GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

GAUTENG PROVINCE

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APPLICATION FORM FOR ATMOSPHERIC EMISSION LICENCE / PROVISIONAL ATMOSPHERIC EMISSION LICENCE IN TERMS OF CHAPTER 5 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

Name of Enterprise: Bon Accord Quarry, City of Tshwane

Declaration of accuracy of information provided:

Application for an atmospheric emission licence / provisional atmospheric emission licence as envisaged in chapter 5 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004).

I, Gert Sieberhagen, declare that the information provided in this application or attached to the application is, to the best of my knowledge, in all respects factually true and correct. I am aware that the supply of false or misleading information in the application form is a criminal offence in terms of section 51(1)(f) of the Act.

Signed at Pretoria on this 01 day of June 2015

SIGNATURE

Acting Director: Regional Infrastructure Maintenance Support: Construction and Quarry Operations
CAPACITY OF SIGNATORY

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NB: PLEASE COMPLETE ALL SECTIONS. KINDLY MARK WITH AN X IN SPACES WHERE APPLICABLE. IF THE SPACE PROVIDED IS INSUFFICIENT, THE REQUIRED INFORMATION MAY BE SUBMITTED IN THE FORM OF A MEMORANDUM. ATTACH REQUIRED MAPS AND SKETCHES. GRAPHICS MUST BE CLEAR, LABELED AND, WHERE APPLICABLE.

1 TYPE OF APPLICATION

	New Application		Transfer
X	Renewal		Variation/Amendment/Review

Current APPA Permit / Atmospheric Emission Licence Number:	4051

2 ENTERPRISE INFORMATION

Enterprise Name	City of Tshwane
Trading As	
Type of Enterprise, e.g. Company/Close Corporation/Trust, etc	Metropolitan Municipality
Company/Close Corporation/Trust Registration Number (Registration Numbers if Joint Venture)	N/A
Registered Address	Belle Ombre Depot, Bosman Street Extension, Pretoria, 0001
Postal Address	PO Box 1409 Pretoria 0001
Telephone Number (General)	012 562 0551 /6
Fax Number (General)	012 570 2509
Industry Type/Nature of Trade	Asphalt Plant
Land Use Zoning as per Town Planning Scheme	Industrial
Land Use Rights if outside Town Planning Scheme	N/A

Responsible Person Name or Emission Control Officer (where appointed)	Mr Gert Sieberhagen
Telephone Number	012 358 0602
Cell Phone Number	082 570 2509
Fax Number	012 321 5170
E-mail Address	GertS2@tshwane.gov.za
After Hours Contact Details	N/A

3 SITUATION AND EXTENT OF PLANT

3.1 Location and extent of plant

Physical Address of the Plant	Portion 10, 25 & 30 of the Farm De Onderstepoort 300JR, Pretoria District
Description of Site (Where No Street Address)	The quarry is situated east of the existing Pretoria/Warmbath (Bela-Bela) main road (R101), approximately 80km south of Bela-Bela and 12km north of central Pretoria
Coordinates of Approximate Center of Operations	UTM reference – Grid Zone: 35J North-south: 7165261.42 m S East-west: 621821.59 m E
Extent (km²)	0.498
Elevation Above Mean Sea Level (m)	1237
Province	Gauteng
Metropolitan/District Municipality	City of Tshwane Metropolitan Municipality
Local Municipality	City of Tshwane Metropolitan Municipality
Designated Priority Area	N/A

3.2 Description of surrounding land use (within 5 km radius)

Provide a description of the surrounding land use within a 5 km radius, specifically noting the names and proximity of residential and commercial areas in relation to the site of the works.

Attach map(s), satellite image(s) and/or aerial photograph(s) detailing location of premises in relation to surrounding community.

Figure 1: Google Earth Image of Bon Accord Quarry

Attach map(s), satellite image(s) or aerial photograph(s) detailing location of premises in relation to surrounding community.

4 NATURE OF PROCESS

4.1 Process description

Please provide a detailed description of the entire production process including reference to the overall balance sheet of inputs, outputs and emissions at the site of the works.

The Bon Accord Quarry consists of an open granite pit located in the northern face of an exposed ridge, with a crusher plant, and permanent hot mix asphalt plant. Hot mix asphalt paving materials are a mixture of size-graded, high quality aggregate, and liquid bitumen and cement filler, which is heated and mixed in measured quantities to produce Road Mix. The plant is a batch processing plant, and only produces when required.

Opencast Quarry

A drill and blast methodology is used to extract the rock from the quarry working face. The extracted material is then transported via truck or front end loader to a crusher plant where it is crushed and sorted to different sizes according the applicable or prevailing demand. This aggregate is then stored on site until, production.

Asphalt Plant

Processing begins as the aggregate is hauled from the storage piles and is placed in the appropriate hoppers of the cold feed unit. The material is metered from the hoppers onto a conveyer belt and is transported into a rotary dryer (oil-fired). Dryers are equipped with flights designed to shower the aggregate inside the drum to promote drying efficiency. (producing dust, Sulphur dioxide and volatile organic compounds)

Before the hot aggregate leaves the dryer, heated bitumen is added and then dropped into a bucket elevator and is transferred to a weigh hopper until the desired mix and weight are obtained. Concurrent with the aggregate being weighed, liquid asphalt cement is pumped from a heated storage tank to an asphalt bucket, where it is weighed to achieve the desired aggregate-to-asphalt cement ratio in the final mix.

The mixture is discharged at the end of the drum and is conveyed to either a surge bin or storage silos, where it is loaded into transport trucks. The exhaust gases also exit the end of the drum and pass on to the collection system.

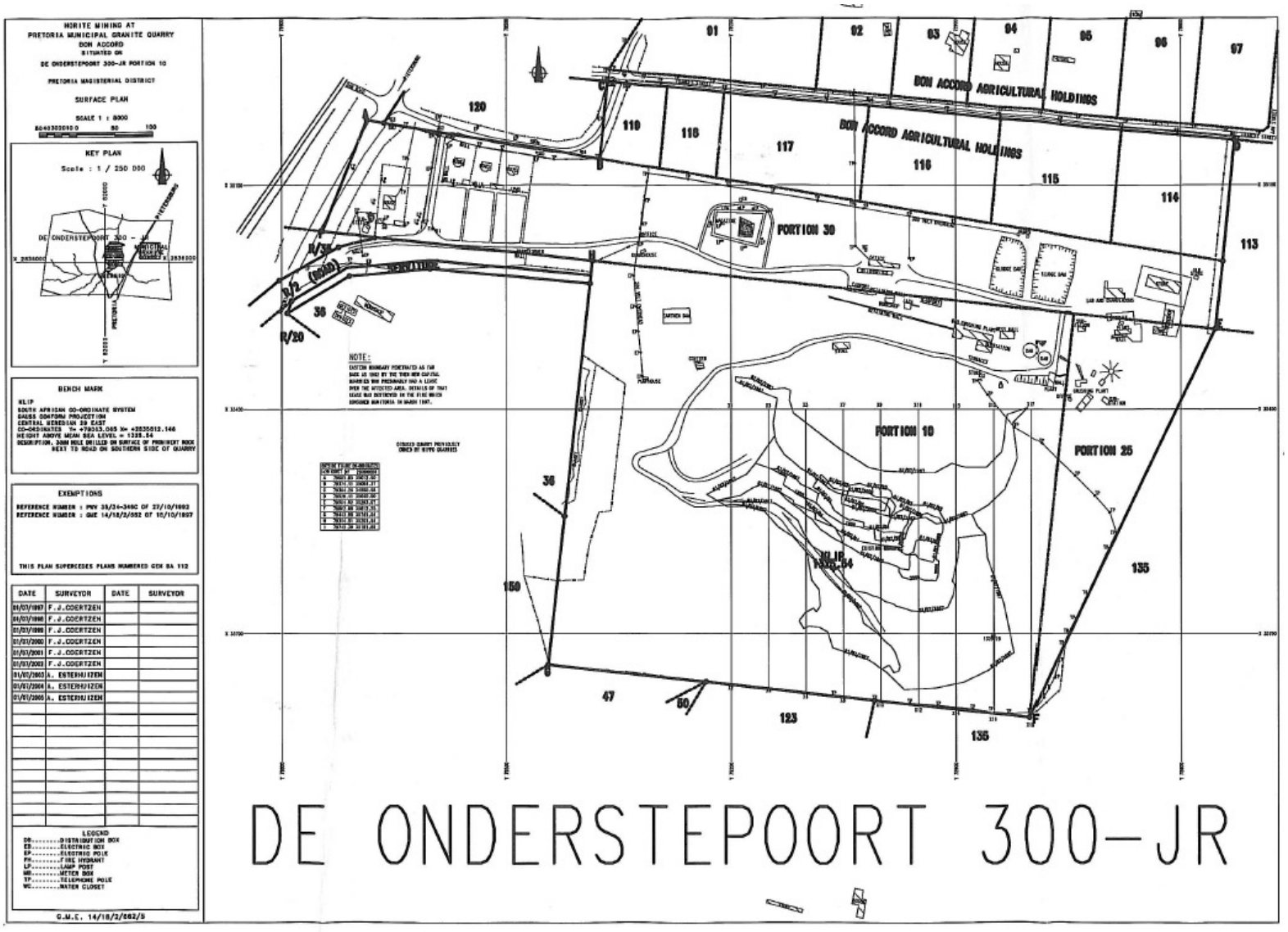

Figure 2: Site Layout Map

4.2 Listed activities

List all Listed Activities, as published in terms of section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), proposed to be conducted at the premises in terms of this application:

Listed Activity Number	Category of Listed Activity	Sub-category of the Listed Activity	Name of the Listed Activity	Description of the Listed Activity
5	Mineral Processing, Storage and Handling	5.10	Macadam Preparation	Permanent facilities used for mixtures of aggregate; tar or bitumen to produce road-surfacing materials

Despite the repeal of the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965), list all Scheduled Process(es), as was or were set out in the Second Schedule of the repealed Atmospheric Pollution Prevention Act, 1965, currently conducted at the premises:

APPA Registration Certificate Number	Date of Registration Certificate	Scheduled Process Number	Scheduled Process Description
4051	20 January 2010	58	Macadam Preparation Processes

4.3 Unit process

List all unit processes associated with the listed activities in operation at the premises by the atmospheric emission licence holder, highlighting unit processes proposed in respect of this application:

Unit Process	Unit Process Function	Batch or Continuous Process
Burner	Heating of Bitumen	Batch

***Unit process** means a single component (equipment) with identifiable inputs and outputs within a process flow. A series of unit processes make up the full manufacturing process, for example, boiler, furnace, distillation column, etc.

Please provide any other unit processes currently conducted at the site of works.

Name of the Unit Process	Description of the Unit Process
Crusher	Crushing of raw material to aggregate

4.4 Hours of operation

Provide the hours of operation of all unit processes associated with the listed activities in operation at the premises by the atmospheric emission licence holder, highlighting unit processes proposed in respect of this application:

Unit Process	Operating Hours	Number of Days Operated per Year
Burner	7h00 – 17h00	261 (weekdays)
Crusher	7h00 – 17h00	261 (weekdays)

4.5 Graphical process information

Attach the following for the entire operation being undertaken at the site of the works:

Simplified block diagram with the name of each unit process in a block; showing links between all unit processes or blocks.

Process flow chart(s) clearly indicating inputs, outputs and emissions at the site of works, including points of potential fugitive emissions and emergency releases.

Site layout diagram (plan view and to scale) indicating location of unit processes, plants, buildings, stacks, stockpiles and roads (include true north arrow and scale).

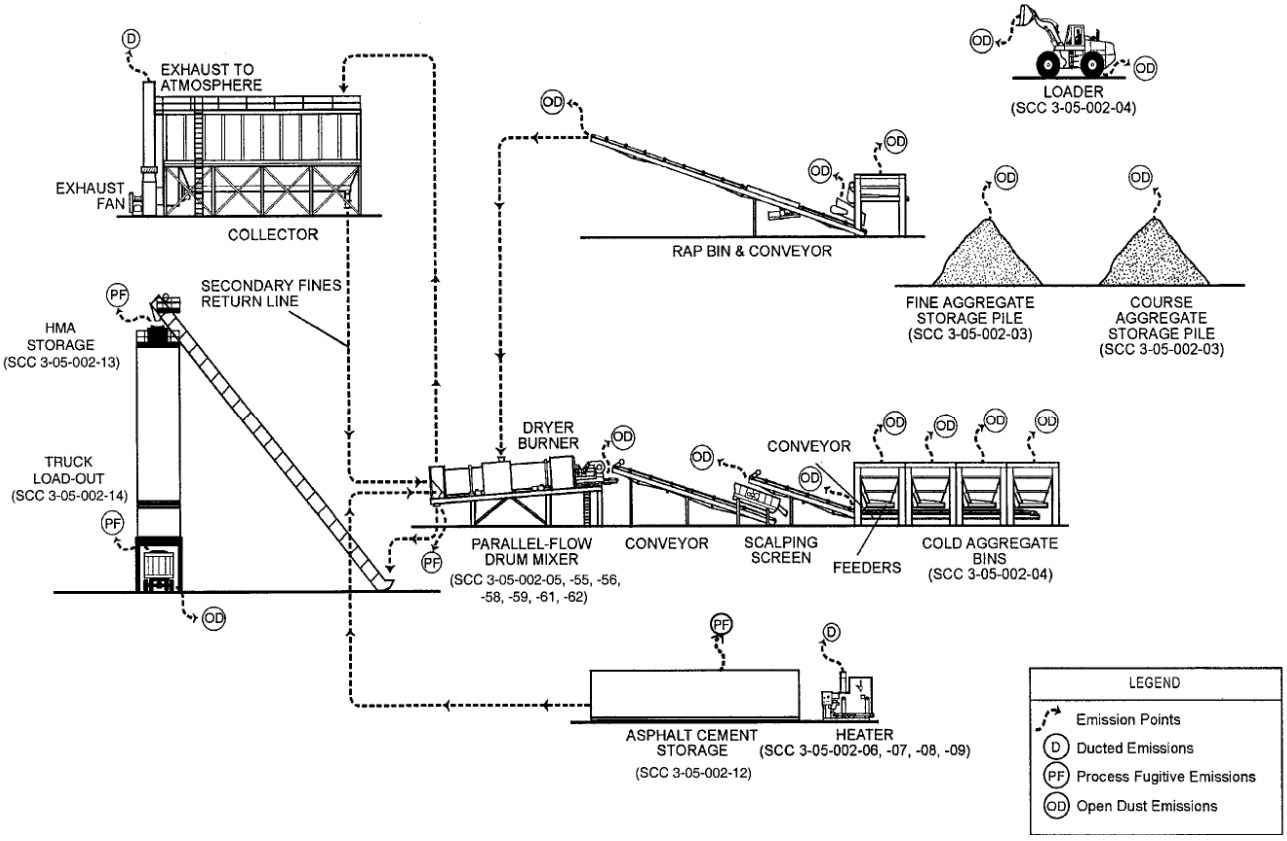

Figure 3: General flow diagram for Asphalt Plant

NB: Indicate clearly on the above graphics the listed activity or activities applied for in this application. Alternatively, provide additional graphics for the listed activity or activities applied for. Asphalt Cement = Bitumen.

5 RAW MATERIALS AND PRODUCTS

Provide raw material information, production and by-production rates and emissions information.

5.1 Raw materials used

Raw Material Type	Maximum Permitted Consumption Rate (Quantity)	Design Consumption Rate (Quantity)	Actual Consumption Rate (Quantity)	Units (Quantity/Period)
Bitumen	5000	5000	5000	Tons per annum
Norite rock (19mm, 13mm, 9.5mm, Building Sand)	80000	80000	80000	Tons per annum

5.2 Production rates

Production Name	Maximum Production Capacity Permitted (Quantity)	Design Production Capacity (Quantity)	Actual Production Capacity (Quantity)	Units (Quantity/Period)
Ready Mix asphalt	85000	85000	85000	Tons per annum

By-Product Name	Maximum Production Capacity Permitted (Quantity)	Design Production Capacity (Quantity)	Actual Production Capacity (Quantity)	Units (Quantity/Period)
N/A				

5.3 Materials used in energy sources

The applicant must specify the materials used in energy sources, namely, coal, oil, gas or wood.

Materials for Energy	Sulphur Content of the Material (%)	Ash Content of Material (%)	Maximum Permitted Consumption Rate (Quantity)	Design Consumption Rate (Quantity)	Actual Consumption Rate (Quantity)	Units (Quantity/ Period)
Fuel	N/A	N/A	120	120	120	Tons per annum

5.4 Sources of atmospheric emission (including all tiers of greenhouse gas)

Provide emissions averaging periods that correspond to the averaging periods as set out in the national ambient air quality standards published under Government Notice No. 1210, Gazette No. 32816 dated 24 December 2009, and/or the minimum averaging periods of the relevant pollutant in relation to its health impact.

5.4.1 Point source parameters

Unique Stack ID	Source Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Height of Release Above Ground (m)	Height Above Nearby Building (m)	Diameter at Stack Tip / Vent Exit (m)	Actual Gas Exit Temperature (°C)	Actual Gas Volumetric Flow (m^3/hr)	Actual Gas Exit Velocity (m/s)
1	Asphalt Plant	-25.625559	28.216476	18	N/A	0.79	114.78	18432	10.44
2	Crusher Plant	-25.626364	28.215931	14	N/A	N/A	Ambient	N/A	N/A

***Point source** means a single identifiable source and fixed location of atmospheric pollution, e.g. stack, chimney, etc.

5.4.2 Point Source Emissions

Provide emission values as being measured under normal conditions of 273 K, 101.3 kPa, specific oxygen percentage and dry gas.

As per 5.4.1 ID	Pollutant Name	Maximum Release Rate				Emissions Hours	Type of Emissions (Continuous / Routine but Intermittent / Emergency Only)
		(mg/Nm^3)	(mg/Am^3)	g/s	Averaging period		
1	SO_2	49.56		0.0514	Hourly	7h00 – 17h00	Batch
1	PM_{10}	367.89		0.9449	Hourly	7h00 – 17h00	Batch
1	TVOC	92.72		1.24	Hourly	7h00 – 17h00	Batch

5.4.3 Point source current emissions monitoring

Provide information on emission monitoring requirements.

As per 5.4.1 ID	Emission Sampling / Monitoring Method	Sampling Frequency	Sampling Duration	Measured Parameters
1	Stack Monitoring – Report 14/R0105 (9 June 2014) – Levego CC	Annual	Three Days	Velocity, Volume, pressure and temperature
				Total particulate matter
				Nitrogen oxides
				Sulphur dioxide
				Total volatile organic compounds

5.4.4 Point source emission estimation information

As per 5.4.1 ID	Basis for Emission Rates
1	Stack Monitoring – Report 14/R0105 (9 June 2014) – Levego CC

5.4.5 Area and/or line source parameters

Unique Area Source ID	Source Name	Source Description	Latitude (decimal degrees) of SW corner	Longitude (decimal degrees) of SW corner	Height of Release Above Ground (m)	Length of Area (m)	Width of Area (m)	Angle of Rotation from True North (°)
N/A								

*__Area source__ means air pollution source from a specified area, e.g., pollution from a landfill site, fugitive dust from a process.
*__Line source__ means a moving source of pollutants, e.g., motor vehicles.

5.4.6 Area and/or line source emissions

As per 5.4.5 ID	Pollutant Name	Maximum Release Rate (quantity per period)	Average Annual Release Rate (quantity per period)	Emission Hours	Type of Emission (Continuous / Intermittent)	Wind Dependent (Yes / No)
N/A						

5.4.7 Area and/or line source – management and mitigation measures

Provide information on management and mitigation measures.

As per 5.4.5 ID	Description of Specific Measures	Timeframe for Implementation of Specific Measures	Method of Monitoring Measure Effectiveness	Contingency Measure
N/A				

5.4.8 Area and/or line source emission estimation information

As per 5.4.5 ID	Basis for Emission Rates
N/A	

6 APPLIANCES AND MEASURES TO PREVENT AIR POLLUTION

6.1 Appliances and control measures

Provide information on appliances and measures implemented to prevent air pollution for the entire operation at the site of the works, highlighting information for listed activity or activities proposed in respect of this application.

Appliances				Abatement Equipment Control Technology							
Associated Unique Stack ID	Appliance / Process Equipment Number	Appliance Type / Description	Appliance Serial Number	Abatement Equipment Manufacture Date	Abatement Equipment Name and Model	Abatement Equipment Technology Type	Commission Date	Date of Significant Modification / Upgrade	Design Capacity	Minimum Control Efficiency (%)	Minimum Utilization (%)
1	Asphalt Plant	Cyclone	Fc2008	May 2008	Cyclone	Cyclone	May 2008	N/A	2 m^3 X 3.6 m^3		99
1	Asphalt Plant	Wet Scrubber	Fc2009	Feb 2009	Wet Scrubber	Wet Scrubber	Feb 2009	N/A	17.3 m^3	99.5	99

6.2 Start-up, maintenance and shut-down conditions

List potential start up, maintenance, shut down, upset conditions and associated responses related to the operations at the site of the works, highlight possible releases and responses for the proposed listed activity or activities in respect of the current application.

Unit Process	Description of Occurrence of Potential Releases	Pollutants and associated amount of emissions	Briefly Outline Back Up Plan
1	Failure of Cyclone System	PM_{10}	Production ceases until unit operational
1	Failure of Water Scrubber	PM_{10} SO_2 TVOC	Production ceases until unit operational

6.3 Routine reporting and record-keeping

6.3.1 Complaints register

Is a complaints register maintained at the site works?

X	Yes	
	No	
	To be initiated, by date:	

Please provide a copy of complaints received and corrective actions taken over the past two years.

	Nature of complaints	**Actions taken to investigate complaints**	**Causes of complaints identified**	**Measures taken to avoid reoccurrences in instances where the plant's operations were found to be the cause**
Current year	No complaints			
Previous year	No complaints			

7. DISPOSAL OF WASTE AND EFFLUENTS ARISING FROM ABATEMENT EQUIPMENT CONTROL TECHNOLOGY

Provide the following information for any waste and effluent arising from abatement equipment control technology that are currently in place at the site of the works:

Unique Stack or Area ID (As per 5.4.1 or 5.4.5 above)	Waste / Effluent Type	Hazardous Components Present	Method of Disposal
1 Wet Scrubber	Slurry	Contains H_2S	*Dried and recycled*