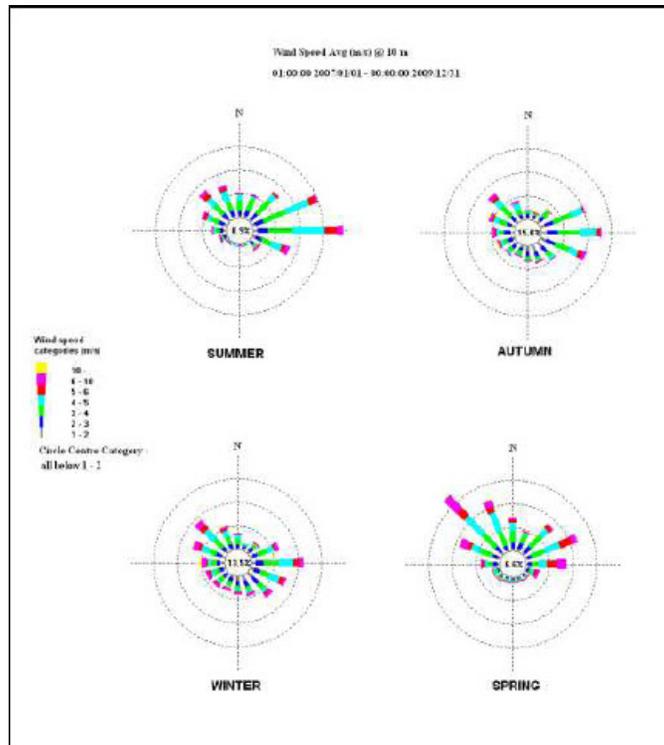
## 10.7 General

### 10.7.1 Prevailing wind direction

**Figure 10.6** provides period wind roses for the proposed Hendrina wet ash disposal facility site, with **Figure 10.7** including the seasonal wind roses for the same site. The predominant wind direction is north-westerly and easterly with a >10% frequency of occurrence. Winds from the south-westerly sectors are relatively infrequent occurring <5% of the total period. Calm conditions (wind speeds < 1 m/s) occur for 11% of the time.



**Figure 10.6:** Period, day-time and night-time wind roses for Hendrina Wet ash disposal facility (1 January 2007 to 31 December 2009)



**Figure 10.7:** Seasonal wind roses for Hendrina Wet ash disposal facility (1 January 2007 to 31 December 2009)

A frequent north-westerly flow dominates day-time conditions with ~15% frequency of occurrence. During the night-time an increase in easterly and east-north-easterly flow is observed with a decrease in north-westerly air flow. During summer months, winds from the east become more frequent, due to the strengthened influence of the tropical easterlies and the increasing frequency of occurrence of ridging anticyclones off the east coast. There is an increase in the frequency of calm periods (i.e. wind speeds <1 m/s) during the winter months of 13.5%.

Wind speeds in general range between 0 m/s and 14 m/s, with an average of 3.4 m/s.

### 10.7.2 The size of population to be served by the facility

	Mark with "X"	Comment
0-499		The power from the power station will feed into the National grid – National SA. The ash disposal facility will contain ash from the power generation.
500-9,999		
10,000-199,999		
200,000 upwards		

### 10.7.3 The geological formations underlying the site:

Granite  
Shale  
Sandstone

<b>X</b>
<b>X</b>

Quartzite  
Dolomite  
Dolerite

<b>X</b>
<b>X</b>

## 10.8 Competence to Operate Site

It is imperative that the holder of the waste licence is a fit person in terms of section 59 of the NEMWA (59 of 2008).

### 10.8.1 Legal compliance

	YES/NO	DETAILS
Has the applicant ever been found guilty or issued with a non compliance notice in terms of any national environmental management legislation?	<b>NO</b>	These details have specific reference to Hendrina Power Station
Has the applicant's licence in terms of the Waste Act 2008 ever been revoked?	<b>NO</b>	
Has the applicant ever been issued with a non compliance notice or letter in terms of any South African Law?	<b>NO</b>	

**10.8.2 Technical competence**

<b>What technical skills are required to operate the site?</b>	Eskom contracted an external Pr. Eng to oversee that the wet ash disposal facilities are in good condition and operating as required. Roshcon is also contracted by Eskom to operate the wet ash disposal facilities and supervise all the activities taking place at the wet ash disposal facilities
<b>How will the applicant ensure and maintain technical competency in the operation of the site?</b>	

The details of Eskom's experience and qualifications along with that of relevant employees are summarised as shown in the table below:

<b>Name</b>	<b>Position</b>	<b>Duties And Responsibilities</b>	<b>Qualifications And Experience</b>
Lettie Malaza	A&IRM Manager	Ensures compliance to dust regulations- checking of limits	B.Tech Occupational Health; MBL 22 years' experience
Lethabo Mathobela	Acting Chemical Services Manager	Manages the Ground water monitoring contract, samples and analyses the surface monitoring	N.Diploma Analytical Chemistry B.Tech Quality 15 years' experience
Obed Shongwe	Project Manager	Maintenance & Management	N. Dip. Mech. 26 years' experience
Swelihle Zondi	Senior Mechanical Technician	Maintenance & Supervision	B. Tech. Mechanical 7 years' experience
Nico Barnard	Senior Engineer (PR Eng, BEng (Hons) Civil)	Engineering and dam management	B.Eng (Hons) Civil 30 years' experience
Albert Mabeba	Civil Engineer	Engineering	B.Eng (Civil) 4,5 years' experience
Werner Botha	Ash Plant Engineer	Engineering	B.Eng (Mech) 1 year experience

**10.9 Landfill Parameters****10.9.1 The method of disposal of waste:**

Land-building



Land-filling



Both



**10.9.2 The dimensions of the disposal site in metres**

	At commencement	After rehabilitation
<b>Height/Depth</b>	Seeing that the facility will be of irregular shape, simple measurements will be meaningless. The detailed concept designs are included in Appendix C – The Conceptual Design report, indicating all the dimensions.	
<b>Length</b>		
<b>Breadth</b>		

**10.9.3 The total volume available for the disposal of waste on the site:**

Volume Available	Mark with "X"	Source of information (Determined by surveyor/ Estimated)
Up to 99		
100-34 999		
35 000- 3,5 million		
>3,5 million	X	Hendrina Power Station is anticipated to ash approximately 64.2 million m <sup>3</sup> until the end of its life span in 2035 (approximately 24 years) – 20.9 million m <sup>3</sup> of this can be accommodated in the existing wet ash disposal facility facilities, therefore an additional 43.3 million m <sup>3</sup> storage space is required, which is the subject of this report.

**10.9.4 The total volume already used for waste disposal: 20.9 million m<sup>3</sup>**

- (a) Will the waste body be covered daily  
 (b) Is sufficient cover material available  
 (c) Will waste be compacted daily

YES	NO
	NO

**10.9.5 The Salvage method**

At source	
Recycling installation	
Formal salvaging	
Contractor	
No salvaging planned	X

**10.9.6 Fatal Flaws for the site:**

**Table 10.2** indicates which of the following apply to the facility for a waste management activity:

**Table 10.2:** Fatal Flaws for Site E

	<b>YES</b>	<b>NO</b>	<b>Comment</b>
Within a 3000m radius of the end of an airport landing strip		<b>X</b>	
Within the 1 in 50 year flood line of any watercourse	<b>X</b>		See Surface Water and Aquatic Specialist Study in <b>Appendix M</b> for more information
Within an unstable area(fault zone, seismic zone, dolomitic area, sinkholes)		<b>X</b>	
Within the drainage area or within 5 km of water source	<b>X</b>		See Surface Water and Aquatic Specialist Study in <b>Appendix M</b> for more information
Within an area with shallow and/or visible water table	<b>X</b>		
Within an area adjacent to or above an aquifer	<b>X</b>		See the Ash Classification and Ground Water Studies attached in <b>Appendices R and N</b> respectively
Within an area with shallow bedrock and limited available cover material		<b>X</b>	
Within 100 m of the source of surface water	<b>X</b>		See Surface Water and Aquatic Specialist Study in <b>Appendix M</b> for more information
Within 1km from the wetland	<b>X</b>		
Indicate the distance to the boundary of the nearest residential area	<b>1 000 metres</b>		
Indicate the distance to the boundary of the industrial area	<b>100 metres</b>		

### **10.9.7      *Wettest six months of the year***

The wettest six months of the year for the Hendrina Power Station is considered to be the period between November and April.

The following additional information can be provided for the 7 wettest years for which rainfall data was available.

	<b>Total rainfall for 6 months</b>	<b>Total A-pan evaporation for 6 months</b>
For the 1 <sup>st</sup> wettest year	940.5	No evaporation data available from the weather monitoring stations closest to the proposed ADF
For the 2 <sup>nd</sup> wettest year	797	
For the 3 <sup>rd</sup> wettest year	712.8	
For the 4 <sup>th</sup> wettest year	594.6	
For the 5 <sup>th</sup> wettest year	531.5	
For the 6 <sup>th</sup> wettest year	498.5	
For the 7 <sup>th</sup> wettest year	440.5	

**10.9.8 Location and depth of ground water monitoring boreholes:**

**Table 10.3** provides the locality details for the groundwater monitoring boreholes at Hendrina Power Station. Please take note of the following Key:

A = Ashing Area  
 B = Boreholes  
 C = Coal Stockyard  
 D = Dams  
 P = Power Station Area

In terms of the information provided below the depth indicated here is the sample depth and not the actual depth.

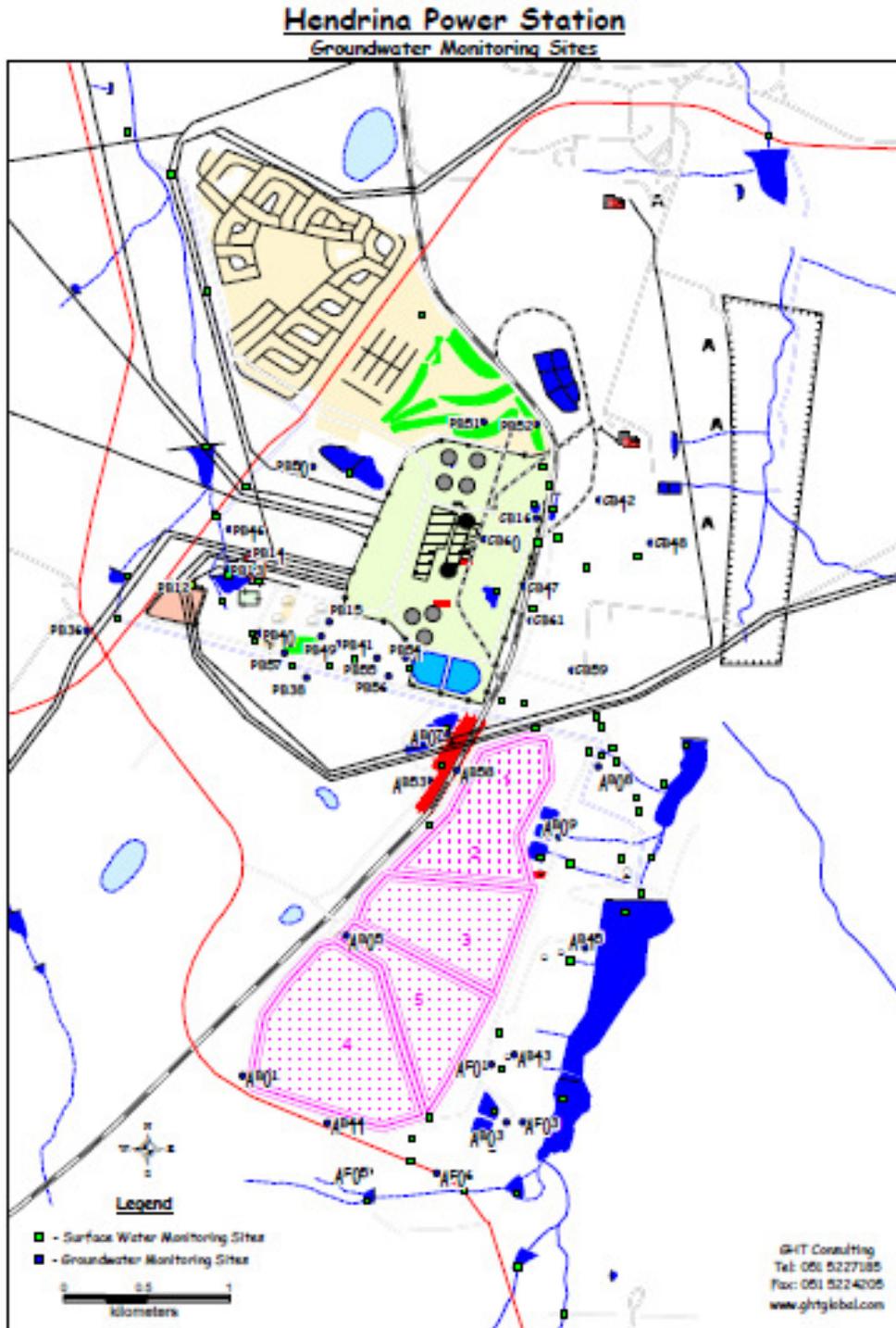
**Figure 10.8** Provides a map of the boreholes on site

**Table 10.3:** Hendrina Power Station – Groundwater Monitoring Boreholes

Codes of boreholes	Borehole locality	Depth (m)	Latitude	Longitude
AB01	SW corner of ash dam 4	26	-26.06410	29.58910
AB03	Below ash water dams E of ash dam 4	25	-26.06690	29.60500
AB05	W entrance to new ash dam 4	9	-26.05540	29.59520
AB06 (DB06)	-	-	-	-
AB07	Final ash water return dams N of ash dams 1 and 2	24	-26.04400	29.60100
AB08	NE corner of ash dams 1 and 2	17	-26.04530	29.61060
AB09	Return Ash Water dam E of ash dams 1 and 2	17	-26.04910	29.60840
AB43	Below workers huts – E of ashing extension (ash dam 5)	15	-26.06280	29.60550
AB44	South of Ash Dam 4 next to road	20	-26.06710	29.59410
AB45	Between workers huts and dam wall	27	-	-
AB53	Pullenshope Station – SW of station building	10	-26.04650	29.60080
AB58	Pullenshope Station - E	15	-26.04560	29.60200
AB89	Between workers huts and dam wall	-	-26.05525	29.60971
AB90	NE Corner of ash dam	deep	-26.06795	29.59724
AB91	NE Corner of ash dam	shallow	-26.06795	29.59724

Codes of boreholes	Borehole locality	Depth (m)	Latitude	Longitude
CB16	Inside fence – E of coal stockpile, next to sump	9	-26.03020	29.60690
CB42	E of Dam D17 in field	15	-26.02910	29.61070
CB47	E of coal stockyard area – outside fence	38	-26.03440	29.60620
CB48	E of coal stockyard, E of railway line	10	-26.03170	29.61380
CB59	SE of Coal stockyard on mine property	15	-26.03950	29.60910
CB60	Between coal stage and Coal stockyard	8	-26.03149	29.60375
CB61	E of railway line and Coal stockyard on mine property	15	-26.03644	29.60655
PB12	N of domestic waste site	34	-26.03400	29.58560
PB13 (DB13)	Downstream from sewage maturation pond	8	-	-
PB14	At oil skimmers & effluent dams	13	-26.03280	29.58930
PB15	Next to gravel road to southern security gate	19	-26.03710	29.59470
PB36	Hand pump SIS farming at workers huts W of domestic waste site	pump	-26.03740	29.57980
PB38	Private dealer S of soccer field	pump	-26.03990	29.59300
PB40	Next to tar road at sleeping quarters	6	-26.03720	29.59020
PB41	E of Borehole PB15 in field	6	-26.03770	29.59550
PB46	-	-	-	-
PB49	Between soccer field and living quarters	16	-26.03740	29.59390
PB50	Borehole downstream and N of dam PD02	6	-26.02710	29.59340
PB51	N of northern cooling towers – on golf course	23	-26.02440	29.60280
PB52	N of coal stockyard area – on golf course	24	-26.02560	29.60770
PB54D	NW of Raw Water Dam	15	-26.03880	29.59870
PB54S	NW of Raw Water Dam	2	-26.03880	29.59870
PB55D	NW of Raw Water Dam	15	-26.03920	29.59760
PB55S	NW of Raw Water Dam	2	-26.03920	29.59760
PB56D	NW of Raw Water Dam	15	-26.04010	29.59870
PB56S	NW of Raw Water Dam	2	-26.04010	29.59870
PB57D	NW of Raw Water Dam	15	-26.03820	29.59150

<b>Codes of boreholes</b>	<b>Borehole locality</b>	<b>Depth (m)</b>	<b>Latitude</b>	<b>Longitude</b>
PB57S	NW of Raw Water Dam	3	-26.03820	29.59150
PB80	Borehole at oil treatment sell at Southern cooling towers. N of Raw Dam	Top	-26.03693	29.60302
PB81	Borehole at oil treatment sell at Southern cooling towers. N of Raw Dam	Top	-26.03876	29.60347
PB82	Borehole at bulk fuel oil tanks	Top	-26.03398	29.60238
PB83	Borehole at bulk fuel oil tanks	Top	-26.03355	29.60226
PB84	Borehole at bulk fuel oil tanks	Top	-26.03372	29.60150
PB85	Borehole at oil treatment sell at Southern cooling towers. N of Raw Dam	Top	-26.03797	29.60410
PB86	Borehole at oil treatment sell at Southern cooling towers. N of Raw Dam	Top	-26.03779	29.60415
PB87	Borehole at oil treatment sell at Southern cooling towers. N of Raw Dam	Top	-26.03650	29.60426
PB88	Downstream from sewage maturation pond. Next to Komati/hendrina road	-	-26.03072	29.58715



**Figure 10.8:** A map of the Groundwater monitoring boreholes at the Hendrina Power Station

### 10.10 Information needed when applying for scheduled activities listed under Category B:

Information Required	Comment
<b>Scoping and Environmental Impact Assessment Report which should include:</b>	
Description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity	See <b>Chapter 7</b> and <b>Chapter 8</b> of this report
Description of significant environmental impacts, including cumulative impacts, that may occur as a result of the undertaking of the activity	See <b>Chapter 9</b> of this report
Conducting public participation as outlined in EIA Regulations	See <b>Chapter 6</b> of this report
Closure plan (report) / Rehabilitation	Due to the fact that the proposed new facility is to be operated in the same way as the existing disposal facilities at Hendrina power station, the existing operational plan has been included in <b>Appendix S</b>
Operational plan	Due to the fact that the proposed new facility is to be operated in the same way as the existing disposal facilities at Hendrina power station, the existing operational plan has been included in <b>Appendix S</b>
Waste disposal facility designs	See <b>Appendix C</b>
A3 size layout plans (four hard copies for all applications)	See <b>Appendix C</b>
Landfill conceptual designs	See <b>Appendix C</b>
Geo-hydrological report (only apply to landfill sites, storage and treatment of waste)	See <b>Appendix N</b>
Consideration of alternatives	See <b>Chapter 4</b> of this report
Description of mitigation measures and risk assessment	See the EMP in <b>Appendix E</b> and well as <b>Chapter 8</b> of this report
Any inputs made by specialists to the extent that may be necessary	See <b>Appendices J to Q</b>
Any specific information as may be required by the competent authority	Not Applicable as yet
<b>Plan of study for environmental impact assessment which must among others include:</b>	
Description of the tasks to be undertaken as part of the environmental impact assessment process, including specialist report or specialized processes, and a manner in which such tasks will be undertaken	The Plan of Study for EIA was submitted to the DEA in August 2011 and

An indication of stages at which the competent authority will be consulted	was approved and accepted on 26 September 2011 – See <b>Appendix A.</b>
Description of methods for assessing issues and alternatives, including the no-go alternative	
Particulars of participation process that will be conducted during the EIA process	
Environmental management plan	See <b>Appendix E</b>
Copies of any specialist reports and specialized processes	See <b>Appendices J to Q</b>

The following is also included as supporting documentation.

<b>Required Piece Of Information</b>	<b>Section In The Reports Where It Can Be Found</b>	<b>Comments (If Any)</b>
Extremely clear Google Earth colour picture of the site (dated not more than a month from the date of the application)	<b>Appendix T</b>	
1:50 000 topography /topo-cadastral map of the area showing <ul style="list-style-type: none"> <li>o the site and 5km radius</li> <li>o Existing residential and industrial areas</li> <li>o Possible future development (indicate the type of development)</li> <li>o Other waste handling sites (existing or closed) in the area</li> <li>o Existing and possible future residential areas.</li> <li>o Sites which are listed as national monuments or archaeological, paleontological and cultural historical sites or objects worthy of conservation;</li> </ul>	<b>Appendix U</b>	Additional information on the graves found on site is included in the Heritage Study included in <b>Appendix P</b>
Security and access aspects of the site	To be included in Final Report	
The site plan drawn to scale showing the site's boundary showing: <ul style="list-style-type: none"> <li>o Activities or development existing on all 4 directions of the site.</li> <li>o Waste receipt, storage and handling areas</li> <li>o Impermeable surfaces</li> <li>o Sealed drainage systems</li> <li>o Drainage system for the site including sumps and discharge points</li> <li>o Road names and access from all major roads in the area</li> <li>o Land Owner's consent (letter with signature)</li> </ul>	See <b>Appendix C</b>	
Waste hierarchy implementation plan	Not Applicable	
Emergency preparedness plan	Not Applicable	

In additional to the above, the following has also been included.

<b>Required Piece Of Information</b>	<b>Section In The Reports Where It Can Be Found</b>	<b>Comments (If Any)</b>
Design for site roads		Not Applicable
The 1 in 50 year flood-line of all watercourses		Not Applicable
Laboratory facilities		Not Applicable
Design and location of fuel storage areas		Not Applicable
Design and location waste quarantine areas		Not Applicable
Design and location of waste Inspection areas		Not Applicable
Site's drainage system	<b>See Appendix C</b>	
Site's emergency control system and plan		
Liner specifications		
Leak detection system and monitoring		
Leachate management plan		
Calculations of leachate generation		
Leachate collection and treatment		
Gas generation and management		
Air quality monitoring and management		See Air Quality Study in <b>Appendix O</b> , Environmental Management Plan in <b>Appendix E</b> as well as the Operational Plan in <b>Appendix S</b>
Co-disposal ratio calculation		Not Applicable
Stability monitoring and management		See Conceptual design <b>Appendix C</b>
Daily and intermediate cover requirements		Not Applicable
Temporary and permanent capping requirements		Not Applicable