10 WASTE MANAGEMENT LICENSE

10.1 Introduction

On the 6th 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

An application has been made for the following Category B listed activities:

No. & Date Of The Relevant Notice:	Activity Numbers (As Listed In The Waste Management Activity List) :	Listed Activity
No. R. 718 July 2009 Category B	3*	The storage including temporary storage of general waste in lagoons
No. R. 718 July 2009 Category B	1*	The storage including the temporary storage of hazardous waste in lagoons
	9	The disposal of any quantity of hazardous waste to

		land
	11	The construction of facilities for activities listed in Category B of this schedule (not in isolation to associated activity)

*The applicable listed activity will be determined once the classification of the waste and the waste facility has been finalised.

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
Alternative E			
T0IS00000000015400008	154	00008	BOSCHMANSKOP 154 IS

10.4.1 Size of Site and Classification

Size of facility for a waste management activity	209 ha
Area where the waste management activity takes place	Hendrina Power Station
Classification of facility in terms of climatic water balance	To be included in Final EIR
Classification of Facility in terms of the type and the quantity of waste received (using Minimum Requirements)	Ash Disposal Facility (Wet) (H:H)
Classification of Facility in terms of the type and the quantity of waste received (using DEA Draft Waste Classification)	Ash Disposal Facility (Wet) ($G:L:B^+$)

- ***Primary Hazard Rating of the Hendrina Power Station Ash***
  Based on the Minimum Requirements approach a waste is first categorised based on the industry type. In this case the waste is ash originating from the electricity generation process at the Hendrina Power Station, as a result the ash falls within the Industrial Group C. The ash is therefore classified as potentially hazardous, as the Energy Industry was identified in the Minimum Requirements as an industry generating potentially hazardous waste (DWAF, 1998a).

  The ash also falls within the waste stream E which includes High volume/Low Hazard Wastes (DWAF, 1998a). These wastes are those which, based on their intrinsic properties, present relatively low hazards, but may pose problems because of their high volumes (e.g. drilling mud, fly-ash from power plants, mine tailings, etc.).

- ***Secondary Hazard Rating of the Hendrina Power Station Ash***
  The next step in the hazard rating involves a XRF (X-Ray frequency) analysis to determine the chemical constituents. The XRF analysis indicates that the wet ash contains between 27.716 and 30.796 % Al_2O_2 and between 57.23 and 61.9% SiO_2. XRF determination of the ash reveals the chemical constituents SiO_2 and Al_2O_3 are

more than 90 % of the ash content, which suggests that the ash is perhaps best named as an Al silicate.

The XRF analysis was followed by leached test analysis. Leach tests were performed using the Toxicity Characteristic Leaching Procedure (TCLP). The TCLP was used to determine the amount of hazardous substance that will leach from the ash.

Estimated Environmental Concentration calculations (EEC) is used to calculate if the substance is hazardous. Zinc (Zn) and Iron (Fe) was used in the EEC calculation

- *Zinc - Zn*

  (LC50 7.0mg/l)
  5500000 tons per annum on 209 ha
  Concentration of 11.72 mg/kg Zn

  EEC Zn = 5500000 ÷ 12 ÷ 209
  = 2192.98 ton/ha/month
  = 2192.98 X 1000
  = 2192982.456kg/ha/month
  = 2192984.56 X 11.72
  = 25701754.39mg/ha/month
  = 25701.754g/ha/month
  = 25701.754 x 0.66
  = 16963.15 ppb

  Acceptable Risk Level = 0.1 x LC50
  = 0.1 x 7 mg/l
  = 0.7 mg/l
  = 700 ppb

  16963.15 ppb > 700 ppb

  The EEC ppb is greater than the Acceptable Risk Level and therefore still classified as hazardous.

- *Iron - Fe*

  (LC50 90 mg/l)
  5500000 tons per annum on 209 ha
  Concentration of 379.8065 mg/kg Fe

  EEC Fe = 5500000 ÷ 12 ÷ 209
  = 2192.98 ton/ha/month
  = 2192.98 X 1000

= 2192980 kg/ha/month
= 2192980 X 379.8065
= 832908058.37 mg/ha/month
= 832908.05837 g/ha/month
= 832908.05837 x 0.66
= 549719.3185 ppb

Acceptable Risk Level = 0.1 x LC50
= 0.1 x 90 mg/l
= 9.0 mg/l
= 9000 ppb

549719.3185 ppb > 9000 ppb

The EEC ppb is greater than the Acceptable Risk Level and therefore still classified as hazardous.

Based on the above results from the Minimum Requirements process, it is inferred that the ash is classified as hazardous. This combined with the potentially hazardous nature of waste associated with Industrial Group C, it is inferred that the facility would be an H:H facility. The results indicate that disposal of the wet ash should be onto a facility that complies with the barrier (liner) performance requirements of a H:H waste disposal facility. An H:H waste disposal facility complies with the most stringent design requirements as per the Minimum Requirements.

- ***Waste Disposal Risk Rating in Accordance with Government Gazette Notice 433 0f 2011 – 1 July 2011 (Draft Standard for Assessment of Waste for Landfill Disposal)***

  Although the Minimum Requirements waste classification system is currently still the official waste classification system, the ash was also classified in terms of the draft DEA waste classification system for disposal purposes (DEA, 2011a). The reason for this being that by the time that the new ash disposal facility is to be constructed, it is accepted that the new waste classification regulations will in all likelihood be applicable.

  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, where 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.**

- ***Conclusion***

Based on the DWAF's Minimum Requirements waste classification system and when subjected to an TC Leach Procedure, the Hendrina ash is classified as Hazardous waste, and would require disposal on a H:H waste disposal facility.

In terms of the DEA's draft waste regulations for disposal, the Hendrina Ash was classified as Type 3 waste which is a low risk waste. Therefore, it is possible to consider delisting this waste in the future.

The minimum requirements stipulate that there is need for a mandatory physical separation between the waste body and the ground water regimes is fundamental to all designs. In the case of all hazardous waste sites and lagoons, however, the Minimum Requirements require a substantial liner and leachate management system to be provided. In the case of hazardous waste landfills, the liner design also takes cognisance of the hazard rating of the waste that can be accepted. A H:H landfill can accept all hazardous waste with a hazard rating of 1 through to 4.

According to the above discussion, the wet ash disposal facility is can be classified as a H:H facility when one refers to the Minimum requirements. Due to the fact that Hendrina Power Station's Ash Disposal Facility is a wet ash disposal facility it is anticipated that a liner as indicated for Hazardous Waste Lagoons would be required. **Figure 10.1** provides an indication of what the minimum requirements require for this type of liner.

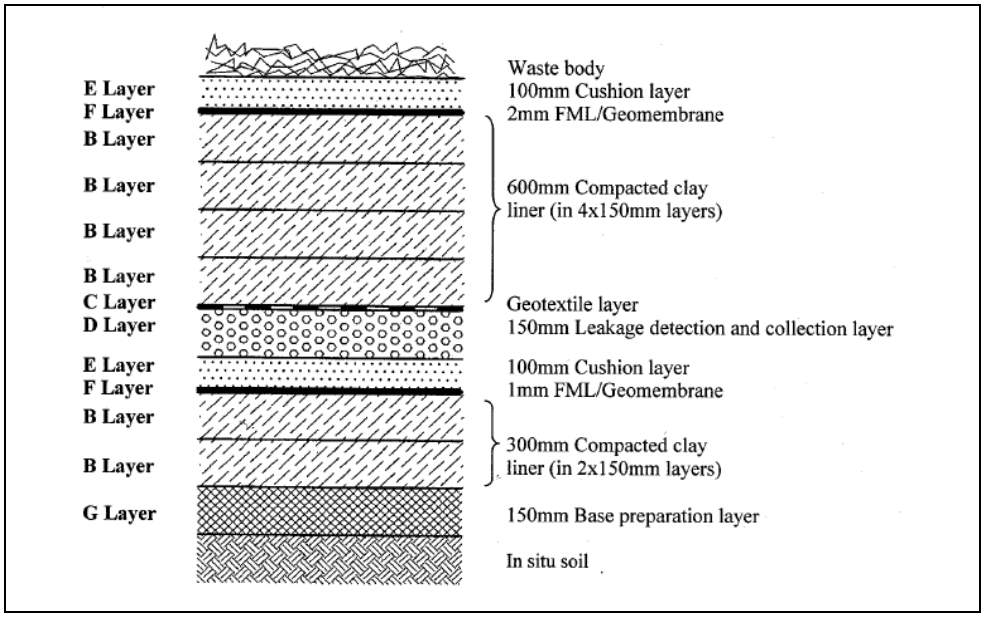

Figure 10.1: A typical Hazardous Waste Lagoon liner (DWAF Minimum Requirements, 2nd Ed, 1998)

It is however recommended that once the DEA Classification System (DEA, 2011B) is fully in effect, the ash facility is reclassified, as it is anticipated that the ash facility may possibly be classified as a Class C landfill. Class C landfills are very similar in design to the current G:L:B+ landfills (**Figure 10.2**), with the major difference being the HDPE layer added to the barrier system (**Figure 10.2**) which may be considered more appropriate.

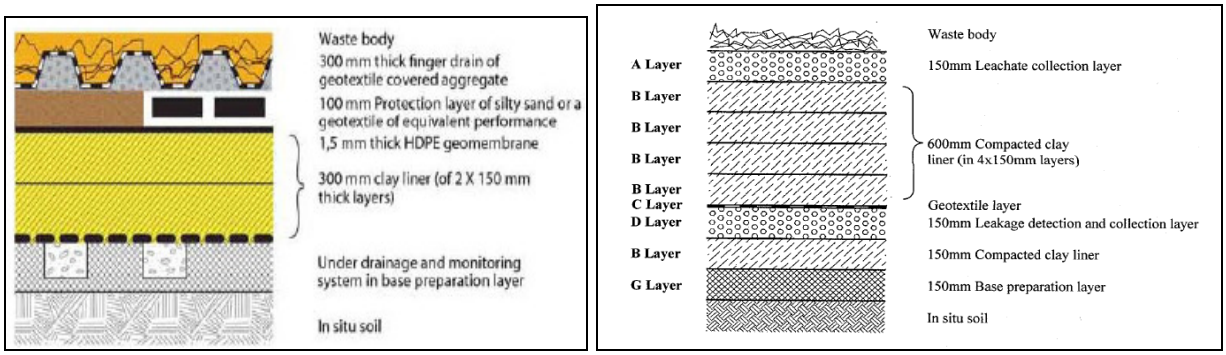

Figure 10.2: Proposed Class C landfill barrier system (DEA, 2011) and existing G:L:B+ landfill barrier system

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.

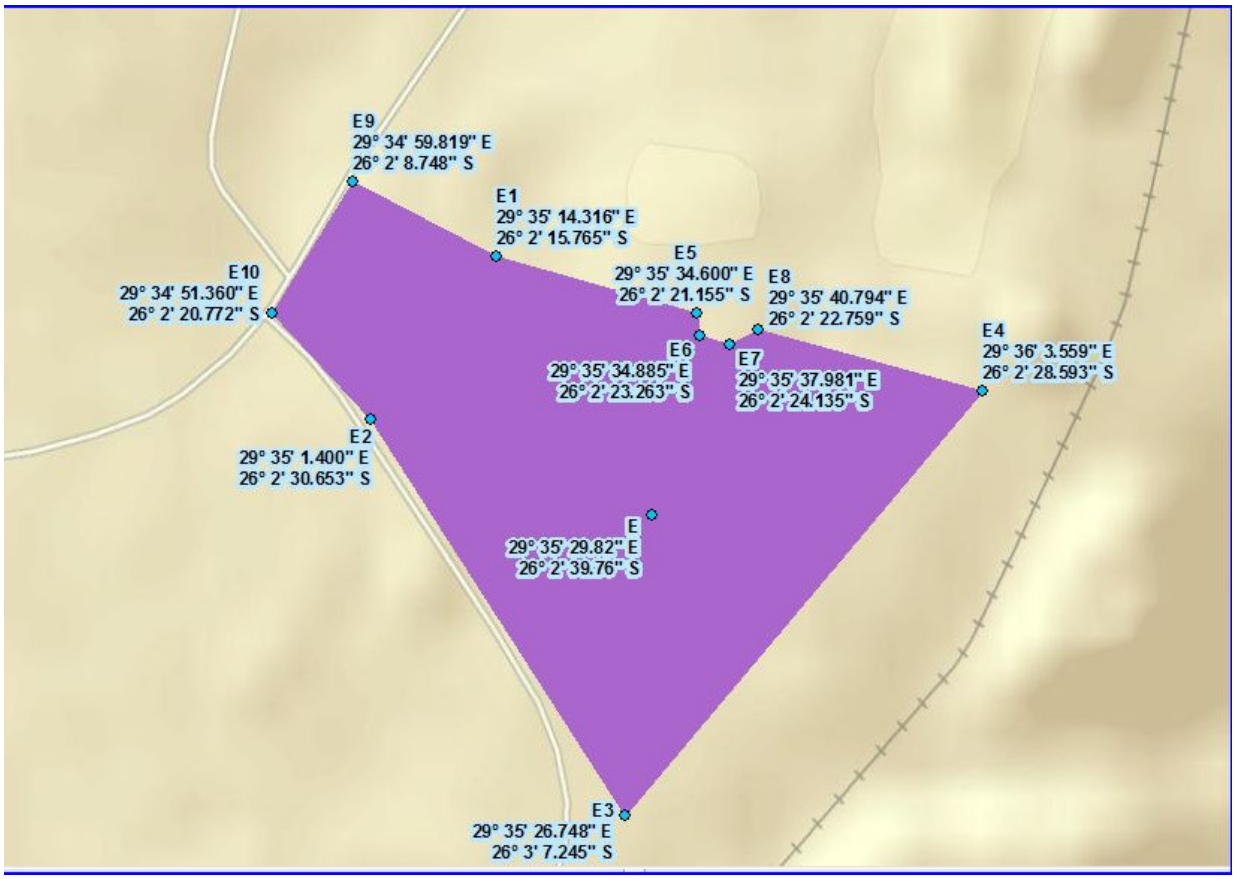

Figure 10.3: The proposed site for the proposed new wet ash disposal facility at Hendrina Power Station

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 a wet ash disposal facility 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^3 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 to provide 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^3. 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^3
- 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.

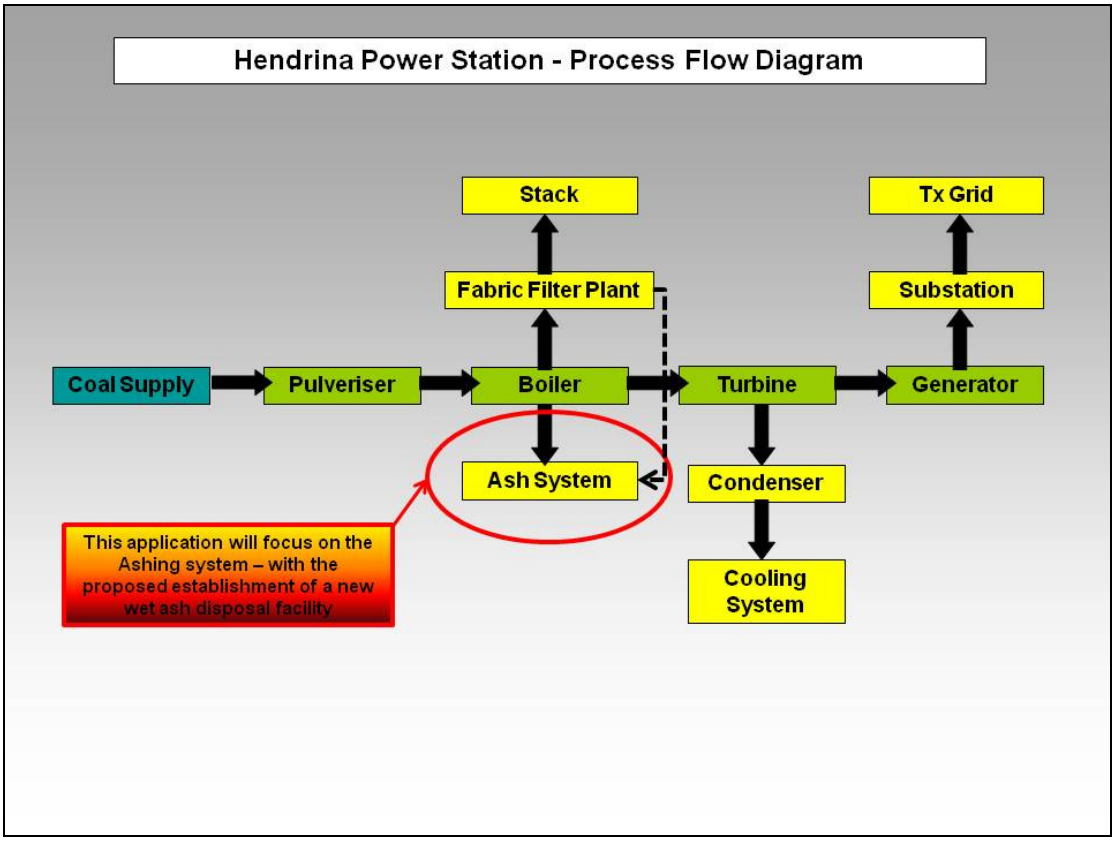

Figure 10.4: An overview of the activities on site and where this project fits within the process

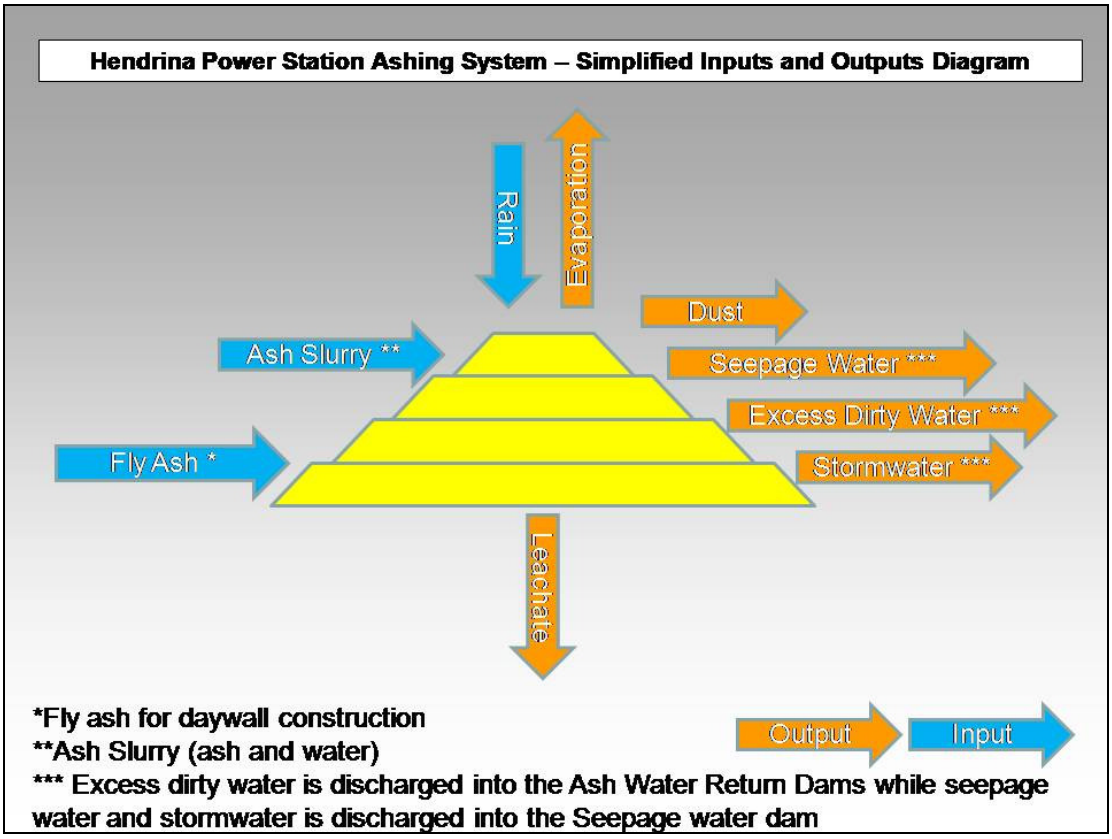

Figure 10.5: Simplified inputs and outputs diagram of the wet ash disposal facility

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 m3 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^3/Month	Method & Location	Method Location And Contractor Details	
Ash	Hendrina Power Station	-	Approximately 200 462.96m^3	On site disposal Method not yet known (could be wet or dry disposal or other new methodology)	-	-

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 northwesterly and easterly with a >10% frequency of occurrence. Winds from the southwesterly sectors are relatively infrequent occurring <5% of the total period. Calm conditions (wind speeds < 1 m/s) occur for 11% of the time.

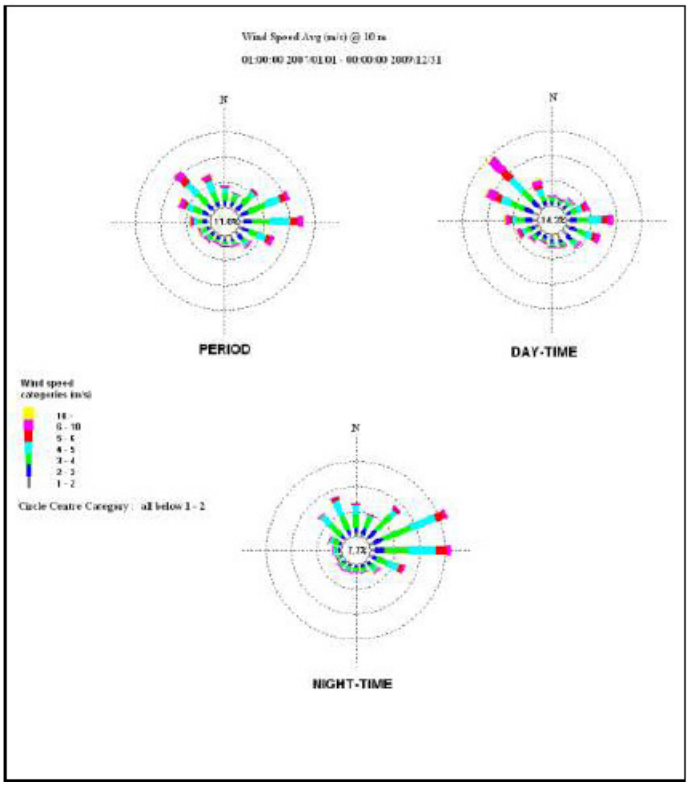

Figure 10.6: Period, day-time and night-time wind roses for Hendrina Wet ash disposal facility (1 January 2007 to 31 December 2009)

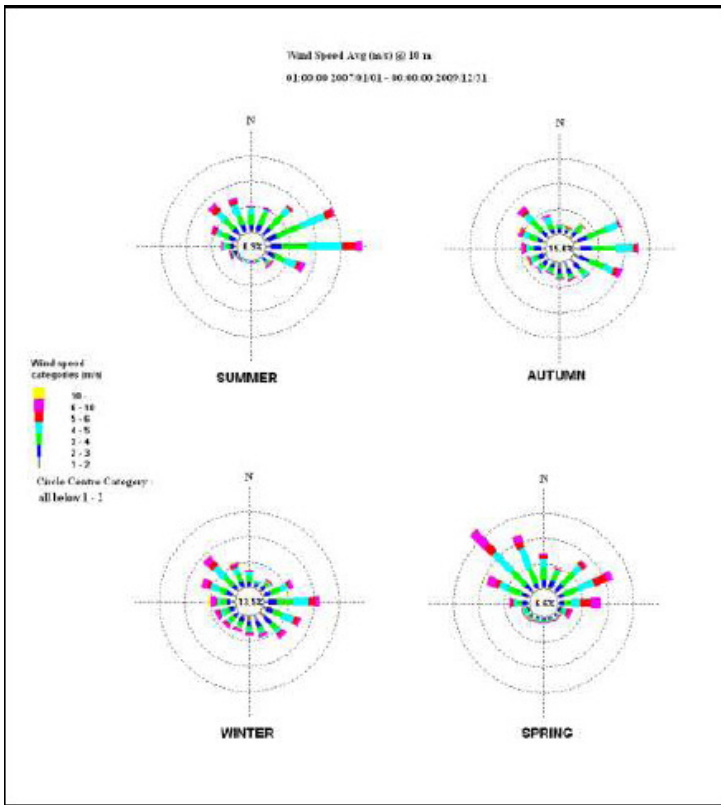

Figure 10.7: Seasonal wind roses for Hendrina Wet ash disposal facility (1 January 2007 to 31 December 2009)

A frequent northwesterly flow dominates day-time conditions with ~15% frequency of occurrence. During the night-time an increase in easterly and east-northeasterly flow is observed with a decrease in northwesterly 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		Not Applicable – The waste facility proposed is a wet ash disposal facility for Hendrina power station use, and therefore does not serve the local population directly.
500-9,999		
10,000-199,999		
200,000 upwards		

10.7.3 The geological formations underlying the site:

Granite		Quartzite	**X**
Shale	**X**	Dolomite	
Sandstone	**X**	Dolerite	**X**

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?	**NO**	These details have specific reference to Hendrina Power Station
Has the applicant's licence in terms of the Waste Act 2008 ever been revoked?	**NO**	
Has the applicant ever been issued with a non compliance notice or letter in terms of any South African Law?	**NO**	

10.8.2 Technical competence

What technical skills are required to operate the site?	Eskom contract 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
How will the applicant ensure and maintain technical competency in the operation of the site?	

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

Name	Position	Duties And Responsibilities	Qualifications And Experience
Please note these are the current names and are accurate as of January 2011, it should be noted that the specific people involved may change from time to time.			
Nico Barnard	External consultant	See attached job description	Pr Eng
Roshcon	External contractor	Appointed by Eskom to assist with the overall operation of the ashing system. The information will be provided at EIR/ESR	Pr Eng and relevant previous experience with regards to operating wet ash disposal facilitys

10.9 Landfill Parameters

10.9.1 The method of disposal of waste:

Land-building [X] Land-filling [ ] Both [ ]

10.9.2 The dimensions of the disposal site in metres

	At commencement	After rehabilitation
Height/Depth	Draft Concept Designs are included in Appendix C, however exact dimensions will be included in the Final Concept Design Report	
Length		
Breadth		

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 m3 until the end of its life span in 2035 (approximately 24 years) – 20.9 million m3 of this can be accommodated in the existing wet ash disposal facility facilities, therefore an additional 43.3 million m3 storage space is required, which is the subject of this report.

10.9.4 The total volume already used for waste disposal:

(a) Will the waste body be covered daily		**NO**
(b) Is sufficient cover material available	**YES**	
(c) Will waste be compacted daily		**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

	YES	**NO**	**Comment**
Within a 3000m radius of the end of an airport landing strip		**X**	
Within the 1 in 50 year flood line of any watercourse	**X**		See Surface Water and Aquatic Specialist Study in **Appendix M** for more information
Within an unstable area(fault zone, seismic zone, dolomitic area, sinkholes)		**X**	
Within the drainage area or within 5 km of water source	**X**		See Surface Water and Aquatic Specialist Study in **Appendix M** for more information
Within an area with shallow and/or visible water table	**X**		
Within an area adjacent to or above an aquifer	**X**		See the Ash Classification and Ground Water Studies attached in **Appendices R and N** respectively

Within an area with shallow bedrock and limited available cover material		**X**	
Within 100 m of the source of surface water	**X**		See Surface Water and Aquatic Specialist Study in **Appendix M** for more information
Within 1km from the wetland	**X**		
Indicate the distance to the boundary of the nearest residential area	**1 000 metres**		
Indicate the distance to the boundary of the industrial area	**100 metres**		

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.

	Total rainfall for 6 months	**Total A-pan evaporation for 6 months**
For the 1st wettest year	940.5	No evaporation data available
For the 2nd wettest year	797	
For the 3rd wettest year	712.8	
For the 4th wettest year	594.6	
For the 5th wettest year	531.5	
For the 6th wettest year	498.5	
For the 7th 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
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

Codes of boreholes	Borehole locality	Depth (m)	Latitude	Longitude
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 flied 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
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

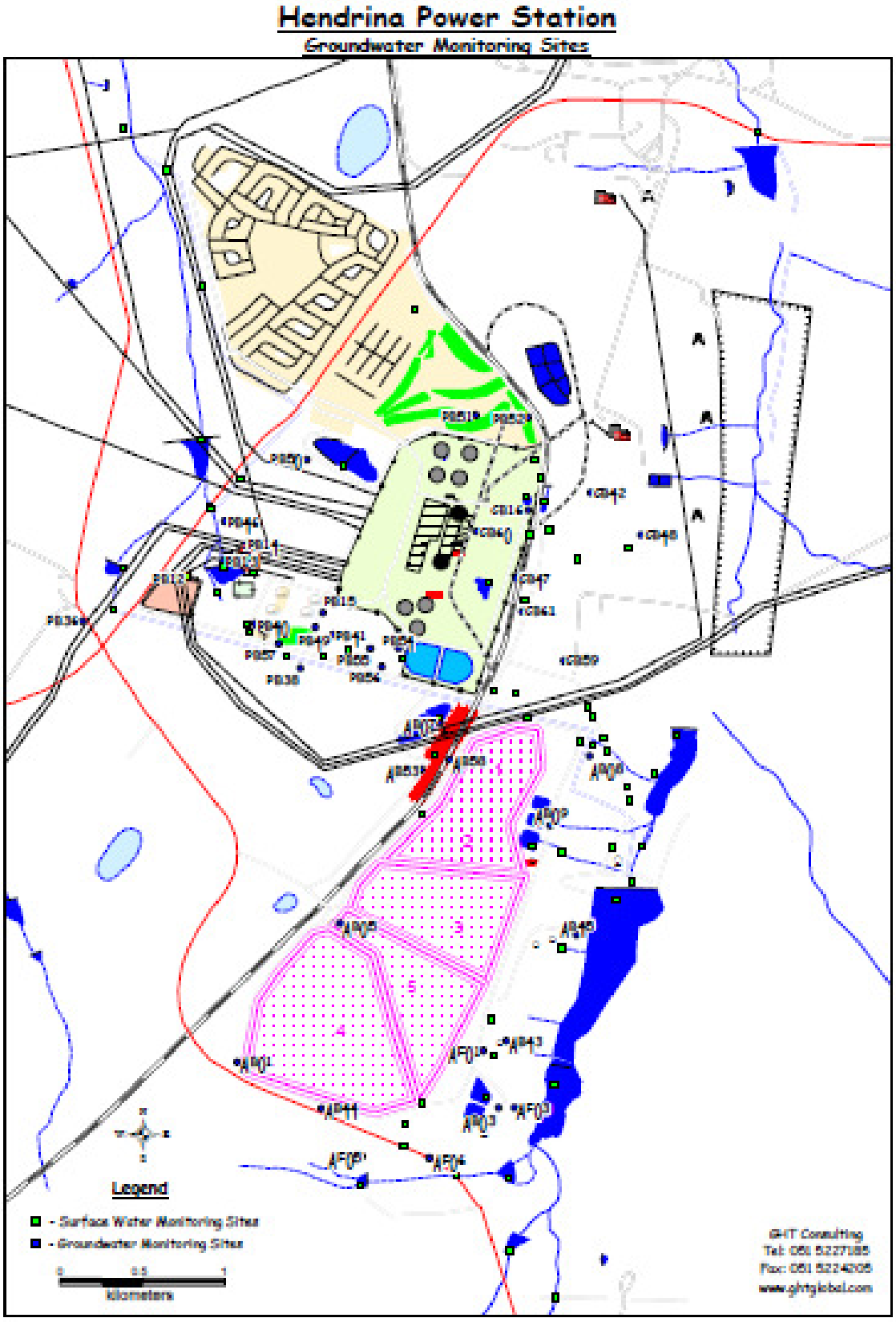

Figure 10.8: A map of the Groundwater monitoring boreholes at the Hendrina Power Station

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

Information Required	Comment
Scoping and Environmental Impact Assessment Report which should include:	
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 **Chapter 7** and **Chapter 8** of this report
Description of significant environmental impacts, including cumulative impacts, that may occur as a result of the undertaking of the activity	See **Chapter 9** of this report
Conducting public participation as outlined in EIA Regulations	See **Chapter 6** 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 **Appendix S**
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 **Appendix S**
Waste disposal facility designs **(DRAFT)**	See **Appendix C**
A3 size layout plans (four hard copies for all applications) **(DRAFT)**	See **Appendix C**
Landfill conceptual designs **(DRAFT)**	See **Appendix C**
Geo-hydrological report (only apply to landfill sites, storage and treatment of waste)	See **Appendix N**
Consideration of alternatives	See **Chapter 4** of this report
Description of mitigation measures and risk assessment	See the EMP in **Appendix E** and well as **Chapter 8** of this report
Any inputs made by specialists to the extent that may be necessary	See **Appendices J to Q**
Any specific information as may be required by the competent authority	Not Applicable as yet
Plan of study for environmental impact assessment which must among others include:	
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 of stages at which the competent authority will be consulted	was approved and accepted on 26 September 2011 – See **Appendix A.**
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	
Draft environmental management plan	See **Appendix E**
Copies of any specialist reports and specialized processes	See **Appendices J to Q**

The following is also included as supporting documentation.

Required Piece Of Information	Section In The Reports Where It Can Be Found	Comments (If Any)
Extremely clear Google Earth colour picture of the site (dated not more than a month from the date of the application)	**Appendix T**	
1:50 000 topography /topo-cadastral map of the area showing o the site and 5km radius o Existing residential and industrial areas o Possible future development (indicate the type of development) o Other waste handling sites (existing or closed) in the area o Existing and possible future residential areas. o Sites which are listed as national monuments or archaeological, paleontological and cultural historical sites or objects worthy of conservation;	**Appendix U**	Additional information on the graves found on site is included in the Heritage Study included in **Appendix P**
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: o Activities or development existing on all 4 directions of the site. o Waste receipt, storage and handling areas o Impermeable surfaces o Sealed drainage systems o Drainage system for the site including sumps and discharge points o Road names and access from all major roads in the area o Land Owner's consent (letter with signature)	To be included in Final Report	
Waste hierarchy implementation plan	Not Applicable	
Emergency preparedness plan	To be included in Final Report	

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

Required Piece Of Information	Section In The Reports Where It Can Be Found	Comments (If Any)
Design for site roads	Not Applicable	
The 1 in 50 year flood-line of all watercourses	To be included in Final Report	
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	Site specific designs await the outcome of the geotechnical studies to be undertaken in January 2013. These designs will be included in Final Report	
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	Not Applicable	
Air quality monitoring and management	See Air Quality Study in **Appendix O**, Environmental Management Plan in **Appendix E** as well as the Operational Plan in **Appendix S**	
Co-disposal ratio calculation	Not Applicable	
Stability monitoring and management	To be included in Final Report – await outcome of geotechnical studies to be undertaken in January 2013	
Daily and intermediate cover requirements	Not Applicable	
Temporary and permanent capping requirements	Not Applicable	