



Managing our impact on the environment

The process of mining, be it at production, processing, or refining level, has a direct impact on the mining site and its surrounds. It is therefore incumbent on the operating company to anticipate, prevent as far as possible and mitigate the effects of its actions. Three critical areas in this regard are air, water and land management.

Impala has developed an Environmental Management System (EMS), in line with world-class standards. As part of the implementation of SAP as the business system across Implats, as detailed on page 29, all group operations (excluding Mimoso) will run the same EMS, which is based on the principles of ISO 14001

environment

The company operates in accordance with its SHEQ, which provides the framework for best practice. Key commitments are:

- compliance with all applicable laws, regulations and standards;
- pollution prevention; and
- continual improvement in environmental performance.

The enactment of the MPRDA (detailed under Operating Environment, on pages 17 to 20) and the promulgation of the National Environmental Management Air Quality Act and the National Environmental Management Amendment Act have introduced several legislative changes with regards to environmental impact and performance issues. Implats is cognisant of these changes and has implemented initiatives to ensure the group's compliance with the revised South African legislation and associated environmental regulations.

As outlined on page 32, Implats will implement a set of corporate standards across all operations over the next two years, thereby forming the basis for the development and application of SHE management systems at all levels within the group. The standards will cover all operational aspects and activities that have the potential to affect the health and safety of people, the environment, or the community; and will extend throughout the entire life cycle of operations – from exploration and planning through to operation, closure, decommissioning, remediation and rehabilitation.

IMPALA

Rustenburg operations

Our Rustenburg operations' Environmental Management System (EMS) retained its ISO 14001 certification during the verification audit by the British Standards Institute in July 2004. The positive outcome of the audit led to a recommendation that the operations be subject to annual verification audits only in future, instead of the previous six-monthly audits. This is a considerable achievement, given that the Rustenburg operations is the largest of its kind in the world.

Our focus going forward will be to retain Rustenburg operations' ISO 14001 certification while modifying the EMS where necessary to comply with the new ISO 14001: 2004 standard.

The addenda to the Environmental Management Programme Reports (EMPRs) for the following production components were formally approved by the DME during FY2005:

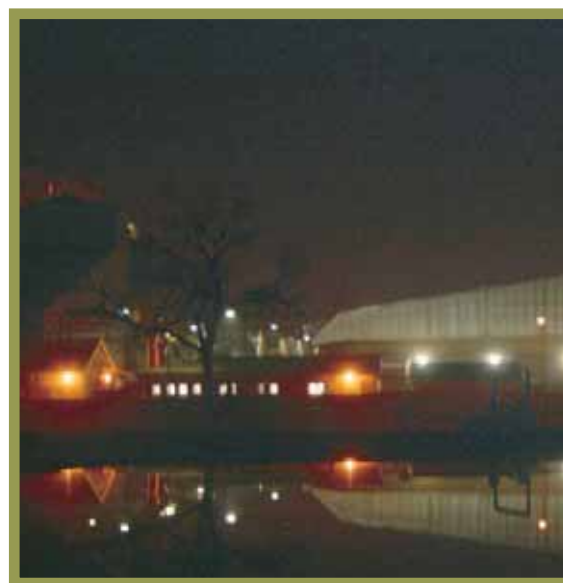
- No. 11 Shaft;
- No. 14 Shaft;
- No. 12 Shaft;
- Smelter Expansion;
- Concentrator upgrade; and
- 1A, 1B, 11C, 14B Ventilation Shafts, Concentrator crushers as well as No. 6 Dryer.

The EMPR addenda submitted during the year for No. 16 Shaft, the UG2 and remaining Merensky opencast operations have received positive records of decision (RODs) from the DME.

Aiming to facilitate community participation in environmental matters, our Rustenburg operations appointed a Community Liaison Officer during FY2005, who, *inter alia*, successfully established community forums in nine of the ten communities neighbouring on the property. The exception is Luka where, despite ongoing dialogue with certain Luka residents, establishing a representative forum in the community remains a challenge.

Senior management incumbents at our Rustenburg operations received training on their personal responsibility and liability with regards to environmental legislation during June 2005, with a view to not only creating awareness of their legal responsibilities but also to provide practical advice on the 'do's and don'ts'.

Rustenburg operations did not incur any environmental non-compliance breaches resulting in fines during the year.



The copper winning plant at the Refineries viewed from across the rainwater runoff ponds.

Energy

Energy consumption at our Rustenburg operations was maintained at around 2,130,000 megawatt hours. The average unit consumption decreased by 1.1% to 135.1 kilowatt hours per tonne milled.

Air quality

The air quality surrounding our Rustenburg operations is affected by dust and gaseous emissions, in particular sulphur dioxide emissions from the smelter operations.

A sulphur balance approach is taken to calculating (and therefore managing) total sulphur dioxide emissions from the operations (i.e. including all fugitive emissions), thus providing an auditable, consistent and reliable measurement.

Increased production levels, driven by Rustenburg operations' objective to achieve higher production and improved profitability, placed pressure on the smelter operations during the first six months of FY2005 with regards to meeting the scheduled process permit conditions for sulphur dioxide negotiated in September 2004. On application to the Chief Air Pollution Control Officer for the North West Province (CAPCO-NW), Impala was given the opportunity to re-negotiate the scheduled process permit in February 2005 to 36 tonnes of sulphur dioxide per day, so as to accommodate a higher smelting production rate of 75,000 tonnes/month (i.e. maximum furnace capacity, which is the worst case scenario).

Importantly, the new permit includes availability and running time targets for the acid and Sulfacid™ plants respectively, rather than limits. Should these targets not be met, permit compliance will not be compromised, providing total sulphur dioxide emission is below the permit requirement. This arrangement is more favourable than the prior limits which, if not met, constituted a violation of permit requirements regardless of total sulphur dioxide emissions.

Moreover, the new scheduled process permit has been structured to accommodate our long-term strategy to decrease sulphur dioxide emissions to less than 20 tonnes of

sulphur dioxide per day by December 2006, as outlined in Table 6.

The acid plant achieved an average availability of 90.1% and the Sulfacid™ plant a running time of 91% during the past year.

Substantial research and development work has been undertaken by the Mineral Processes technical and production teams to identify appropriate technologies for reducing the operations' sulphur dioxide emissions in line with the requirements of the new permit, to ensure sustained compliance. Implementation of the technologies identified will begin during FY2006.

The Mineral Processes team has also developed a long-term sulphur dioxide reduction strategy document to ensure compliance with current and future legal requirements as well as the delivery of production.

The air quality performance for FY2005 was affected negatively by two events:

- an acid plant shut-down during Easter, which resulted in increased sulphur dioxide emissions in April; and
- engineering problems on the acid plant blowers which affected the acid plant availability, and therefore the sulphur balance, in both April and May.

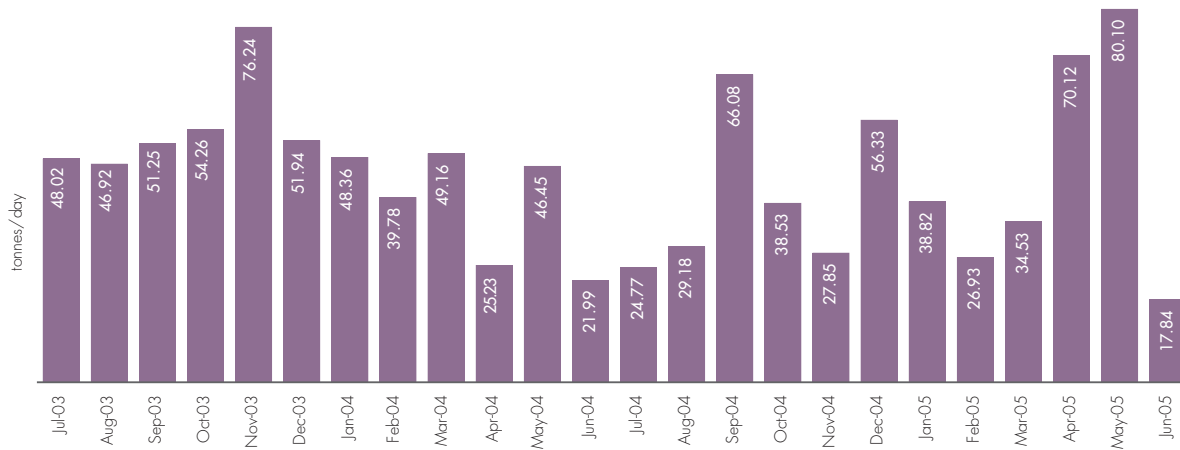
Dust fall-out, primarily from roads and tailings, continues to be monitored at ten locations in the vicinity of the mine. A conventional bucket-and-water filtering system is used to determine monthly fall-out concentrations. Based on the guidelines for dust deposition classified by the Department of Environmental Affairs and Tourism (DEAT), the majority of dust fall-out is 'slight' (less than 250 milligrams per square metre/day).

Impala continues to participate in the North West Air Pollution Control Forum (NAPCOF), which allows industries from the North West Province, together with CAPCO-NW, to meet on a regular basis to discuss air quality management performance.

Table 6: Summarised scheduled process permit conditions, negotiated in February 2005.

	Total sulphur dioxide emissions (tonnes/day)	Acid plant availability target	Sulfacid™ plant running time target
Current	35,8	100 %	100 %
August 2006	20,6	100 %	100 %
December 2006	18,6	100 %	100 %

Figure 10: Total sulphur dioxide emissions, Rustenburg smelter operations, FY2004 and FY2005.



Water management

The main water management challenges facing our Rustenburg operations are fresh water consumption and quality, the latter primarily being a factor of effluent discharge into water resources in compliance with the National Water Act, which prohibits the discharge of polluted water into the environment. Emphasis is placed on responsible water usage throughout the operations, which includes an objective to achieve zero effluent discharge.

The volume of fresh water consumed at the operations fluctuated between 26.4 megalitres/day and 40.5 megalitres/day, resulting in a yearly consumption of 12,254,412 kilolitres. In support of our efforts to reduce fresh water consumption, an agreement has been entered into with the Rustenburg Water Services Trust whereby 10 megalitres/day of treated sewage effluent will be provided to the Rustenburg operations, which equates to approximately 15% of the operations' total daily water demand (fresh and recycled) of 65 to 70 megalitres/day. The necessary reticulation is currently under construction and this water will be available as from 2006, once the Rustenburg sewage plant upgrade has been completed.

Plans are currently being formulated to increase the volume of internal recycling, for which a capital expenditure budget

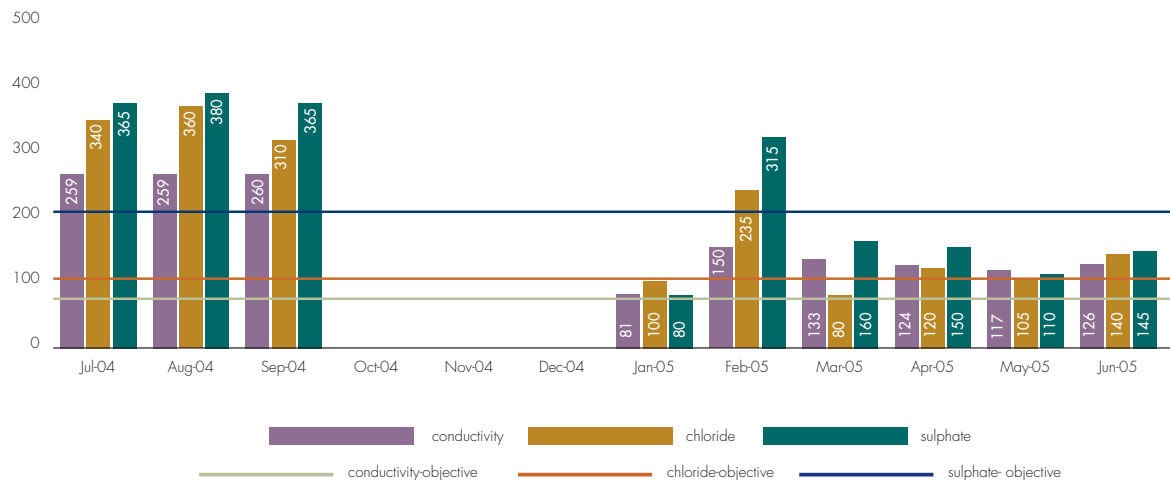
of R37 million has been allocated over the next five years. This follows an investigation into strategies to maximise the use of secondary water to ensure compliance with Regulation 704 of the National Water Act.

Total annual fresh water consumption declined 4.6% year-on-year, reflecting a 6% decline in water consumption per production unit to 0.78 kilolitres per tonne milled.

Monthly sampling of water from the Leragane stream, which flows through the property, took place during those months in which water flowed. Tests revealed that conductivity, sulphate and chloride concentration levels in the Leragane stream exceeded our water permit objective values, especially during the dry season (see Figure 11). However, some improvement was noted later in the year when sulphate levels complied with the objective value. At the same time, conductivity and chloride levels improved substantially.

Nitrate concentration levels followed a similar trend, although these exceeded the permit objective value for most of the review period (see Figure 11). To minimise the impact of the shafts' activities on the surrounding streams, a groundwater extraction system is being installed to prevent seepage of polluted water into the stream.

Figure 11: Sampling results to monitor conductivity, sulphate and chloride concentrations in the Leragane stream, Rustenburg operations, FY2005.



Surface and ground water projects

Pro-active groundwater studies are being conducted at the acid plant, No. 12 Shaft, No. 14 Shaft and the Luka Village to determine whether the Rustenburg operations is impacting on the groundwater quality in these areas. If necessary, remediation work will commence early in FY2006.

During this process, the groundwater model has been updated using additional information to model the diverse scenarios and design mitigation measures.

Land, biodiversity and waste management

A closure programme and conceptual closure plans for the entire Rustenburg operations were compiled during FY2005, as required by the MPRDA, and will be submitted to the DME in FY2006 for approval.

The capital for the implementation of the tailings dam rehabilitation (the 'woodchip project') has been approved, allowing the project to become fully operational during the first quarter of FY2006. The project has been awarded to a community-based business which is 75% owned by 15 women from the Luka community and which will provide employment for a total of 36 Luka residents. The owners of the small business enterprise have received business skills training, along with comprehensive training in rehabilitation techniques.

The landfill site, established at our Rustenburg operations for the disposal of domestic waste, is now fully operational. The landfill is operated by Platinum Waste Resources, a joint venture between two Luka community groups – Itereleng Waste Recovery Projects (30%) and Rampete Metal Processors (20%) – and Envirofill (50%).

Rehabilitation work continues at the Merensky opencast operations and is part of the operating contract. Some 195,638 square metres were completely rehabilitated during FY2005.

A cultural heritage site was discovered close to the No. 16 Shaft construction site. The services of an archaeologist were secured to recover and log the items found.

REFINERIES

Environmental management receives high priority at Refineries. The entire operation has held ISO 14001 certification for five consecutive years and has been a signatory to the International Responsible Care initiative for seven consecutive years. No environmental breaches were incurred during the year.

Extensive preventative initiatives have been implemented to eliminate or minimise the causes of environmental complaints. This has resulted in a 7.78% reduction in the overall number of complaints received to 83 (FY2004: 92), 46 of which were Refineries-related.

The number of noise-related complaints, however, increased by 62.5% year-on-year. Given the complex nature of the operation and its surrounding industrial and residential areas, identifying the potential sources of noise for rectification purposes, proved challenging. A comprehensive study was therefore undertaken in November 2004, which fingerprinted the noise at the receptors and then overlaid the fingerprints of all fans and pumps in the plant. This revealed three potential sources of noise, namely the EPMR extraction fans, the ammonia sulphate fan and the leach plant extraction fan, and led to the testing of noise-reducing materials in the PMR fans so as to reduce the noise at source.

Energy

The amount of electricity consumed at Refineries – 124,746 megawatt hours – remained relatively constant year-on-year, this despite the higher levels of construction work taking place within both the PMR and the BMR and an increase in amount of matte milled.

Air quality

In compliance with the ROD from Gauteng's Department of Environmental Affairs, Conservation, Environment, Land and Tourism (DACE&T) on the EIA, received in January 2004, quarterly stack sampling commenced at the start of the year under review measuring sulphur dioxide, chlorine, nitrous oxides, ammonia and particulates. This has enabled the Refineries to predict the emissions from all sources more accurately. The process has revealed a 35.9% increase in stack emissions to 1,078.1 tonnes (FY2004: 786 tonnes), primarily particulates that were not measured previously. The main sources of emission are currently the boilers in the BMR and a project to optimise the operation of the boilers and thereby minimise their impact on the environment is at development stage.

Although the nitrous oxide (NO_x) gases emitted by Refineries are not the major pollutant, their high visibility makes them the most noticeable to the public. A De-NO_x scrubber is currently being installed and will be commissioned in December 2005. A combination of classical wet scrubbing and modern technology ultra-violet (UV) reactors, the De-NO_x scrubber at Refineries is the first South African application of UV reactors and the second PGM installation worldwide. The plant will remove hydrochloric acid (HCl), chlorine (Cl₂), sulphur dioxide (SO₂), nitric oxide (NO) and nitrous dioxide (NO₂) from the feed gas stream.

The amount of direct greenhouse gases produced by Refineries dropped by 10.3% to 125,576 tonnes for the review period (FY2004: 140,000 tonnes). This improvement is primarily attributable to a reduction in the amount of coal used in the boiler operations, with the indirect greenhouse gas emissions due to the use of electricity having remained relatively constant at 112,271 tonnes.

The requirements of the new Ekurhuleni Air Quality Management Plan are currently being implemented. This plan was developed by the Ekurhuleni Metro.

A representative of Refineries chairs the Springs Air Forum, an industry-based association with membership drawn from small and large industrial operations in Springs, Brakpan and Nigel. During the review period, the Springs Air Forum was instrumental in the collaborative development of the

Ekurhuleni Metro's new Air Quality Management Plan. The requirements of this plan are currently being rolled-out across the diverse industries in the region. In addition, Refineries represented the forum at the launch of the new Ekurhuleni ambient monitoring stations, which event was attended by the Gauteng MEC for Environmental Affairs.

During FY2005, Refineries also became an industrial member of the National Association of Clean Air.

Water management

The annual water consumption at Refineries has dropped from 32.55 kilolitres per tonne matte milled in the prior year to 30.05 kilolitres per tonne matte milled in FY2005. The decreased water usage is a direct reflection of the increase in water recycled through the Effluent Treatment Plant (ETP), which uses reverse osmosis technology to remove the chemicals from the process water to produce potable quality water that can be reused.

Refineries is a trustee of the Blesbokspruit Environmental Centre just outside Springs. The main aim of the centre, which is situated within the Ramsar wetland site, is to promote environmental education within local schools and communities.



One of the ultra-violet reactors installed at Refineries.

Additionally, Refineries has been a contributing member of the Blesbokspruit forum since its inception more than ten years ago. This forum aims to reduce the impact of pollution on the water quality within the Blesbokspruit and Upper Vaal River areas.

Land, biodiversity and waste management

The amount of waste produced at Refineries increased 7% year-on-year to 2,327.2 tonnes (FY2004: 2,174 tonnes), the excess largely comprising the brine generated by the ETP. Thus, although there has been an increase in total waste generated, the waste disposed of to land fill has remained constant. Additionally, the volume of waste recycled during the year increased from 587 tonnes to 743.4 tonnes (i.e. 26.6% of total waste is recycled).

Environmental recognition and awards

The Environmental Superintendent at Refineries was awarded the Springs Chamber of Business and Commerce President's Award for Outstanding Contribution to Environmental Management in Springs during FY2005.

MARULA PLATINUM

Marula Platinum remains committed to upholding its environmental responsibilities and continually strives to improve its environmental performance.

Energy

The amount of electricity consumed by Marula Platinum's operations amounted to 64,036 megawatt hours for FY2005.

Air quality

Dust fall-out from the tailings dams was monitored throughout the year and will continue to be monitored going forward. The results at the time of the sampling indicated that the volume of dust generated by the tailings dams was not significant and was within prescribed limits. The starter-wall slopes are being vegetated to prevent excessive dust generation. The top of the slimes dams is kept wet while slimes are deposited onto it. Consideration is being given to implementing a woodchip project, as implemented at our Rustenburg operations, and a decision will be taken early in the 2006 financial year.

Some dust roads have been topped with stone to prevent excessive generation of dust. Further amelioration methods will be explored during the coming year.

Water management

Water management and water quality remain the key focus areas at Marula Platinum, due to the arid environment in which the mine is situated. The quality of both surface and ground water is monitored regularly to ensure that the mining operations do not pollute the water resources of the communities living around the mining area.

Marula Platinum is committed to conserving water and curbing wastage. Accordingly, every effort is made to recycle all water used, by pumping it from underground into the process-water system. No water is discharged into surface watercourses.

Land, biodiversity and waste management

Hazardous waste is disposed of at a licensed site near Springs, while domestic waste is disposed of on the landfill



The Marula Community Trust has facilitated the provision of borehole water at ten schools in the area.

site in Burgersfort. Recycling of some elements of waste, such as metals, is achieved by selling the waste to merchants. Waste wood is supplied to the community at a nominal price.

ZIMPLATS

Zimplats is committed to ensuring high standards of environmental care and continually improving its environmental performance. This commitment is clearly spelt out in the company's Safety, Health and Environment Policy and is endorsed by an ongoing quest to develop a culture where all employees strive to better Zimplats' overall year-on-year environmental performance.

SMC achieved and retained ISO 14001 certification in October 2004 and March 2005 respectively while significant progress has been made during the review period to align the Ngezi operations' EMS to ISO 14001. March 2006 has been set as the target date for achieving the latter certification.

SMC and Ngezi operations came first and second respectively in the regional environmental audit for 2005, organised through the Association of Mine Managers of Zimbabwe, with SMC ultimately winning the national finals.

Interdepartmental trophies have been introduced at each of the two operations, which will be awarded to the winners of the annual internal EMS audits.

Zimplats did not commit any environmental non-compliance breaches resulting in fines being levied during the year, neither was any incident recorded that involved regulatory authorities.

The entire Ngezi expansion environmental impact assessment (EIA) document was approved by the Department of Natural Resources.

Four unused radiation sources, dating back to before Zimplats was acquired by Implats, were returned to Process Automation in South Africa for safe disposal, with the approval of the Ministry of Health and Child Welfare.

Work to amend the Hartley Platinum project's environmental management plan (EMP), approved during BHP's ownership of the operations, to reflect the current slag dumping method, was completed and the document submitted to the Zimbabwe Department of Natural Resources for approval.

Information on Zimplats' hazardous waste management plans and waste reduction targets was supplied to the

Zimbabwe Ministry of Health and Child Welfare following a written request in compliance with Sections 3 and 4 of the Hazardous Substances and Articles (Waste Management) Regulations, Statutory Instrument 37 of 2000.

To manage the environmental risks from main suppliers, including contractors of products and services, a standard clause on environmental conformance has been incorporated into contract documentation. This requires that contractors acquaint themselves with Zimplats' EMS (as outlined in the



An employee from Monontsha, the company responsible for the woodchip composting to rehabilitate the tailings dam at our Rustenburg operations which will become fully operational during the first quarter of FY2006.

Zimbabwe Platinum Mines Training and Reference Manual) before commencing any contracts; comply with all relevant environmental procedures and environmental requirements or obligations; and ensure that work undertaken in terms of the contract complies with all applicable environmental laws and regulations, Zimbabwe Platinum Mines Safety, Health and Environmental Policy and applicable ISO 14001 requirements. Contractors are also required to identify the significant environmental aspects (indirect impacts) of the products and services they offer, along with the relevant environmental procedures and environmental requirements to ameliorate these impacts.

Energy

Energy, while crucial to modern society, generally contributes to environmental degradation indicators such as air pollution and acid rain. The management of energy consumption is therefore central to strategies aimed at reducing air pollution and preventing global warming.

Zimplats' targets of 0.72 kilowatt hours and 921 kilowatt hours for power used per tonne of ore milled and concentrate smelted respectively were achieved for most of FY2005. The total power consumed at SMC increased year-on-year from 161,473 megawatt hours to 186,241 megawatt hours. Exact consumption figures for Ngezi operations are not available yet due to inconsistent data.

Air quality

Monitoring of sulphur dioxide emissions from the SMC Smelter has been delayed due to problems encountered on commissioning the relevant equipment.

Surveys on the use and control of carbon fluorocarbons (CFCs) have become a requirement since the introduction of the Statutory Instrument 133 of 2004, which deals with the control of ozone-depleting substances and ozone-depleting equipment. This has been included in the FY2006 Engineering Environmental Management Plan (EMP).

Minimal progress was made in implementing a dust fall-out monitoring programme at Ngezi operations during FY2005 and the project has therefore been included in the Environment Department's EMP for FY2006.

Water management

Zimplats aims to conserve water by recycling, eliminating wastage and preventing water pollution.

The target set for reducing fresh water consumption at SMC has been achieved, with year-on-year fresh water consumption remaining almost constant at about 1.7 million kilolitres. Monthly patrols by the Security Department to check on leakages and illegal abstraction of water from the Manyame pipeline continued throughout the year. Plans are at an advanced stage to install a flow meter at SMC, which will lead to improved measurement and control of water drawn from Manyame dam, as well as an improved site water balance at SMC.

Water consumption per tonne of ore milled achieved the target of 0.72 kilolitres for most of FY2005.

At Ngezi operations, the target for water abstracted from the permitted boreholes was not achieved, largely as a result of the disparity between the low volume allocated in the permit compared to the activities and number of people on site. A request made to the Zimbabwe National Authority to review the permit limits from the current 126,000 kilolitres/annum to 200,000 kilolitres/annum was granted.

Rainfall was limited during the year, highlighting the need to monitor the operation's water consumption very closely. Awareness of water conservation among employees is already an ongoing activity and forms part of the initial induction for all new employees, including contractors.

Land, biodiversity and waste management

Rehabilitation work continued at the SMC tailings dam and at the Ngezi open pit waste dumps, with a total of 2,300



Awareness regarding the need to protect biodiversity remains high.

square metres and 8,000 square metres having been rehabilitated at the two sites respectively (i.e. in excess of the 2,000 square metres and 7,000 square metres budgeted for). The success of the rehabilitation would have been even better, were it not for the poor rainfall. Seed collection for the FY2006 rehabilitation plan has commenced at Ngezi with the assistance of the three local schools, who are expected to generate US\$5,000 from the project. The net balance of disturbed land at Ngezi operations is 215,000 hectares, attributed to the expansion of mining operations.

Awareness regarding the need to protect biodiversity remains high, especially since our activities can impact on the environment through the destruction of living organisms and ecosystems. No issues of biodiversity requiring consultation with communities were recorded.

Strategies are in place to reduce waste at source and to recycle waste as potential resources. The targets to reduce waste to disposal sites were achieved in most departments at SMC, indicating that there is room for further reduction. The project to implement a comprehensive waste management database at Ngezi operations made good progress during the year while a similar project for non-hazardous waste has already revealed the need to consider various recycling options. Hazardous and non-hazardous waste is stored and disposed of separately.

Non-hazardous waste collection, based on the number of telecon buckets delivered to the domestic landfill at SMC, decreased year-on-year from 311 to 191. The amount of waste paper sold remained static at approximately 15 tonnes. Scrap worth US\$150,000 was sold by SMC to external businesses and comprised both metallic and non-metallic items such as batteries, tyres and used oil. Non-hazardous waste generated at Ngezi operations increased year-on-year from 595 drums to 2,762 drums, reflecting the increase in activities, the larger number of people on site and improved data capture.

Hazardous waste, primarily oil-contaminated material, increased at Ngezi operations due to the increase in mining equipment usage, and decreased at SMC. Lead-related waste from the laboratory is now being disposed of at the tailings dam, resulting in a decrease in the number of drums of hazardous waste stored in the temporary hazardous waste yard at SMC.

The temporary hazardous waste yard at Ngezi operations was upgraded during the year and a new enviro-burner was purchased. Proposals have been received to set up a temporary hazardous waste yard and land farm at Ngezi operations, the associated establishment costs of which have been accommodated in the FY2006 budget.

Oil-contaminated soil and wood chips are being removed to the land farm for biodegradation.

MIMOSA

Mimosa strives to minimise adverse environmental impacts due to its operations on- and off-site by optimising resource consumption, minimising waste generation at source and preventing pollution. The mine has chosen the NOSA Integrated Five Platinum Stars Safety Health and Environment (SHE) System as its guiding principles. Above all, Mimosa endeavours to surpass legislative requirements and continually improve the operation's SHE systems and performance. Mimosa also strives to educate and train both its employees and the public on environmental matters so as to increase their level of awareness in this area.

This year's environmental performance highlights included:

- achieving NOSA Four Platinum stars in the October 2004 audit;
- placing first in the Association of Mine Managers' of Zimbabwe Environmental competition in the Masvingo mining region;



Far left: Manufacturing compost is a key component of the Manonthsa Woodchips Project at our Rustenburg operations.

Left: Recycling waste is a key component of the waste management strategy at Refineries. Pictured here is the waste recycling area within the operations' SHEQ department.

- obtaining the approval of the Zimbabwe Ministry of Environment and Tourism for the EMP for the completed housing development project on the mine property; and
- achieving compliance with 'Permit to Discharge Effluent and Waste' conditions during an audit by the Zimbabwe National Water Authority's Pollution Control Unit, as a result of which the related permits for the two Tailings dams were reclassified positively from Red to Green.

Environmental impact assessments

In terms of our Environmental Policy, Mimosa is committed to continuous improvement and, to this end, internal and external environmental audits are carried out on a regular basis throughout the year. Internal audits are done every quarter and those departments that are rated below NOSA Four Platinum stars are placed in the Intensive Care Unit (ICU), which results in monthly audits until they attain at least a four-star rating. At least six external audits were conducted during the year namely:

- The integrated safety, health and environment (SHE) NOSA Five Platinum Star System audit, conducted by NOSA.
- Zimbabwe National Water Authority's Effluent and Waste Disposal Permit compliance audit, which is conducted at least once a year to verify whether all conditions specified on the permits have been met. This year's audit led to the permits for Mimosa's two tailings dams to be upgraded, as indicated earlier.

- The Zvishavane District Natural Resources Officer visited to verify Mimosa's compliance with the EIA report for the low-density housing project on the mine property and was very pleased with the manner in which the natural resources had been conserved during the implementation of the project.
- The Association of Mine Managers of Zimbabwe (AMMZ) Environmental competition, which is based on ISO 14001 standards and involves an initial audit to determine the regional winners followed by a second audit to determine the national champions. Mimosa attained first position at regional level in the 2005 competition; and placed fourth at national level with a score of 85%.
- An integrated SHE inter-company audit for the mine, conducted mid-May 2005, resulted in Mimosa achieving an overall rating of Four Platinum Stars with a DIFR of 0.31 and an effort rating of 80%.

Energy

Mimosa is well aware of the environmental impact arising from the energy consumed by its activities, especially given the current capacity constraints on Zimbabwe's power base whereby the energy requirements of the country cannot be met without importing additional power. We therefore strive to optimise the consumption of energy across our operations and contained the year-on-year increase in energy consumption to 8%. The increase was due to increases in underground infrastructure and throughput to the plant.



Construction in progress at the crystalliser, which will ensure that Refineries complies with zero effluent once the current expansion project is completed.



Construction in the EPMR tank farm area, Refineries.

Air quality

Mimosa's operations emit dust and gases that have the potential to affect air quality negatively. Various projects are therefore being pursued to improve air quality at and around our operations. These include wet scrubbing gases from the laboratory; and spraying dust generated at the crushers with water to prevent it from becoming airborne.

Water management

The sole supplier of water to Mimosa is the Zimbabwe National Water Authority (ZINWA). The mine has a permit that allows 2,600,000 kilolitres of water per year to be drawn from the Palawan Dam on the Ngezi River. That permit expires in March 2009, and 1,941,260 kilolitres of water was consumed in FY2005. A weir has been constructed on the river, from where water is pumped into a reservoir on the mine. No groundwater is used.

A water management plan has also been implemented, which aims to reduce fresh water consumption, improve water quality and reduce effluent run-off.

Efforts to reduce the amount of water consumed at Mimosa will be vigorously pursued in the coming year. The plans to achieve this include:

- achieving a target of 0.8 kilolitres per tonne of ore milled (maximum);
- increased recycling of underground water; and
- optimising the use of process water.

The wastewater outflow from Mimosa complied with the requirements of the Discharge Permits for the Disposal of Effluent and Waste during FY2005.

Scheduled sampling of water from nearby rivers and streams as well as boreholes around the tailings dam is conducted on a monthly basis, to determine the impact of our operations on the aquatic and surrounding environment. Not only is this mandatory in terms of our permits for disposal of effluent and waste, but the mine is located adjacent to streams that serve as the source of water for newly resettled villagers and it is thus particularly important that the quality of the water is monitored constantly. No adverse results were observed during the review period.

A concerted effort is being made to prevent spillage of plant and mining effluent into the public watercourses. Only two spills of effluent from the plant entered into streams.

Mimosa is an active participant in the Runde Catchment Council, which enforces the Zimbabwe National Water Authority Act. The council serves as the water management agency and comprises representatives of water users in the Runde River Catchment i.e. Industry and the local communities.

Ground water quality monitoring challenge

The mine at Mimosa has drilled five boreholes for monitoring the quality of ground water around the tailings dam. During FY2005, one of these boreholes collapsed and another's power source was severed. The challenge remains to drill another borehole upstream of the mine and to develop a ground water model that will show movement of the ground water.

Land, biodiversity and waste management

Mimosa's waste management plan is anchored on waste minimisation through optimising resource consumption, proper use of tools and equipment. We also recycle as many recyclable waste products as possible. Waste such as scrap metal is reprocessed into mill balls, while metal foundries collect used oil and grease for use as furnace fuels. Initiatives to minimise waste rock resulted in no waste rock being produced throughout the year.

General refuse from the offices as well as the high- and low-density villages is disposed of at the licensed refuse dump, while paper waste is sold to a recycling company. Other waste, such as wood pallets, is donated to the community. All medical waste is incinerated.

Sewage effluent is discharged into an evaporation pond after passing through four oxidation ponds.

Mimosa strives to rehabilitate all disturbed areas and previously polluted areas to their original state. The concurrent rehabilitation of the tailings dams is an ongoing activity and involves re-vegetation of the dams with indigenous grasses and trees that are most suited to the prevailing climate. Polluted areas are rehabilitated through the removal of the contaminant to the licensed dumping site.

This year, Mimosa rehabilitated two borrow pits that were used to extract gravel for the construction of roads at the new low-density village on the mine property.

ENVIRONMENT OBJECTIVES

IMPALA

Rustenburg Operations

- Retain ISO 14001 certification for the EMS and ensure that it complies with new the standard (ISO 14001:2004)
- Revise and condense various EMPR documents in accordance with DME request.
- Continue negotiations with the DWAF to obtain a water-use licence.
- Implement sulphur dioxide emission reduction strategy to ensure sustained compliance with scheduled process permit.
- Implement stack sampling and monitoring programme in line with scheduled process permit and other requirements.
- Sustain current initiatives to optimise freshwater consumption and minimise surface and groundwater pollution.
- Develop a closure assessment model to determine financial liability for rehabilitation on an annual basis.
- Re-address waste management strategy and procedures to minimise waste generation and optimise waste recycling.
- Establish community liaison forum in Luka.
- Expand liaison forum agenda to include issues such as employment, Corporate Social Investment, HIV/AIDS, and procurement.

Refineries

- Ensure absolute compliance with internal environmental management requirements.
- Conduct at least one Major Hazardous Installation (MHI) emergency exercise in conjunction with external authorities.
- Submit all information required by Ekurhuleni Metropolitan Municipality, along with management plans for all areas of non-compliance.

- Reduce the amount of water used per tonne of matte treated by 10%.
- Reduce the amount of electricity used per tonne of matte milled by 0.3%.
- Implement total waste management in all areas.
- Ensure that environmental noise levels comply with SANS 10103.

MARULA PLATINUM

- Achieve ISO 14001 certification within the next two years.
- Minimise dust generation from both the tailings dams and the roads on the mining lease area.
- Rehabilitate the contractors' lay-down areas.
- Improve oil-handling facilities so as to minimise spillages and contamination of the soil.

ZIMPLATS

- Retain ISO 14001 certification and upgrade to ISO 14001:2004 at SMC.
- Achieve Ngezi operations certification to ISO 14001:2004 by March 2006.
- Continue rehabilitation of the SMC tailings dam and the Ngezi open pit waste rock dumps.
- Build a reliable air quality monitoring database at SMC.
- Continue building the database on ground water abstraction at Ngezi operations.

MIMOSA

- Conduct a dust survey of all surface and underground emissions points.
- Reduce fugitive dust emissions from the crushing plant.
- Reduce fresh water consumption in the plant by 5%.
- Conduct concurrent re-vegetation of both the phase 2 and phase 3 tailings dams.



The Monontsha woodchip project at the Rustenburg mining operations may be replicated at Marula Platinum.