

National Refineries Environmental Compliance Project



environment & tourism

Department:
Environmental Affairs and Tourism
REPUBLIC OF SOUTH AFRICA



Inspection Report: SASOL (4-5 March 2008)

1. FACILITY INSPECTED	
Exact geographic location of the site	Portions of the farms Twistdraai 285 IS, Middelbult 284 IS and Goedehoop 290 IS, district of Highveld Ridge in Mpumalanga
Date of the inspection	4-5 March 2008
2. OBJECTIVES AND SCOPE OF INSPECTION	
Type of inspection	<p>Comprehensive, joint compliance inspection with applicable environmental legislation and authorisations issued in terms of such legislation, with a particular focus on the Atmospheric Pollution Prevention Act, 1965, the Environment Conservation Act, 1989 and the National Environmental Management Act, 1998. [It should be noted that a full compliance inspection against the provisions of the National Water Act, 1998) was not conducted as part of this inspection. This report therefore does not indicate whether or not the facility is in possession of all relevant water licenses and whether or not the operations are complying with the conditions of water permits and licences that are applicable. However, the findings captured in section 11 below include references to water issues insofar as they relate to other authorisations applicable to the site (for example, EIA authorisations) and to the provisions set out in the National Environmental Management Act and the Environment Conservation Act relating to serious or significant harm to the environment.]</p> <p>The methodology followed, as evident from the report, was to assess compliance with every condition in applicable authorisations and with relevant legislative provisions by way of interviews, document review and on-site activities.</p>
Site or activity name	SASOL
Inspection scope, particularly identification of the organisational and functional units or processes inspected and the time period covered	Landfill Sites Raw Materials Storage Areas Tank Farm Refinery

	Synfuels Catalytic Cracker (SCC) Associated Workshops and Maintenance Areas Associated Laboratories Power Generation Plant Effluent Treatment Plant Water Treatment Plant Associated Workshops and Maintenance Areas Associated Laboratories			
3. INSPECTION TEAM				
Team leader	Name	Institution	Position	Contact details
	Anbendren Pillay	DEAT	Deputy Director: Compliance Inspections	Left the Department
Team members	Annexure A			
4. FACILITY REPRESENTATIVES				
Name	Position/title	Contact Details		
Joretha Klaasee	Air Specialist	017 6103443/ 0828059744/ joretha.klaasee@sasol.com		
Esther Pilane	Environmental Chemist	017 6104577/ 0827810868/ esther.pilane@sasol.com		
Jaco Linde	Environmental Specialist	017 6104803/ jaco.linde@sasol.com		
Stephen Mabena	Waste inspector	017 610 8642/083 327 1055		
Michael Ratcliff	Section Leader	017 610 2292/0824928942		
Johan Nel:	Environmental Specialist	017 610 3894/0845110431		
Piet Brits:	Waste & Water Inspector	017 610 2141/0827740281		
Johan Wahl	Area Leader	017 610 3280/0828052861		
Henwill Storm	Area Leader	017 610 3981/0828283446		
Rouxthje Strydom	Section Leader	017 610 6003/0834592842		
Tjaart Kruger	Section Leader	017 6102817/0825613559		
Pannie Froneman	Safety Manager	0176105176/0823738561		
Martha van Schalkwyk	Technician	017610 6003		
Marius de Wet	Technical Engineer	072 242 4718		
Theuns Nel	Operational Manager	017 610 2388/0824996321		
Owen Jamela:	Laboratory Manager	017 610 2913		
Jenine Windt	Laboratory technician	017 610 2841		
Daan Loock	Group Leader –Farming	017 610 2150/082 902 0466/ daan.loock@sasol.com		
Jaco Bruwer	Chief Technician-SCC Project Turbo	017 610 7717/ 082 327 0525/ jaco.bruwer@sasol.com		

Sean Boyce	Quality Coordinator- Sasol Carbo Tar	017 610 3439 /083 675 5989/ sean.boyce@sasol.com
Boysie Mokoka	Production Section Leader-Hot Side (SCC)	017 610 7714/ 082 492 9274/ boysie.mokoka@sasol.com
Phillip Hattingh	Electrical Area Leader-Refining Instruments	017 610 4274/ 082 492 8934/ phillip.hattingh@sasol.com
Anandran Pillay	Area Leader-Tart Plant (Gas Production)	017 610 5300/ 082 377 9270 / anandran.pillay@sasol.com
Monwabisi Tembani	Section leader-North Unit (West Refinery)	Monwabisi.tembani@sasol.com
Zweli Nkosi	Section Leader – South Unit	Zweli.nkosi@sasol.com / 082 330 5992
Meshack Sehaole	Section Leader – Central Unit	Meshack.sehaole@sasol.com
Petunia Sibeko	Section Leader – North Unit (East Refinery)	082 805 2862 / petunia.sibeko@sasol.com
Nonhlanhla Twala	Acting Section Leader – South Unit	076 920 5090 / Nonhlanhla.twala@sasol.com
Schalk Botha	Synfuels Catalytic Cracker-Process Technician	Schalk.botha@sasol.com / 017 610 7717
Mr. Steve Govender	Group Leader – Mechanical Workshop	017 610 7714 / Steve.govender@sasol.com
Mr. Malcolm Koopman	Section Leader – Mechanical Maintenance	Malcolm.koopman@sasol.com /017 610 4274
Mduduzi Langa:	Environmental Engineer	0176192561
5. BACKGROUND TO INSPECTION		
History of the facility	There were no previous comprehensive inspections conducted on this facility	
Brief description of the activities/operations, and process	This is a Petroleum Refinery industry and comprises of a typical refinery process.	
Compliance history, where applicable	No enforcement action has been undertaken by DEAT against SASOL in the recent past.	
Ownership	Listed on the JSE	
ISO 14001 Certification	Yes Accreditation number DQS 383569 UM	
Notification of inspection	SASOL was notified of the inspection on 19 February 2008.	
Mandated legislation and permits	Annexure B	
6. OPENING MEETING		
Date, time and venue	4 March 2008 in Corporate Affairs Boardroom	
Attendance register	Annexure D	
What was discussed	The team leader gave the standard National Refineries Enforcement and Compliance Project opening meeting presentation.	
Any specific arrangements made	The safety induction was done on 3 March 2008 at the Sasol facility due to it lasting about 6 hours. The facility also provided PPE for the inspectors that required it.	

with the facility	
Describe if entry was granted or denied	The inspectors were granted access once they complied with the safety requirements
Problems/restrictions	Sasol provided the cameras to take photographs due to the safety risk associated with cameras.



7. INSPECTION ACTIVITIES		
Team A: Waste and Raw Material Storage Area.	Areas/sections visited	<ol style="list-style-type: none"> 1. Charlie 1 disposal site 2. Ash dump site (fine ash and coarse ash dam) 3. Raw material storage area (life pad, coal stock pile-east and west plaas) 4. Tank farms storage area (Synfuel products) 5. Main refinery laboratory
	Key observations	<p>Charlie 1 disposal site</p> <ul style="list-style-type: none"> • Recycling and sorting of waste • Access control and recording of incoming waste • Entrance notice board • Monitoring boreholes • Iron Oxide (FeO₂) disposed of • Leachate (No wet cells) (See photo T1-01 & 02) • Asbestos • Sand blasting material/grit(from Unit 4) • Speed limit signs • Wetland • Selexorb waste material • No dust control measures on un-surfaced roads <p>Ash dump site (fine and coarse ash dams)</p> <ul style="list-style-type: none"> • Fine and coarse ash dams • Black product dam • Evaporation ponds • Liner • Recovery area • No dust control measures on un-surfaced roads <p>Raw material storage area (life pad, coal stock pile-east and west plaas)</p> <ul style="list-style-type: none"> • Wet fine coal stockpile (see photo T1-03) • Run-off collection dam • Stormwater drainage system (see photo T1-06 & 07) • Unlined and lined storage area • Water ponding (see photo T1-04 & 05)

		<ul style="list-style-type: none"> • Bund wall <p>Tank farms storage area (Synfuel products)</p> <ul style="list-style-type: none"> • Floating roof tanks • Fixed roof tanks • Primary and secondary seals • Vapour socks • Drainage system • Ground and Stack flaring • Flare evaporation dam • Knock out drums • Capacity meter reader • Fire ring detectors <p>Main refinery laboratory</p> <ul style="list-style-type: none"> • Hazardous waste storage area (lined) • Signage • Labelled and dated drums of various hazardous waste • Washing basins
	<p>Staff who accompanied us to each area/section (name and title)</p>	<p>Charlie 1 disposal site</p> <p>Esther Pilane: Environmental Chemist Johan Nel: Environmental Specialist Stephen Mabena: Waste Inspector Michael Ratcliffe: Section Leader Piet Brits: Waste & Water Inspector</p> <p>Ash dump site</p> <p>Hernwill Storm: Area Leader Rouxthjie Strydom: Section Manager Marius De Wet: Technical Engineer Martha Van Schalkwyk: Technician Esther Pilane: Environmental Chemist Johan Nel: Environmental Specialist</p>

		<p>Raw material storage area (life pad, east and west plaas)</p> <p>Johan Wahl: Area Leader Tjaart Kruger: Section Leader Esther Pilane: Environmental Chemist Johan Nel: Environmental Specialist Mduduzi Langa: Environmental Engineer</p> <p>Tank farms storage area</p> <p>Johan Nel: Environmental Specialist Theuns Nel: Operational Manager Johan Van der Walt: Safety Training Officer Pannie Froneman: Safety Manager</p> <p>Refinery laboratory</p> <p>Johan Nel: Environmental Specialist Owen Jamela: Lab Manager Jenine Windt: Laboratory technician</p>
	<p>Key questions and answers about each area/section</p>	<p>Charlie 1 disposal site</p> <p>The team asked about the lifespan of the landfill site? Mr Nel indicated that the landfill site has been operating since 1991 and it has got 11 years lifespan remaining.</p> <p>What type of waste is being disposed of at the site? Mr Retcliffe stated that only general waste is allowed on the site.</p> <p>How often does covering take place and where does the cover material come from? Mr Brits informed the team that there is daily covering and the cover material is from the excavations from the development within the Sasol.</p> <p>We asked who conducts the reclamation of waste on site? Mr Mabena mentioned that PM Metals is responsible for the reclamation of the recoverable material on site and there is a contract. Enviroserv is responsible for management and operation of the landfill site.</p>

		<p>The team asked if there was a weighbridge at the site? Mr Brits indicated that there is no weighbridge at the site. They are using the size of the trucks to estimate the incoming waste.</p> <p>The team asked if there is a wet cell and a leachate pond? Mr Retcliffe responded that there is no wet cell and leachate pond as they did not foresee that there will be any leachate produced on site.</p> <p>The team further enquired about the storm water drainage system? Mr Brits said that there is no storm water drainage system as they rely on the natural run-off due to the steepness of the slope.</p> <p>How do they monitor the ground water? Ms Pilane stated that there are monitoring boreholes that were just installed recently, and University of Free State is responsible for water sampling and reporting.</p> <p>Is there any dust control measures that are implemented on site? Mr Brits indicated that they do spray the roads with water though not often because the speed limit signs restrict the trucks to a 20km/hour speed.</p> <p>We asked if the Iron oxide on site is hazardous? Mr Brits informed the team that the substance is non-hazardous.</p> <p>Ash dump site (fine ash and coarse ash dam)</p> <p>How do they stabilize the black product? Mr De Wet indicated that they use fine ash at a ratio of 1: 5 and 1:6.</p> <p>How do they rehabilitate the coarse ash dumps? Mr De Wet stated that there is no rehabilitation plan in place. The ash dumps undergo natural rehabilitation through invasive vegetation.</p> <p>Is there any lining at the fine ash dams? Mr De Wet mentioned that the dams are lined with HTP lining.</p> <p>Is there any dust control measures in place? Mr Storm said they do have dust control measures in place and they have commenced with the investigation of dust monitoring.</p>
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		<p>tanks are 40 000 cubic meters.</p> <p>How often do they maintain the tanks? Mr Theuns Nel informed the team that according to the maintenance plan the tanks are maintained after a year of installation and the life span of the tanks is 9 years.</p> <p>How do they differentiate the tanks? Mr Theuns Nel stated that each tank has its own identity number.</p> <p>How do they control rainwater from the floating roof tanks? Mr Theuns Nel informed the team that they have 2-layered seals that prevent rainwater from seeping through the product as well as the water drainage system installed at the roof tops.</p> <p>How do they control emissions from the product? Mr Van Der Walt indicated that there are socks fitted on the evaporation pipes to control the emissions of the Volatile Organic Compounds (VOCs).</p> <p>How often do they do ground flaring? Mr Theuns Nel indicated that they only do ground flaring when they want to get rid of unwanted or off-spec product.</p> <p>How long does the flaring occur? Mr Theuns Nel said it takes approximately 6 days.</p> <p>What happens to the water at the ground flaring pond? Mr Theuns Nel informed the team that they just leave the water in the pond then it eventually evaporates to the atmosphere. He further assured the team that the water is not contaminated.</p> <p>The team asked if there are any emissions that result from ground flaring? Mr Theuns Nel mentioned that the ground flaring involves burning the pure product therefore there are no emissions.</p> <p>Are there no emissions from the upper flaring? Mr Theuns Nel stated that there are no emissions during upper flaring, except when there is tripping (excessive emissions) and shutdowns (controlled emissions) at the plant.</p> <p>Main refinery laboratory</p> <p>How long is the waste being stored on site?</p>
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	Copied of documents taken	See annexure D.
	Documents requested and <u>not</u> received	All documents requested were received.
Team B: Synfuel catalytic cracker, Refineries and Maintenance workshops	Areas/sections visited	<ol style="list-style-type: none"> 1. SCC and maintenance workshops 2. West Refinery Plant and maintenance workshops 3. East Refinery Plant and maintenance workshops 4. Carbo Tar Plant 5. CTF Plant
	Key observations	<p>1.SCC Plant Jaco Linde and Daan Look The inspection commenced with a short meeting in the SCC boardroom.</p>

		<p>Incident Mr. Jaco Bruwer and Mr. Schalk Botha told the inspection team that the plant had a trip on the 3rd March 2008. Mr. Schalk told the team that it is suspected that the refractories in the cyclone became loose and they blocked the cyclone but that was still to be confirmed by the investigation.</p> <p>Waste The team visited the mechanical workshop and it was observed that the separation of waste from source is an issue. Mr. Steve Govender stated that the waste gets mixed anyway in Charlie 1 landfill site and they therefore sometimes do not see the need to separate at source.</p> <p>Effluent</p> <ul style="list-style-type: none"> ▪ Oily water is the only effluent that is released to the API dams. <p>Air issues</p> <ul style="list-style-type: none"> ▪ Mr. Schalk told the team that the plant has been in operation for only 66 days. It started operating on the 27 December 2007 as a result there are no monitoring results as no studies had been conducted thus far. Mr. Mokoka told the team that they are looking at complete combustion of off-gases by adding more oxygen in the stack. <p>Decanted oil</p> <ul style="list-style-type: none"> ▪ The team observed decanted oil stored in drums on wooden decks placed on the ground and an oil spill near the drums. <p>2. West Refinery Plant</p> <p>Waste</p> <ul style="list-style-type: none"> ▪ The team found that waste disposal in the bins is not done according to the label on the skip. General waste was mixed with contaminated waste such as material soaked with hydrocarbon and oily PPE which is regarded as flammable and therefore dangerous in a general landfill site. <p>Spillage</p> <ul style="list-style-type: none"> ▪ The team observed a spillage of a product from Unit 34 Vacuum bottom and Sizakele asked Mr. Zweli Nkosi who stated that the product is the decanted oil from Unit 34. There is no bund wall on the edges of the plant, hence oil spills onto the ground outside the concrete area <p>Air pollution issues</p> <ul style="list-style-type: none"> ▪ Mr. Tembani stated to the inspection team that off-gases are emitted through various
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stacks as required by the permit. Mr. Smit told Sizakele that no sour gas is vented to the atmosphere because there has been a change in technology hence the process in Unit 14 and Unit 15 has changed. The team observed product spill in Unit 14 from the plant processes going over the bunded area to the ground. The current bund wall is not effective enough to contain the spill.

Effluent

- Monwabisi Tembani told the team that oily water and oil gets pumped into the sewer which leads to the API dams. Storm water is channelled through to the API dam where it gets tested before being released to the environment.

3.East Refinery Plant

Waste

- The team spotted a pile of fluorescent tubes and enquired with Petunia as to how do they dispose of the tubes and she told the team that their electrical workshop department handles the disposal together with WRF and Enviroserv will have safe disposal certificates.
- The team observed the storage of used catalyst in drums and when asked, Petunia told the team that the catalyst is sold to a company called Osizweni where they are used as a product during the process of making fertiliser.

Effluent management

- Ms Petunia Sibeko stated that not all plants have effluents in their refinery but those that have effluents, pump it into the API system or it gets pumped to the process water treatment plant for treatment and further use in the processes.

Leaks

- The team observed steam leaking from Unit 232 and Ms Nonhlanhla Twala told the team that the plant is scheduled for maintenance in September 2008 during the shutdown.

Old oil drums

- The team observed empty oil drums (approximately 22 drums) being stored on the ground with an oil spill close by as well as no bund wall. The spill may have occurred during loading or unloading of content. Petunia stated that there has been communication internally to fix the situation but she will discuss it further with her colleagues.

		<p>Mechanical workshop</p> <ul style="list-style-type: none"> Sizakele asked Malcolm Koopman to provide the team with safe disposal certificates for the contaminated PPE, asbestos as well as used batteries. He stated that this information is with Enviroserv as they manage the site and the workshop does not get proof of safe disposal back to them as waste generators. <p>4.Carbo Tar Plant</p> <ul style="list-style-type: none"> The team was accompanied by Mr. Boyce who told the team that stack monitoring is done by external service providers organised by the Environment department and there is no on-line monitoring. <p>Waste</p> <ul style="list-style-type: none"> The team observed mixing of waste at source in that general waste was disposed of in the same skip with contaminated fire hose pipe as well as oily hard broom. When asked about this Mr. Boyce stated that this waste material is disposed in the wrong skip and he will have it removed to the correct skip immediately. <p>5.CTF Plant</p> <ul style="list-style-type: none"> The team observed that the wet scrubber system that was installed never worked as the design specifications were incorrect. Mr. John Govender told the team that their off-gases are not captured or cleaned in any way as they go through the malfunctioning stack. No stack monitoring is in place or has been put in place in the last three years. No proper drainage system for contaminated run off water is in place for the plant. The soil is used as a top cover for the concrete surface underneath it. The disposal of contaminated soil from the plant is being done by the WRF as and when necessary. Disposal of contaminated soil. Mixture of contaminated waste with general. Broken contaminated waste skip base resulting in waste spilling on the ground. When the team asked Francois Slabbert he stated that the skip will be removed from the plant as it should not have been used anyway by now. Used glass test tubes on the ground between the skips.
	<p>Staff who accompanied us to each area/section (name and title)</p>	<p>Jaco Linde Daan Loock Mr Jaco Bruwer Mr.Schalk Botha SCC Plant</p>

		<p>Boysie Mokoka Schalk Botha</p> <p>Refinery West Plant Zweli Nkosi Meshack Sehaole Monwabisi Tembani</p> <p>Refinery East Plant Petunia Sibeko Nonhlanhla Twala</p> <p>Carbo Tar Plant Sean Boyce</p> <p>CTF Plant Francois Slabbert</p>
	Key questions and answers about each area/section	<ul style="list-style-type: none"> The team asked about the separation of waste at the workshop Mr Govender responded that they did not see the need to separate the waste as it still gets mixed up at Charlie 1 Site. The team asked if any sour gas was vented to atmosphere? Mr Smit responded no. The team enquired about the disposal of the fluorescent tubes Petunia responded that it was removed by Enviroserv. The team enquired about on line monitoring of the stacks at the Carbo Tar plant Mr Boyce responded that an external service provider conducts the monitoring and that there was no on line monitoring system in place The team enquired why the scrubber system in the CTC plant was not working. Mr Govender responded that since installation it did not work as it was not installed as per design specifications
	Copied of documents taken	See Annexure D
	Documents requested and <u>not</u> received	See section 18
Team C: 3	Areas/sections visited	

	<p>POWER GENERATION PLANT(STEAM PLANT) WATER TREATMENT PLANT EFFLUENT TREATMENT PLANT LABORATORY – EFFLUENT TREATMENT PLANT(W ET CHEMISTRY LAB) LABORATORY – RESEARCH AND DEVELOPMENT DIVISION (EFFLUENT TREATMENT)</p>
<p>Key observations</p>	<p>1. POWER GENERATION PLANT(STEAM PLANT)</p> <ul style="list-style-type: none"> • This plant is made up of the East and West plant. • The East plant has 9 boilers and the West has 8 boilers, totalling to 17 boilers. • Boiler 9 on the Eastern plant has emission around 356 mg, which is above the standard emissions of 180mg. • Boiler 8's readings were at around 160mg and it was due for precipitator wash. • Boiler 6 from Eastern plant was out of commission and was due for maintenance. • Total average for emissions from the boilers in the eastern plant was at 147mg while that of the western plant was at 112 mg. <p>2. WATER TREATMENT PLANT</p> <ul style="list-style-type: none"> • Leaks from pipes • Back flashing • Sludge deposit was floating on the final clarifier • Water treatment method used was the membrane technology • Valve 044pc-210B, CP527 and Soot blower b/5 were malfunctioning • We observed slime sludge on the floor • Valve was leaking <p>3. EFFLUENT TREATMENT PLANT</p> <ul style="list-style-type: none"> • Functioning Waste Weighbridge • Sorted and stored contaminated soil and waste water • Clean storm water dam was not working but it contained oily water • Two storm water dams not functioning and lined according to minimum requirements • Functioning Fire extinguish system. • Observed fire emergency being extinguished • Hydrogen Peroxide tank stored on bunded area • Valves of Sulphuric Acid have socks to prevent leakages • Oily water sump • Bio-reactors • Bunded and Roofed Hazardous Waste transfer Station

		<p>4. LABORATORY – EFFLUENT TREATMENT PLANT(WET CHEMISTRY LAB) and RESEARCH AND DEVELOPMENT DIVISION (EFFLUENT TREATMENT) LABORATORIES</p> <ul style="list-style-type: none"> • Samples • Ash waste stored in drums • Biological waste stored in bags • Chemical waste sump • Chemical waste sump contained both laboratory and oily water
	<p>Staff who accompanied us to each area/section (name and title)</p>	<p>Estelle Marais – Environmental SHERQ Manager Owen Pretorius</p> <p>POWER GENERATION PLANT(STEAM PLANT)</p> <ul style="list-style-type: none"> ○ Mr Greg Antony-Mossaobah– Area Leader East & West Steam Plant ○ Mr. Percy Ngidi – Operation, Steam plant West ○ Mr. Solomon Sibanyoni – Operations, Steam plant East ○ Mr. Bethuel Mapodile – Principal Technician, West plant ○ Mr. Andy McEchen– Electrical Engineering, East & West plant ○ Mr. Andre Genade – Analyser Department ○ Mr. Louis Diedricks – Emissions <p>WATER TREATMENT PLANT</p> <ul style="list-style-type: none"> ○ Dr. Magan Govender – Area Leader: Water Operations ○ Mr. Thabo Motleleng – Laboratory Assistant ○ Mr. Johannes Mahlangu – Senior Process Controller <p>EFFLUENT TREATMENT PLANT</p> <ul style="list-style-type: none"> ○ Michael Ratcliffe – Section Leader, Waste Recycling Facility ○ Pieter Brits – Foreman <p>LABORATORY – EFFLUENT TREATMENT PLANT(W ET CHEMISTRY LAB)</p> <ul style="list-style-type: none"> ○ Yolanda Brummer – Lab Analyser <p>LABORATORY – RESEARCH AND DEVELOPMENT DIVISION (EFFLUENT TREATMENT)</p> <ul style="list-style-type: none"> ○ Michael – Laboratory Technician
	<p>Key questions and answers about each area/section</p>	<p>POWER GENERATION PLANT(STEAM PLANT)</p> <ul style="list-style-type: none"> ○ The Area leader, Greg Antony – Mossaobah was asked what the introduction of NH₃ has to do with power generation and the emission of ash. He indicated that since the introduction of NH₃, emission of large quantities of ash

		<p>has decreased as NH₃ is able to trap large amounts of ash from escaping into the atmosphere.</p> <ul style="list-style-type: none"> ○ Greg was asked if they have experienced any emergency incidents from either the Eastern or Western plant. He indicated that they had an incident that falls under Section 30 in 2005 and it was reported to DEAT ○ During the presentation, Greg was asked why boiler 9 from Eastern plant had high emissions of about 356 mg/m³. He indicated that the boiler air filter was not working and was scheduled for routine maintenance, he further mentioned that it takes years to order the boiler parts and the electricity crisis worsens the situation. ○ Greg was also asked why boiler 8 from the Western plant had high emissions. He indicated that the boiler was due for a precipitator wash. <p>WATER TREATMENT PLANT</p> <ul style="list-style-type: none"> ○ Magan was asked what the cause of the pipe leaks and disposal into a pit He responded that this was to empty the vessels and take out all the stones. He explained that this was operated according to their plant plan ○ Magan was asked if they ever incur overflows. He responded that these happen during shutdowns which are scheduled to be once per year. ○ Magan was referred to the leaks of water on the pipes that the other employees were busy with. He indicated that this was clean water with no adverse impact ○ Magan was asked if their plant had a permit. Estelle Marais indicated that they had one and will forward it ○ Magan was also asked about another leak that had made a channel or route to the other side of the road on the side of the 3 reservoirs. He indicated that it was clean water with no adverse impact. ○ Magan was asked on the deposit of sludge at the top of the clarifier. He indicated that this was due to the repairing of the pipes
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		<p>EFFLUENT TREATMENT PLANT</p> <ul style="list-style-type: none"> ○ Michael Ratcliffe was asked if the Hazardous waste, batteries, asbestos and fluorescent lamps had a permit. He indicated that no permit was required as these were kept temporarily for less than 90 days. ○ Michael indicated that their plant preferred the use of ozone over Hydrogen Peroxide as the ozone was a strong oxidising Agent ○ Michael was asked, what happens if they experience emissions of ozone. He indicated that when this happens, the ozone is routed to a tank to react with oxygen and break it down into oxygen molecules. <p>LABORATORY – EFFLUENT TREATMENT PLANT(W ET CHEMISTRY LAB)</p> <ul style="list-style-type: none"> ○ Yolanda , the laboratory assistant, was asked what type of analyses they performed. She indicated that they did analysis of effluents to determine the COD and salts like sodium, phosphorus and nitrates. <p>LABORATORY – RESEARCH AND DEVELOPMENT DIVISION (EFFLUENT TREATMENT)</p> <ul style="list-style-type: none"> ○ Michael, the laboratory assistant, was asked how they manage their waste. He responded that they have an internal waste policy. ○ Michael was also asked what they were doing with the ash waste observed. He said that they disposed it into drums and then take it to the ash heap. ○ Michael was asked what they do with their biological waste. He responded that they put it into bags which are collected by Sinumed ○ Michael was asked to explain on the trapping of substances which had “scum, oily nature” by a screen at their chemical waste disposal area. He indicated that he was not sure why there was the installation of a screen and what it was supposed to trap
	Copied of documents taken	<p>POWER GENERATION PLANT(STEAM PLANT)</p> <ul style="list-style-type: none"> • Average boiler opacity for the past 3 years

		<ul style="list-style-type: none"> • Emissions • Precipitator repairs(ref 71) • Detailed Section 30 report(occurred Dec 2005)(ref 66) • Overview: steam plant(ref 78) • Opacity information: concerning settings • Coal supply to steam plant(ref 02) <p>WATER TREATMENT PLANT</p> <ul style="list-style-type: none"> ○ Schematic diagram of the plant(ref 67) ○ 2 months report on the status of the water(ref 72) <p>EFFLUENT TREATMENT PLANT</p> <ul style="list-style-type: none"> • 2 months report on the process of the plant(ref 68) • Schematic diagram of the plant(ref) • Process cooling water quality from water recovery to cooling towers(ref 76) • Waste recycling facility registration and license application(ref 04) • Topographic map of the boreholes(ref 74) • Service agreement from EnviroServ (ref 47) • Internal Audit Report(ref 05) • Exemption granted in terms of section 21(4) of the Water Act, 1956 in respect if the purification or treatment of Water used (ref 29) Expired 31 October 1999 • Extension of exemption 1826 B granted in terms of section 21(4) of the Water Act, 1956(Act 54 of 1956) Expired 31 October 2000 <p>LABORATORY – EFFLUENT TREATMENT PLANT(W ET CHEMISTRY LAB)</p> <ul style="list-style-type: none"> • Results of sampling(ref 73, 75) <p>LABORATORY – RESEARCH AND DEVELOPMENT DIVISION (EFFLUENT TREATMENT)</p> <ul style="list-style-type: none"> • 2 months report on the process of the plant Schematic diagram of the plant
Documents requested and <u>not</u> received		<p>POWER GENERATION PLANT(STEAM PLANT)</p> <ul style="list-style-type: none"> • 4 year maintenance plan of the boilers • Letter from ESKOM to increase power production <p>LABORATORY – RESEARCH AND DEVELOPMENT DIVISION (EFFLUENT TREATMENT)</p> <ul style="list-style-type: none"> • Waste internal policy • Documents of ash storage in drums • Documentation of Biological waste transportation to Sinumed • Maintenance plan of operation

Team D: Documents Team	Areas/sections visited	Documents team remained in the Environmental department boardroom
	Key observations	There is a proper record-keeping system. Documents are stored electronically and as hard copies. It was easy for the representatives to provide requested documents that they had in their possession.
	Staff who accompanied us to each area/section (name and title)	Joretha Klaasee- Air Specialist Esther Pilane- Environmental Chemist Jaco Linde- Environmental Specialist
	Key questions and answers about each area/section	<ul style="list-style-type: none"> • Requested proof of records of quantities of waste disposed at Fine Ash Dam 5 (FAD5) and Esther provided the information; refer to doc 2. • Requested proof of date of commissioning of new waste recycling facility. The information was not provided, refer to doc 1. • Requested proof that the maximum height of the whole site does not exceed 120m and maximum height of the Fine Ash Dam 5 does not exceed 40m above ground level. Esther provided the information drawings, however, she was unable to interpret the drawings refer to doc 12 • Asked for a letter of appointment of a specialist to conduct an investigation on the dispersion of dust and air quality on site. Esther responded that Sasol has not appointed any specialist thus far. • Asked for a letter of appointment of an external auditor to audit the site annually and the information was not available refer to doc 6. • Requested a letter of approval from DWAF: Regional Director to reclaim fine ash and the letter was not provided refer to doc 11. • Requested proof of a letter to DWAF: Regional Director reporting volumes and nature of waste material reclaimed at the FAD5 and the letter was not provided, refer to doc 11. • Asked if the monitoring committee was established and Esther responded that they were not directed to establish such committee. However, they have just recently established a community committee to discuss all plant activities and impacts refer to

		<p>doc 13</p> <ul style="list-style-type: none"> • Asked if an emergency contingency plan was submitted for approval to DWAF: Regional Director. Esther responded that they have the plan but it has not been submitted: refer to doc 15 • Requested an incident report and complaints register for the FAD5. No register for the specific site, only a general one was provided refer to doc 48 & 49 • The team asked Jaco if the boreholes are still being monitored as per permit condition. He responded that some of the boreholes have been destroyed however they have included new ones. • A further question was posed in order to find out if that information was submitted to DWAF and approved? Jaco indicated that there was no formal submission, however, they do mention such information in their annual monitoring report refer to doc 14 • The team asked why some of the surface monitoring points are not included in the chemical laboratory results for surface monitoring as per the permit condition report. Jaco responded that some of the points are not monitored because there is no flow on a continuous basis refer to doc 69 • The team asked if SASOL updates and keeps record of all the information in Annexure V of the section 20 permit on annual basis as per requirement of the permit. Jaco explained that they used a spreadsheet format and it is included in the annual report refer to doc 14.
	Copied of documents taken	See Annexure E
	Documents requested and <u>not</u> received	See section 18.
8. RECORDS REVIEWED AND GATHERED		
Records copied and taken	See Annexure E . A receipt for this list, in handwritten/typed form, was signed by on the 05 March 2008	
Where were the records kept, and who was in	The documents were easily accessible. All requested documents were provided to the team. The documents were kept in the Environment Department and other relevant departments.	

charge of them?	
What selection method was used to review records?	We commenced with monitoring reports, external and internal audit reports. The team then followed the permit requirements. The selection method was firstly to request records for a period of 6 months and then up to a year, if necessary
9. SAMPLES AND MEASUREMENTS	
What samples were taken, where, when, and of what?	N/A
Chain-of-custody documentation including reference to the time, method of packaging, preserving, transporting and receipt of samples at the lab	N/A
Procedures used for the calibration of sampling and/or measurement equipment	N/A
10. SUPPORTING DOCUMENTS AND PHOTOS	
Documents	Annexure A: Inspection Teams Annexure B: List of mandated legislation and authorisations Annexure C: Opening Meeting Attendance Register Annexure D: Documentation (including electronic information) copied at SASOL
Photographs	Annexure E

11.FINDINGS OF NON-COMPLIANCE, IF ANY									
Legislative provision/authorisation condition	Details of non-compliance								
Authorisations									
APPA registration certificate No.1972/28 Coal tar filtration plant	1. The R/C (page [NO 4.1] no.1972/28 requires that off gases from the pressurized tanks must be extracted and vented via a water scrubber to atmosphere. Mr Anandran Pillay told the team that the water scrubber has been down over the past three (3) years due to the lack of compatibility in specific designs.								
	2. The availability of all air pollution control equipment must not be less than 96 % of the operating time per any continuous period of thirty (30) days at the emission limits set in this registration certificate. Mr Anandran Pillay told the team that the water scrubber has been down for over 3 years and that there is no on-line stack monitoring.								
APPA registration certificate No.1972/9 in respect of steam plant	3. The R/C (page [NO 4.1] no.1972/9 requires that the off gasses from precipitators particulate concentration must be less than 180 mg/m ³ as measures at 0°C and 101, 3 kPa The team was informed that Boiler 9 on the Eastern plant has emission around 356 mg/m ³								
APPA registration certificate No. 1972/27 Synfuel Catalytic Cracker APPA registration certificate	4. The R/C (page[NO 3(3) No 1972/27								
	<table border="1"> <thead> <tr> <th>Raw material</th> <th>Team's findings</th> </tr> </thead> <tbody> <tr> <td>Fischer Tropsch Depropanizer #2 Overhead 10 tons/hr Fuel oil make-up – 2.6 t/hr Boiler feed water make up-0.6 t/hr Steam injection 1.2t/hr Condensate #3 West bypass 18.2 t/hr Condensate #3 East bypass – 7.4 t/hr PPU1 Bottoms-18.6 t/hr PPU2 Bottoms- 10.8 t/hr</td> <td>These raw materials are not monitored and therefore the facility cannot demonstrate compliance with what is stipulated in the APPA permit.</td> </tr> <tr> <td>Carrier gas No2 – 5t/hr</td> <td>There is no data available for this raw material in the reports provided by the Sasol.</td> </tr> </tbody> </table>	Raw material	Team's findings	Fischer Tropsch Depropanizer #2 Overhead 10 tons/hr Fuel oil make-up – 2.6 t/hr Boiler feed water make up-0.6 t/hr Steam injection 1.2t/hr Condensate #3 West bypass 18.2 t/hr Condensate #3 East bypass – 7.4 t/hr PPU1 Bottoms-18.6 t/hr PPU2 Bottoms- 10.8 t/hr	These raw materials are not monitored and therefore the facility cannot demonstrate compliance with what is stipulated in the APPA permit.	Carrier gas No2 – 5t/hr	There is no data available for this raw material in the reports provided by the Sasol.		
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Propane – 16.8 t/hr	Propane – 36.9 between December 2007 and								

		February 2008
		Total feed – 293.4 tons/hr
APPA registration certificate West Refinery Plant	5.	The R/C (page 3 no. 1972/15 requires that Raw materials Polymer from Unit 232 (to unit 33) 40m ³ /hr Raw Material polymer is 49.76m³/hr and 47.54m³/hr
EIA Record of Decision/Exemption for 1.1 Km Pipeline for transporting tar from tank farm at unit 96 to the feed preparation plant at unit 85. Reference number 17.2.3GS 04	6.	The exemption was issued on 13 February 2006. Condition contained under the heading Duration and date of expiry states that the exemption is repealed if the construction of the pipeline has not commenced within two (2) years from the date of issue. The documents received from Sasol on 6 March 2008 from Esther Pilane states that construction has not commenced hence the exemption has expired. See EIA document pack no 79
EIA Record of Decision/Exemption for Tail gas transfer line from Synthol East to Synthol West reference number 17.2.3.EV1	7.	Condition 1.5 requires that the contents of the exemption must be made known to all I and APs within 14 days of issuing of the exemption. Proof of this communication could not be provided by Sasol. See EIA document pack number 3.
	8.	Condition 8.2 requires weekly and monthly monitoring and inspection of leaks along the pipe line route must be carried out. No inspection reports were provided by Sasol, see EIA document pack number 3.
EIA Record of Decision/Exemption for the waste Recycling facility reference number 14.25.EV 10	9.	Condition 6.1 requires that a post construction audit must be conducted to ensure that any shortcomings are identified and addressed as soon as possible. Sasol provided minutes of a meeting but no audit report has been provided. See EIA document pack number 4.
EIA Record of Decision/Exemption for New Fine Ash Dam System reference number 14.24.EV2	10.	Condition 4.4 requires that Benzene must be monitored for verification purposes in the Black Ponds no BP7, BP8 and BP 13. Sasol did not provide any monitoring results for these. See EIA document pack 8
EIA Record of Decision/Exemption for Liquid Flare for alcohols reference number 14.25(EV).6(W)	11.	Condition 2.2 requires 14 days notice must be given to the department before commencement of construction activities. No notification was submitted to the department and no evidence was provided by Sasol. See EIA document pack number 9.
	12.	Condition 7.2 requires that there must be monitoring of the water consumption and water contained in the ponds (condition 7.1) and these results must be submitted to the Gauteng Regional Office of the department of Water Affairs and Forestry (DWAF) This information was not submitted to DWAF. See EIA document pack number 9
EIA Record of	13.	Condition 2.2 requires that 14 days written notice must be given to this Department before construction

Decision/Exemption for Sasol Benzene reduction plant in Secunda Reference number 17/2/22/18/GS 2	activities commence. This was not done and Sasol did not provide any evidence of this. See EIA document pack number 10.	
	14. Condition 2.3 requires an independent ECO must be appointed before commencement of construction activities. This was not done and Sasol did not provide any evidence of this. See EIA document pack number 10.	
ECA Section 20 permit. 16/2/7/C121/B028/Z21/P406 Fine Ash Dump 5	Page 7 condition 5.2.4 requires the facility to appoint a specialist to conduct an investigation on the dispersion of dust and other air quality variables to determine the buffer of 350m and 800m are sufficient to prevent detrimental effects or nuisance conditions	According to Esther Pilane there was no appointment of a specialist neither was the study conducted to comply with this condition
	Page 2 condition 2.1 requires that the FAD5 be constructed and developed according to condition 4 which may be used for the disposal of 160 000 tons of fine ash per month from the date of this permit to 2009 and for the disposal of 330 000 tons of fine ash per month after 2009.	According to document no 2 ; 275 000 tons per month is currently being disposed of at the FAD5.
	Condition 3.1.1 of the permit stipulates “a Status Quo report” regarding the current impact of the site on the environment (surface water, ground water and air quality) must be submitted to the Regional Director for approval by 30 June 2001. This report must include an investigation into the stability of the existing waste disposal site should any future development take place.	Esther mentioned that the air quality reports are not sent to the Regional Director, however, water monitoring reports are forwarded to DWAF on a monthly basis refer to doc 69

	Condition 5.1.3 of the permit: the maximum height of FAD5 must not exceed 40m above ground level.	Esther provided drawings refer to doc 12, - the current height is 51m.
	Condition 5.1.4 stipulates “subject to the outcome of the investigations conducted in terms of condition 3, the maximum height of the site must not exceed 120m above ground level”.	The results and drawings of the heights were provided, however, no clear explanation/ interpretation was given.
	Condition 5.2.2 stipulates that “the Permit Holder must submit written proof to the Regional Director of the steps taken according to condition 5.2.1, within one year from the date of this permit .	No letter was provided.
	5.3.4 stipulates “except for waste disposed of on the black products area, waste disposed of on site may not be reclaimed without prior approval by the Regional Director”	The waste is currently being reclaimed, however, there is no approval from the Regional Director refer to doc 11.
	Condition 7.1.1 stipulates that “the groundwater monitoring network for the waste disposal site must consist of the boreholes as numbered in the permit”.	Jaco Linde explained that some of the boreholes are not being monitored because they were destroyed due to ash infilling. Sasol has drilled other boreholes based on the outcome of the studies conducted. These boreholes are included in the annual monitoring report. Reference is made to the fact that the Regional Director was not officially informed about the boreholes that were destroyed as well as inclusion of the new boreholes -refer to doc 14.
	Condition 7.1.3 Groundwater monitoring for the Fine Ash Dam 5 must consist of boreholes as numbered in the Permit. The external user’s boreholes must include RV-10, RV-11 and RV-16.	According to information provided by Jaco, the external user’s boreholes were never monitored. The Regional Director was not informed. Refer to doc 14.
	Page 12 Condition 7.3.2.1 Surface	Jaco explained that some of the surface monitoring points are not

	water quality network must be monitored at locations specified in conditions 7.2.1, 7.2.2, 7.2.3 and 7.2.4	monitored because there is no continuous flow. These are RESM A; SW1; SW3 and RESM-C.
	Condition 7.3.2.1 stipulates that the surface water quality network for the entire site must be monitored (a) weekly for variables listed in Annexure III (b) monthly for the additional variables listed in Annexure	The weekly monitoring results were provided, however, some of the monitoring points were not included for example RESM-9 and RESM 21 and these points are a requirement from the permit. refer to doc 69.
	Condition 10.1.1 states that the Permit Holder must conduct quarterly audits on the entire Site and must compile an official audit report on each audit occasion documenting the findings of the audit according to condition 14.2, which must be submitted to the external auditor and the Department according to condition 14.3.1.	Internal quarterly audit reports are compiled, but are not submitted to the Department refer to doc 5.
	Condition 10.2.1 stipulates that Permit Holder must appoint an independent external auditor to audit the site annually and this auditor must compile an audit report documenting the findings of his audit according to condition 14, 2, which must be submitted according to condition 14.3.2.	The annual audit report is conducted by the external auditors, but not submitted to the Department as per the permit requirement , refer to doc 25 & 26.
	Condition 14.4.1. states that the Permit Holder must prepare an emergency contingency plan to be	Site contingency plan is prepared and available, but not submitted to the Regional Director.

	followed when a spillage occurs and this plan must be submitted to the Regional Director within four months from the date of this Permit for approval and implementation	
	Condition 5.4.1 page 8 requires that weatherproof, durable and legible notices must be written in at least three official languages applicable in the area. The notice must prohibit unauthorised entry and states the hours of operation, the name address and telephone number of the permit holder and the person responsible for the operation of the site	The team did not observe any notices
	Condition 5.4.4 page 9 requires that all entrance gates in the primary and secondary security areas must be manned during the hours of operation and locked outside the hours of operation	There is no fence nor is the gate manned
	Condition 5.4.5 page 9 requires that the permit holder must ensure effective access control to the return water dams until such time as it is no longer used for the management of decant water	There is no access control since there is no fence nor gate
ECA Section 20 permit. B33/2/310/28/P51: Charlie 1 Waste Disposal site.	Condition 3.8.1 page 3 requires that run-off water on site must be treated to comply with the aforementioned standard and discharged in a legal manner	There is no leachate drainage system or evaporation pond to contain run-off water from the site and therefore cannot be treated as required by the permit (see photo T1-01 & T1-02)

	<p>Condition 3.8.2 page 3 requires that runoff water arising from the site must be evaporated in dams or be evaporated by spraying within the site with written approval by Regional Director</p>	<p>There is no leachate drainage system or evaporation pond to contain run-off water from the site (see photo T1-01 & T1-02)</p>
	<p>Condition 4.2 page 4 requires that the site must be fenced to a minimum height of 1.8 meters with a gate of the same height at all entrances</p>	<p>The team observed a fence of less than 1.8 meters (see photo T1-01)</p>



Unauthorised activities	
ECA Section 20(1) <i>Disposal sites operated without S20 permits. Criminal offence in terms of Section 29(4) of ECA</i>	<ol style="list-style-type: none"> 1. Operation of new waste recycling by Sasol Sasol operate a waste recycling facility on site, they are not in position of the S20 permit. 2. Disposal of Iron Oxide and sand blasting grit at Charlie 1 disposal site
ECA Section 22 <i>Activities that required EIA authorisation in terms of section 22 ECA Criminal offence in terms of Section 29(4) of ECA.</i>	SASOL commenced with the following listed activities before 3 July 2006, without the requisite authorisations in terms of Section 22 of ECA:
NEMA Section 24F <i>Activities that required EIA authorisation in terms of section 24 NEMA Criminal offence in terms of Section 24F of NEMA.</i>	SASOL commenced with the following listed activities after 3 July 2006, without the requisite authorisations in terms of Section 24 of NEMA:

Environmentally harmful activities				
	Activity/situation that has or may have a major detrimental environmental impact	Evidence of the detrimental environmental impact(including potential impact)	Measures to deal with the real or potential detrimental environmental impact	Are the measures reasonable and/or sufficient to prevent or deal with the detrimental impact?
Activities/situations that have or may have a major detrimental environmental impact	Raw material storage - water ponding (see photo T1-04, 05,06 & 07)	Water ponding may lead to ground water polluting as the area is not lined	Water drainage system is installed on site	The measure is not effective or sufficient since the drainage system was blocked. The area was also not lined.
	Fine coal storage (see photo T1-03)	Storage of fine coal on an un-lined area for approximately 5 years has the potential to lead to ground water pollution	No measures in place	No measures
	9 drums containing oily catalyst are stored on the ground on a wooden deck in the SCC plant. There is a high risk of product spillage during the loading and unloading of the drums.	The quantity of oil spilled on the ground may have a negative effect on the underground water quality. There was evidence of a spillage on the ground.	There is a possibility that product (oil) spillage can take place because the drums accumulate on wooden decks instead of a concrete surface to prevent spilling into the ground.	Measures that would be more effective include a concrete surface with a bund wall to contain any future spillage.
	Decanted oil spillage on the ground from Unit 34 Vacuum bottom due to poor bund wall integrity.	This has the potential to lead to soil and groundwater pollution	No measures are in place currently to curb the continuous spillage of oil on the ground. Mr. Zweli Nkosi stated that Sasol is in the process of putting the bund wall in the plant.	Installation of a bund wall should effectively contain future spillages

	Spillage of tar outside the bunded area due to ineffective bund wall in Unit 14 in the Refinery West plant	The spillage has been on-going for quite some time judging by the quantity of product on the ground. There is therefore a likelihood of soil and possibly also groundwater pollution	No measures are in place to prevent/contain further spill of the product on the ground.	Effective bund wall may contain the product spill.
	Storage of potentially hazardous solid waste material such as spent catalyst on the ground.	The drums have been stored for a longer duration on the ground in an area that is not barricaded on the East refinery. In the event of a spill, the product may pose a threat to the environment	No measures are in place	No measures in place
	The team observed that the wet scrubber system that was installed at the CTF plant never worked as the design specifications were incorrect.	Mr. John Govender told the team that their off-gases are not captured or cleaned in any way as they go through the malfunctioning stack. No stack monitoring is in place or has been put in place in the last three years	No measures are in place	No measures in place
NEMA Section 30 <i>Emergency incidents not reported in terms of Section 30, or without reasonable measures to contain and minimise the effects of the incident, including its effects on the environment and any risks posed by the incident to the health, safety and property of persons; without undertaking cleanup procedures; without remedying</i>	On the 4 th of March 2008 Mr. Jaco Bruwer told the inspection team that the SCC Hot Section plant tripped and was shut down to investigate the cause of the incident. He told the team the assumption is that the refractories inside the cyclone became loose and blocked the cyclone. The incident was not reported to the authorities.	No reports were submitted to authorities.		

the effects of the incident; and without assessing the immediate and long-term effects of the incident on the environment and public health.

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Other contraventions	
NEMA Section 34A(1) <i>Hindering or interfering with an EMI in the execution of that inspector's official duties; furnishing false or misleading information when complying with a request of an EMI; failing to comply with a request of an EMI.</i>	Inspection team visiting Refinery plants had an encounter with Mr. Steve Matthee on the issue of taking photographs in his plant. He literally refused to allow inspectors to take pictures citing reasons of security and Sasol's policies. The fact that no permit was organised with him prior to the inspection was a concern. He was notified by the inspectors that a letter was written to Mr Sieberhagen-Managing Director of Sasol which highlighted the issue of taking photographs. The inspection team advised Mr Matthee on the procedure for taking photos and the confidentiality provision in the legislation that the inspectors must abide by. The inspectors requested that the plant personnel use their own camera to take pictures to accommodate their concern. Mr Matthee refused to issue a permit for the use of the camera because of late notification and he indicated that the permit will not be made available immediately. Eventually, the issue was sorted out and the inspectors were allowed to take pictures and agreement was reached.
12. GENERAL HOUSEKEEPING	
Team A	The area visited was tidy and well organised. Laboratory: The laboratory appeared to be in a good and clean condition and all staff inside the laboratory were wearing the appropriate PPE.
Team B	Beside the concern of waste management from the SCC, Refinery, Coal Tar Filtration and Carbo Tar plants and associated workshops, the house keeping is at an acceptable level. There is a concern though at CTF plant whereby tar is spilled on the ground and leaking from parked trucks waiting to off-load into the plant, the access area is, however, bunded. 22 empty drums of used oil were found lying on the ground instead of a concrete surface to prevent the product residues from spilling into the ground.
Team C	Housekeeping was satisfactory
Team D	N/A
13. OPERATORS' AWARENESS OF PERMITS AND PERMIT CONDITIONS	
Team A	Sasol's staff were aware of the permits applicable to them and were able to answer all the questions related to their operating permits.
Team B	The managers and plant representatives appeared familiar with the permit conditions. It was however disappointing that record keeping seemed to be an issue in plants. Many of the documents are with the central Environment department. There is no effective electronic document/information management system in relation to APPA certificates.
Team C	The staff were aware of the applicable permits but not the specific conditions
Team D	N/A
14. DOCUMENTATION SYSTEMS	
Documentation systems to support demonstration of compliance with legislation and permits	The documents were easily accessible. Requested documents were provided to the team. The documents were kept in the Environment Department.

15. SUMMARY OF INSPECTION PROCESS			
Uncertainties or obstacles encountered	None		
Have the inspection objectives been met within the scope of the inspection and in accordance with the inspection plan?	Yes		
16. CLOSING MEETING			
Date, time and venue	05 March 2008, 15h30 at Charlie 1 Farm House		
Who was present?	Name	Contact Details	Institution
	Lovey Modiba	017 819 2076	MDALA
	Obert Mkhathswa	017 819 1159	MDALA
	Thembinkosi Mavuso	017 819 1155	MDALA
	Jeremiah Sibande	013 759 4045	MDALA
	Duduzile Maphanga	013 759 4051	MDALA
	Tebogo Mogakabe	017 819 2829	MDALA
	Thokozani Metiso	017 819 1155	MDALA
	Musa Luhlanga	013 759 4046	MDALA
	Sizakele Ndzhukula	012 310 3094	DEAT
	Wiseman Rikhotso	012 310 3093	DEAT
	Anben Pillay	012 310 3951	DEAT
	Greg Scott	012 310 3084	DEAT
	Lebogang Matlala	012 336 8544	DWAF
	Armstrong Simelane	012 392 1355	DWAF
	Johan van Eck	017 620 6247	GOVAN Mbeki Local Municipality
	Revelation Montshiwa	054 3322885	DTEC
	Vick Botha	017 610 2146	Sasol
	Owen Pretorius	017 610 4072	Sasol
	Estelle Marais	017 610 2627	Sasol
	Johan Nel	017 610 3894	Sasol
	Daan Loock	017 610 2942	Sasol
	Mduduzi Langa	017 619 2561	Sasol
Esther Pilane	017 610 4577	Sasol	
	Marie Prinsloo	017 624 3000	Gert Sibande District Municipality
What was discussed?			
Was further information requested, from whom and by what date?	Yes further information was requested from Estelle Marais and had to be sent to the department by 15 March 2008.		
17. FOLLOW-UP LETTER			
None.			

18. OUTSTANDING ISSUES/FOLLOW-UP ACTIONS
Letter to authorities for construction activities waste sites
Appointment letter for the external auditor- waste sites
Emergency contingency plan confirmation sent to authorities for approval
Appointment letter of specialist to conduct dispersion model for dust and noise control
Motivation letter and reclamation plan submitted to authorities for approval
Approval letter for the fine coal reclamation on site
Minutes of community meetings
Contract between Sasol and Millenium Waste Management
Borehole map for the Raw Material Storage area
Contract between Sasol and Sulfolin for the reclamation of Black Product at ash Dump
Contract between Sasol and Waste Reclaimers (Pure metals) at Charlie 1 disposal site
Delisting letter for the disposal of Iron oxide to Charlie 1 waste site
Delisting letter for the disposal of Sand Blasting grit to Charlie 1 waste site
The age of the tank farm.
disposal certificates for the contaminated PPE, asbestos as well as used batteries
More information in relation the disposal of contaminated soil at the CTF Plant

Wiseman Rikhotso
Inspection team leader
Assistant Director: Compliance Monitoring
Department of Environmental Affairs and Tourism
Date:

Copies to: Altus Lotter
Mpumalanga Department of Agriculture and Land Administration

Annexure A: Inspection Teams

DEAT = Department of Environmental Affairs and Tourism

DWAF = Department of Water Affairs and Forestry

MDALA = Mpumalanga Department of Agriculture and Land Administration

GMM = Govan Mbeki Municipality

DTEC = Northern Cape Department of Tourism Environment and Conservation

TEAM A

Wiseman Rikhotso	DEAT
Lovey Modiba	MDALA
Thembinkosi Mavuso	MDALA
Revelation Monthsiwa	DTEC

TEAM C

Sabelo Malaza	DEAT
Armstrong Simelane	DWAF
Musa Luhlanga	MDALA
Nozipho Hadebe	DWAF
Tebogo Mokgakabe	MDALA

TEAM B

Sizakele Ndzhukula	DEAT
Johan van Eck	GMM
Jeremiah Sibande	MDALA
Marie Prinsloo	GMM
Thokozani Metiso	MDALA
Obert Mkhathswa	MDALA

TEAM D

Anben Pillay	DEAT
Duduzile Maphanga	MDALA
Lebogang Matlala	DWAF
Greg Scott	DEAT

Annexure B: List of mandated legislation and permits

Mandated legislation

National Environmental Management Act, 107 of 1998 (including the EIA Regulations)

Environment Conservation Act, 73 of 1989

Atmospheric Pollution Prevention Act, 45 of 1965

National Water Act, 36 of 1998

List of all permits applicable to the Sasol

Permit	Date	Government Sphere	Ref No.	Status	Department
APPA registration certificate No.1972/23	01 July 1999	National	1972/23	Issued	DEAT
APPA registration certificate No.1972/24	01 July 1999	National	1972/24	Issued	DEAT
APPA registration certificate No.1972/8	30 May 2005	National	1972/8	Issued	DEAT
APPA registration certificate No.1972/9	30 May 2005	National	1972/9	Issued	DEAT
APPA registration certificate No.1972/13	15 March 1999	National	1972/13	Issued	DEAT
APPA registration certificate No.1972/14	26 March 2001	National	1972/14	Issued	DEAT
APPA registration certificate No.1972/16	15 March 1999	National	1972/16	Issued	DEAT
APPA registration certificate No.1972/15	06 July 2001	National	1972/15	Issued	DEAT
APPA registration certificate No.A1972/27	19 October 2005	National	A1972/27	Issued	DEAT
APPA registration certificate No.1972/28	23 July 2004	National	1972/28	Issued	DEAT
APPA registration certificate No.1972/29	13 August 2004	National	1972/29	Issued	DEAT
APPA registration certificate No.1972/30	30 May 2005	National	1972/30	Issued	DEAT
APPA registration certificate No.1972/20	29 March 1999	National	1972/20	Issued	DEAT
APPA registration certificate No.1972/21	05 July 2004	National	1972/21	Issued	DEAT
APPA registration certificate No.1972/17	11 February 2002	National	1972/17	Issued	DEAT
APPA registration certificate No.1972/18	11 February 2002	National	1972/18	Issued	DEAT
APPA registration certificate No.1972/19	15 March 1999	National	1972/19	Issued	DEAT
APPA registration certificate No.1972/7	23 January 2003	National	1972/7	Issued	DEAT
APPA registration certificate No.1972/25	29 September 1999	National	1972/25	Issued	DEAT
APPA registration certificate No.A1972/26	09 April 2003	National	1972/26	Issued	DEAT
ECA Section 20 permit	04 February 1993	National	B33/2/31 0/28/p51	Issued	DEAT

ECA Section 20 permit	03 July 2001	National	16/2/7/C 121/B28/ Z2/P406	Issued	DEAT
RoD for construction of natural gas expansion plant		Province	16.25.14. EV1	Issued	MDALA
RoD for the construction of H ₂ S reduction project- through sulphuric acid plant and flexorb/oxyclus plant		Province	16.4.28.8 .EV1	Issued	MDALA
RoD for the modification to the fuel production process and the new product infrastructure.		Province	17.2.22.4 1EV1	Issued	MDALA
RoD for the dye dosing of ultra low sulphur diesel (ULSD)		Province	16.4.4 EV20	Issued	MDALA
RoD for the construction of 1.1 Km pipe line for the transfer of Tar from tank farm at unit 96 to the feed preparation plant at unit 86		Province	17.2.3GS 04	Issued	MDALA
RoD for the benzene reduction phase 1 project		Province	17.2.22.1 8 GS 1	Issued	MDALA
RoD for the reclamation of iron from spent synthol catalyst in the primary area on portions of the farms Goedehoop 290 IS, Twisdraai 285 IS and Middelbult 284 IS		Province	17.2.22.3 GS 1	Issued	MDALA
RoD for the construction and operation of the ethyl acetate plant at the Sasol synthetic fuels		Province	14/3/L/A/ SAS.E>A	Issued	MDALA
RoD for the establishment of a reclamation yard on a portion of the farm Twisdraai 285 IS		Province	17.2.17.E V 40	Issued	MDALA
RoD for the establishment of the 1-Octene train at the Alpha Olefins Plant.		Province	16.4.28L 2	Issued	MDALA

Annexure C: Opening Meeting Attendance Register

SASOL

Name & Surname	Telephone	Fax	e-Mail
Olivier Naidu	017 610 5033	011 522 8321	Oliver.naidu@sasol.com

Vick Botha	017 610 2146	011 522 8321	Vick.botha@sasol.com
Estelle Marais	017 6102627	011 522 7946	Estelle.marais@sasol.com
Jona Pillay	017 610 4372		Jona.pilla@sasol.com
Pannie Froneman	017 610 5176	017 610 4587	Pannie.froneman@sasol.com
Joretha Klaasee	017 610 3443	011 522 7540	Joretha.klaasee.sasol.com
Daan Loock	017 610 2942	011 522 2992	Daan.loock@sasol.com
Johan Nel	017 610 3894	017 610 2627	Johan.nel@saso.com
Jaco Linde	017 610 4803	011 219 2001	Jaco.linde@sasol.com
Hennie Schoeman	017 610 2109	011 522 8884	Hennie.schoeman@sasol.com
Lionel Prinsloo	017 610 4200	011 522 8884	Lionel.prinsloo@sasol.com
Ranjit Budhai	017 610 2994	011 522 6456	Ranji.budhai@sasol.com

Department of Environmental Affairs and Tourism

Name & Surname	Telephone	Fax	e-Mail
Sizakele Ndzhukula	012 310 3094	012 320 5744	Sndzhukula@deat.gov.za
Wiseman Rikhotso	012 310 3093	012 320 5744	Wrikhotso@deat.gov.za
Anben Pillay	012 310 3951	012 320 5744	Apillay@daet.gov.za
Sabelo Malaza	012 310 3397	012 320 5744	Smalaza@deat.gov.za
Greg Scott	012 310 3084	0865189046	Gscott@deat.gov.za
Revelation Montshiwa	054 332 2885	054 33 11155	Rmontshiwa@vodamail.co.za (DTECH)

Department of Water Affairs and Forestry

Lebogang Matlala	012 336 8544	012 323 0321	Matlab@dwaf.gov.za			
Nozipho Hadebe	012 336 7958	012 323 0321	Hadeben@dwaf.gov.za			
Armstrong Simelane	012 392 1355	012 392 1359	Simelaneam@dwaf.gov.za			

Name & Surname	Telephone	Fax	e-Mail
Obert Mkhathwa	017 819 1159	017 819 2828	Obert@environ1.agric.za

Jeremiah Nsibande	013 759 4045	013 759 4091	Jsibande@mpg.gov.za
Duduzile Maphanga	013 759 4051	013 759 4091	Damaphanga@mpg.gov.za
Musa Luhlanga	013 759 4046	013 759 4087	Mmluhlanga@mpg.gov.za
Thokozani Metiso	017 819 1155	017 819 2828	Thokozan@environ1.agric.za
Tebogo Mkgakabe	017 819 2829	017 819 2072	Eric@environ1.agric.za
Lovey Modiba	017 819 2076	017 819 2072	Lmodiba@mpg.gov.za
Thembinkosi Mavuso	017 819 1155	017 819 1155	Thembinkosi@environ1.agric.za

Municipality

Name & Surname	Telephone	Fax	e-Mail
Johan van Eck	017 620 6247	017 634 8195	Johan.v@govanmbeki.gov.za
Marie Prinsloo	082 904 0733	086 620 6094	Marieprinsloo@xsinet.co.za

ANNEXURE E: Documentation (including electronic information) copied at SASOL – 4-5 March 2008

No	Document name	Doc reference no	Hard/electronic	Requested by
1	Letter to authorities for construction activities waste sites		Pending	Dudu
2	Fine and coarse ash volumes for last 6 months	2	Hardcopy	Dudu
3	WRF letter to authorities for engineering plan	4	Hardcopy	Dudu
4	Letter for alternative options for waste streams for WRF sent to authorities, e.g. Letter from DWAF, steam management plan, WRF minutes of meeting with DWAF, WRF Conceptual Engineering package letter	4	Hardcopy	Dudu
5	Internal quarterly audit reports - waste sites	5	Hardcopy	Dudu
6	Appointment letter for the external auditor- waste sites		No letter	Dudu
7	Emergency contingency plan confirmation sent to authorities for approval	7	Hardcopy , No letter	Dudu
8	Complaint and incident register for waste sites	8	General reporting	Dudu
9	Appointment letter of specialist to conduct dispersion model for dust and noise control		No letter of appointment	Dudu
10	Motivation letter and reclamation plan submitted to authorities for approval		No letter send	Dudu
11	Approval letter for the fine coal reclamation on site		No letter send	Dudu
12	Proof of the waste site heights	12	Hardcopy	Dudu
13	Minutes of community meetings	13	Pending	
14	Borehole monitoring results for Ash Dump 2006 report	2007/02/PDV	Hardcopy	Lebogang
15	Emergency contingency plan – Clear ash effluent and evaporation dams outside ash dump	SGJ-SHE	Hardcopy	Lebogang
16	Letter of extension for the exemption iro purification or treatment of water used for industrial purposes	16/2/7/C121/B28	Hardcopy	Lebogang
17	Compliance to exemption conditions	16/2/7/C121/B28	Hardcopy	Lebogang
18	Relaxation of exemption requirement for no 5 Blowdown (Conductivity)	16/2/7/C121/B28	Hardcopy	Lebogang
19	Unit 5 blowdown to the spruit dated October 2007		Hardcopy	Lebogang
20	Unit 205 blowdown to spruit dated November 2007		Hardcopy	Lebogang
21	Domestic sewage final effluent dated November 2007		Hardcopy	Lebogang
22	CAPCO reports 2005 dated August 2006		Hardcopy	Greg
23	CAPCO report 2004 dated August 2005		Hardcopy	Greg

24	External Audit report 2005	MAIN-SO4-TV01	Hardcopy	Greg
25	External Audit report 2006	SS-IS-ES 01	Hardcopy	Greg
26	External Audit report 2007	383569/4138	Hardcopy	Greg
27	Annual report	27	Hardcopy	Dudu
28	Air Monitoring programme	28	Hardcopy	Dudu
29	Exemption in terms of the Water Act, 1956	16/2/7/C121/B28	Hardcopy	Lebogang
30	Ecoserve PM10 Monitoring dated 11 November 2005	JE109	Hardcopy	Greg
31	Air Pollutant Monitoring Quality Assurance Manual dated 03/01/2006	SGL-GEN_000002	Hardcopy	Greg
32	Boiler 1-17 Calibration certificates (2005-2007)		Hardcopy	Greg
33	Internal Audit report for refinery East and West dated 23 January 2008 and 5 February 2008		Hardcopy	Greg
34	Interim audit report Sasol Oil Tank farm 6 February 2008		Hardcopy	Greg
35	Internal Audit Water and Ash unit 2/52 dated 1 February 2008		Hardcopy	Greg
36	Internal audit report Waste Recycling Facility dated 30 January 2008		Hardcopy	Greg
37	Internal Audit report Coal Tar Filtration dated 31 January 2008		Hardcopy	Greg
38	Internal Audit report at Carbo Tar dated 1 February 2008		Hardcopy	Greg
39	SCC Product summary undated		Hardcopy	Greg
40	SCC Feed summary undated		Hardcopy	Greg
41	Contract between Sasol and Millenium Waste Management			Wiseman
42	Contract between Sasol and Waste Reclaimers (Pure metals) at Charlie 1 disposal site			Wiseman
43	Contract between Sasol and Sulfolin for the reclamation of Black Product at ash Dump			Wiseman
44	Borehole map for the Raw Material Storage area			Wiseman
45	Tank farm products and capacities		Hardcopy	Wiseman
46	Waste volumes at Charlie 1 March 07 – January 08		Hard copy	Wiseman
47	Waste manifest documents November 07- February 08		Hardcopy	Wiseman
48	Correspondence with DWAF (File)		Hardcopy	Anben
49	Correspondence with DEAT (File)		Hardcopy	Anben
50	Evaporation dam surface areas undated		Hardcopy	Lebogang
51	Incident Register		Hardcopy	Dudu
52	Tank farm		Hardcopy	Dudu
53	Complaints register		Hardcopy	Dudu

54	Safe disposal certificates for waste from SCC plant	0001215940	Hardcopy	Sizakele
55	APPA permit for CTF plant	23/4/2/1972	Hardcopy	Sizakele
56	Waste permit application (batteries) at Charlie 1 site	SAX - 10011635	Hardcopy	Sizakele
57	SCC stack height drawings	DWG No 293-0110 13 of 47	Hardcopy	Sizakele
58	CTF stack heights drawings	V56034-A4-A10505	Hardcopy	Sizakele
59	Heater analysis results at CTF(Nov 05- Mar 06)		Hardcopy	Sizakele
60	Ecoserve gaseous emissions from Carbo Tarand water treatment plants dated April 2007	JEO 109	Hardcopy	Sizakele
61	New Air Emission licence application		Hardcopy	Sizakele
62	Amendment of APPA permit for Refineries FPP dated October 2006	1972/30	Hardcopy	Sizakele
63	Amendment of APPA permit for Carbo Tar dated October 2006	1972/29	Hardcopy	Sizakele
64	APPA permit for Carbotar Purcarb plant	1308/12	Hardcopy	Sizakele
65	Production figures for Coal Tar filtration plant (Jan 06- Oct 07).		Hardcopy	Sizakele
66	Power plant incident report dated December 2005.		Hardcopy	Tebogo
67	Schematic diagram and presentation.		Hardcopy	Tebogo
68	SPC log sheet WRF, two months report process of plant.		Hardcopy	Tebogo
69	Chemical laboratory results for surface monitoring dated Nov 2007		Hardcopy	Anben
70	Volume of waste at Charlie 1 Landfill dated January 2008		Hardcopy	Revelation
71	Boiler Opacity and Precipitator repairs dated 04 March 2008		Hard copy	Sabelo
72	Water Operation west lab sheet dated 29 February 08		Hard copy	Tebogo
73	Results of Laboratory at waste recycling facility		Hard Copy	Tebogo
74	Boreholes close to the coal processing plant		Hard Copy	Tebogo
75	Type of analyses required to waste recycling facility laboratory		Hard Copy	Tebogo
76	Process cooling water quality from water recovery to cooling towers		Hard Copy	Tebogo
77	Sasol Synfuels plant layout and presentation		Hard Copy	Sizakele
78	Overview Steam Plant		Hard Copy	Tebogo
79	EIA Document pack numbered 1-4 and 8-10		Hardcopy	Anben
80	Opacity Monitoring Results for steam/power generation plant for both the East and West sites (17)		Hardcopy	Sabelo
81	Delisting of Selexorb Guard Bed Catalyst dated May 2005		Hardcopy	Wiseman
82	Feed and Product Trends		Electronic	Sizakele
83	Sasol Catalytic crackers- New air permit values		Electronic	Sizakele

84	Flue gas and Nitrogen calculation		Electronic	Sizakele
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ANNEXURE E: PHOTOGRAPHS



T1-01: Leachate from landfill site



T1-02: Leachate from landfill site





T1-03: Fine coal storage area



T1-04: Coal storage area

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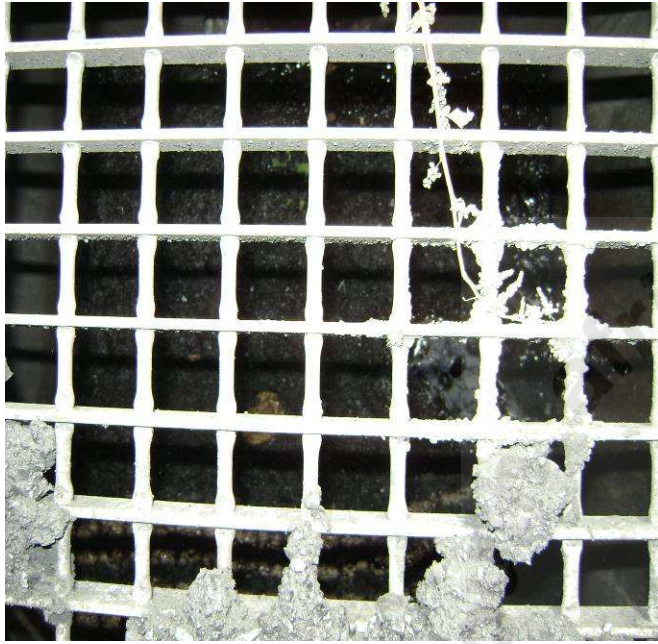


T1-05: Water ponding at the coal storage area



T1-06: Drain blocked with coal at the coal storage area

CS African history
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T1-07: Drain blocked with coal at the coal storage area

