MATERIAL ISSUES CONTINUED

MATERIAL ISSUE 6:

ACTING AS RESPONSIBLE ENVIRONMENTAL STEWARDS AND CONSERVING RESOURCES

We understand the importance of being responsible environmental stewards. As responsible environmental stewards, we make optimal use of and conserve our natural resources (our focus is on water and energy, areas where we are most exposed); we make every effort to minimise our environmental impacts; where possible we conserve land; and we seek to comply strictly with all environmental legislation.

OUR ENVIRONMENTAL STRUCTURES

The HSE committee is responsible at board level for overseeing environmental matters. Environmental management issues are reported to the operational general managers and the chief executive on a monthly basis, and on a quarterly basis to the board's HSE committee. The chief executive and general managers of Zondereinde and Booysendal have final accountability for environmental compliance and performance.

At Zondereinde and Booysendal, environmental issues are dealt with by a specific management team. At Zondereinde, in particular, the environmental management function and engineering services work in tandem, given the Zondereinde operation's reliance on technology, which is applied in many instances, specifically to creating environmentally safe working areas. The engineering department oversees this function under the guidance of the engineering manager who is supported by the environmental officer. At Booysendal the safety, health and environmental manager heads this process, supported by environmental staff.

At Booysendal, the mine management team is responsible for looking after only approximately 8% of the mine's freehold area. The balance of the land (approximately 6 200 hectares) is managed by a dedicated land manager and, of this, 960ha is under the custodianship of the Buttonshope Conservancy Trust. For more information, see Land management and biodiversity on page 110.

LEGISLATION AND COMPLIANCE

South Africa has a strict environmental legislative framework and this is governed by the following:

- Constitution of the Republic of South Africa No. 108 of 1996
- Mineral and Petroleum Resources Development Act No. 28 of 2002 (MPRDA)
- National Environmental Management Act No. 107 of 1998 (NEMA)
- National Environmental Management: Waste Act No. 59 of 2008
- National Environmental Management: Biodiversity Act No. 10 of 2004
- National Heritage Resources Act No. 25 of 1999
- National Environmental Management: Air Quality Act No. 39 of 2004
- National Water Act No. 36 of 1998

Care has been taken to uphold Northam's compliance with South Africa's environmental and mining legislative framework. The company is committed to prudent practices and usage of natural resources, in accordance with NEMA, and this is outlined in its environmental policy, which may be found at www.northam.co.za/governance/policies-andprocedures.

At Zondereinde and Booysendal, a precautionary environmental approach has been taken – aligned with NEMA and Northam's own environmental management systems (EMS).

Management at both operations engage regularly with regulatory authorities including the DMR and the Department of Water Affairs (DWA) and other relevant departments. New mining projects are subject to environmental impact assessments (EIAs) which involve thorough public participation and many studies to assess environmental aspects such as air, water, land, flora and fauna. These EIAs become part of the mines' approved environmental management plans or EMPs. EMPs provide guidance in monitoring, addressing and mitigating environmental impacts. Routine audits are undertaken to ensure compliance with the EIAs and EMPs. Northam has the requisite permits for Zondereinde and Booysendal in terms of new order mining rights and integrated water use licences.

In 2014 Zondereinde completed a revised EMP application in line with the DMR's requirement to consolidate its original document and three amendments for the UG2 stockpile, coal-fired boilers and the slag dump. Approval is awaited from the DMR.

In compliance with the amendment to the NEMA: Air Quality Act, which came into effect in 2013, Northam has submitted an application for an atmospheric emission licence for the

Zondereinde operations as well as a request for exemption from the requirement to reduce sulphur dioxide (SO_2) emissions by 2020, based on affordability and the historic dispersion of SO_2 at Zondereinde which has been significantly lower than the licensed limits. The company is waiting for feedback from the DEAT.

Northam is a member of the South African Waste Information System (SAWIS) developed by the DEA, and both Zondereinde and Booysendal are registered with SAWIS. The company complies with the monitoring and management processes of hazardous waste in terms of recovery, recycling, treatment, disposal and exportation.

Northam LA did not receive any significant fines or non-monetary sanctions for non-compliance with environmental laws and regulations.

No grievances regarding environmental impacts were received during the year.

ISO14001

Northam has adopted the ISO14001 standard as the basis for its EMSs. The Zondereinde mine has been ISO14001-certified since 2011. A re-certification process conducted in February 2014, identified seven non-conformances. These were rectified and recertification was issued on 12 May 2014 until 2017.

Procedures, aspect and impact identification are currently underway for the implementation of ISO14001 at the Zondereinde metallurgical complex. A gap analysis will be conducted mid 2016 and an application for certification of the plant will be submitted as soon as identified shortcomings have been addressed.

While the ISO14001 standard is taken into account in managing environmental issues at Booysendal, a formal ISO14001-compliant EMS is not yet in place at this operation.

F2015 ENVIRONMENTAL PERFORMANCE

Zondereinde

Water and energy consumption continue to be the most pressing environmental management concerns at Zondereinde. Efforts to reduce consumption are assessed and implemented continuously.

Zondereinde was granted a waste licence for the salvage yard although local interested and affected parties did raise concerns about community job creation. An external audit was conducted during August 2014. A minor non-compliance was raised as a result of hydrocarbon spills from day-to-day activities.

Zondereinde recorded zero reportable environmental incidents in the year under review.

Booysendal

During F2015, Booysendal implemented a number of projects to reduce the impact of operational activities on the environment.

In order to ensure that hydraulic and motor oil is not released into the surrounding area and water system, extra sumps have been installed into the storm water system to capture the oil and separate it from the system before the surface water run-off reaches the pollution control dams. Certain design changes are in the process of being implemented to make the system more efficient.

Biodegradable tablets, known as ECO tablets, have been introduced into the main pollution control dam. These tablets assist in maintaining water quality of the dam within the required limits of the water use licence. Monitoring the effects of the ECO tablets is ongoing in order to determine the optimum dosage.

Four audits were conducted at Booysendal during the year, these include:

- An annual performance assessment of the EMP as required by the MPRDA
- A performance assessment of the EIA as required by NEMA
- An annual audit of the water use licence.
- A compliance audit by the regional Department of Water and Sanitation. The aim of the audit was to gather information regarding best practice measures being implemented on site to prevent pollution in terms of the NWA. No significant issues arose from the audit and the mine was nominated to be showcased for good waste water management during the annual enforcement month.

Nine reportable environmental incidents were recorded at Booysendal during the year.

RESOURCE UTILISATION

As a mining company, Northam is reliant on natural resources – water, energy and bulk materials. The conservation and optimal use of these resources are of paramount importance to Northam as the company strives to maintain the sustainability of the business while minimising its environmental impact. Bulk materials comprise mined and processed rock, liquid fuels, coal, grease, steel, timber, lubricating and hydraulic oils as well as diesel. Zondereinde and Booysendal take pride in utilising resources efficiently and recycling materials like plastics, steel, timber and scrap.

MATERIAL ISSUES CONTINUED

MATERIALS USED AT ZONDEREINDE IN F2015

	Unit	F2015	F2014	F2013	F2012	F2011
Rock mined	000t	2 069	1 907	2 276	2 154	1 801
Ore milled	000t	1 860	1 724	2 116	1 934	1 591
Timber use (bulk support)	m^3	2 748	2 412	1 573	827	754
Cartridge explosives	tonne	2 465	2 076	2 401	2 552	2 010
Oxygen	tonne	2 227	1 722	1 561	2 018	2 461
Sulphuric acid	tonne	876	586	520	769	747
Sulphur dioxide	tonne	89	61	56	82	90
Grease	tonne	40	34	47	47	41
Lubricating and hydraulics oils	litre	128 985	130 618	130 270	135 155	112 311
Diesel	litre	LA 662 319	648 709	635 739	576 079	500 639

MATERIALS USED AT BOOYSENDAL IN F2015

	Unit	F2015	F2014	F2013
Rock mined	000t	1 670	1 233	755
Ore milled	000t	1 786	1 517	261
Emulsion explosives	t	2 512	960	284
Lubricating and hydraulics oils	l	1 240 100	640 192	83 314
Diesel	l	LA 2 080 968	1 830 066	1 745 435

MATERIALS RECYCLED AT ZONDEREINDE IN F2015

	Unit	F2015	F2014	F2013	F2012	F2011
Plastic	tonne	61	53	42	108	62
Steel	tonne	1 628	2 182	1 640	2 053	759
Timber	m^3	2 540	2 015	2 380	4 601	5 874
Scrap metal	m^3	0	0	0	1 995	2 526
Rubber	tonne	134	197	153	134	156
Industrial waste	tonne	1 343	1 246	1 419	1 955	2 526

MATERIALS RECYCLED AT BOOYSENDAL IN F2015

	Unit	F2015	F2014	F2013
General waste to landfill	m^3	491	552	–
Hazardous waste	m^3	198	204	–
Timber	m^3	62	–	–
Scrap metal	m^3	271	–	–

WATER USE

A large volume of water is used for the mining and processing of minerals. Northam recognises the importance of optimising its water usage through reuse and recycle processes. The vital role water plays is highlighted in regular water awareness campaigns.

Two primary water sources provide for Northam's water consumption at Zondereinde and Booysendal, namely industrial and potable water. Zondereinde's source of potable and industrial water is from Magalies Water and Booysendal receives its water from the Lebalelo Water User Association. Northam has contracts with both companies.

WATER USAGE (000m³)

	Zondereinde				Booysendal		
	F2015	F2014	F2013	F2012	F2015	F2014	F2013
Potable water from external sources	2 488	2 335	2 633	2 540	569	513	429
Fissure water used	1 155	1 084	1 492	1 273	–	–	–
Borehole water used	–	–	–	–	87	–	–
Water recycled in process	25 664	25 524	25 909	24 390	1 479	–	237
% water recycled	91	89	91	91	72	–	36

Zondereinde

Water is fundamentally important for Zondereinde mine, not only from an environmental and permitting perspective, but also operationally. Through a shaft-based hydropower system, the mine uses water as its primary source of energy for its underground mining operations. These technical innovations were pioneered at Northam and refined over time. Hydropowered equipment has the advantage of reducing temperatures in working areas. This technology, used in conjunction with the strategic application of backfill, helps to lower underground temperatures by reducing heat ingress from worked-out areas while also reducing the size of the area to be cooled by 65%.

Zondereinde endeavours to run a zero discharge operation and closely monitors any potential impact of its operations on surface and groundwater sources. The water bodies that could be affected by surface water discharges are the Crocodile River and the Bierspruit River.

Extensive monitoring is undertaken and a comprehensive groundwater model, developed and maintained by a third party consultant, has been in place for a decade. This consultant also monitors and advises on surface and groundwater quality control.

There was no significant water discharge during the year. In terms of the water use licence, 1 000 000m³ of water is allowed to be discharged annually.

Subsequent to the granting of Zondereinde's integrated water licence in 2012, the mine applied for a relaxation of certain standards and requirements. In 2013, the DWA conducted a compliance audit on Zondereinde's water use licence and the mine submitted an annual water management report to the DWA. Further information requested by the DWS has been submitted.

Booysendal

Water allocation is also of critical importance at Booysendal. Integrated water use licence requirements guide water management processes, especially in terms of water allocation. Licences are reviewed every five years from the date of issue. Water quality at Booysendal is monitored on a continuous basis and compared with the original base line study information.

The Lebalelo pipeline is the main source of industrial and potable water at Booysendal, which can be supplemented with on-site boreholes. The mine currently holds a 20-year licence to extract water from boreholes should additional water be required. The Groot Dwarsrivier is the only water source that could potentially

MATERIAL ISSUES CONTINUED

be affected by the withdrawal of borehole water. However, as a limited volume of water is currently being drawn from this source, there is no risk.

Management is vigilant about the potential for any contamination risk, and closely monitors the conservation processes and water reduction practices, along with checking water levels in the pollution control dams, which could result in discharges or run-off.

The Groot Dwarsrivier and the Der Brochen Dam are the only at-risk water bodies. Management has an emergency preparedness programme in place to address any run-off or spillages, which includes a stakeholder schedule along with emergency remediation measures. Three water evaporators are installed at the pollution control dams to mitigate the effects of excessive rainfall during the rainy season.

Industrial water at Booysendal is maintained within a closed circuit and recycled on an ongoing basis.

ENERGY CONSUMPTION

Northam's long term strategy is based on energy efficiency rather than energy reduction as the mines continuously strive to replace ore reserves and require more energy for production. The energy efficiency strategy is continuously reviewed in order to optimise its effectiveness.

In South Africa, electricity is supplied by Eskom, the national electricity supplier. In recent years, Eskom's tariffs and supply shortages have increased steadily, by 16% in 2012, 8% in 2013, 9% in 2014 and 12.7% in 2015. For F2015, Northam's electricity spend totalled R517.1 million (84% at Zondereinde and 16% at Booysendal).

Zondereinde

At current capacity at Zondereinde, Eskom's supply is sufficient. Nevertheless, our power requirements will not remain static, given the deepening project, the smelting of additional material from Booysendal and our new 20MW smelting furnace due for completion over the next three years. With this in mind, a number of energy efficiency initiatives have been implemented, such as an underground refrigeration plant at 13 level and fan clipping.

With the refrigeration plant being moved underground, water is not required to be pumped to surface, which immediately provides some savings: one refrigeration machine fulfils the function of two 2MW pumps. It is estimated that R22.8 million could be saved annually.

The company's use of hydropower has also reduced its reliance on Eskom as the primary energy source. As a result, less electricity is required for production than other platinum mines on compressed air to power underground equipment. The use of hydropowered equipment and backfill has led to annual power savings of 31 506MWh.

In F2015, total indirect non-renewable energy consumption of electricity sourced from the national grid at Zondereinde increased by 9% to LA 630 085MWh (F2014: 578 717MWh).

Booysendal

Booysendal currently has sufficient power to continue operating, with one incoming Eskom line and transformers capable of sustaining 80MVA. The maximum demand at the moment is 29MVA. However, given the strain on South Africa's energy utility Eskom, energy efficiency has and will continue to be a priority at Booysendal.

A panel management system which assists with the protection and annual testing of the medium voltage network, and fault analysis has been fully implemented and operational since June 2014. A monthly report on the findings is presented by the engineering department. Going forward, this system will allow Booysendal to identify areas where electricity savings may be affected.

A solar-aided water heating system at the mine's change house is in place to conserve energy.

In F2015, total indirect non-renewable energy consumption from electricity sourced from the national grid increased by 24% to LA 115.386MWh (F2014: 92 766MWh) owing to the ramp-up.

Power factor correction equipment

Power factor correction equipment is in place at both Zondereinde and Booysendal to reflect the correct power consumption and reduce the overall electricity bill. Power factor correction was upgraded at Zondereinde at a cost of R4.0 million. At Booysendal, power factor correction equipment was installed during the construction phase.

A study conducted by DRA Mineral Projects indicates that the annual estimated saving per substation is between R1.3 million to R2.0 million.

For more information please see our Energy conservation projects on page 109.

ELECTRICITY CONSUMPTION (MWH)

	Zondereinde				Booysendal		
	F2015	F2014	F2013	F2012	F2015	F2014	F2013
Energy from electricity purchased by shafts	489 203	470 117	485 654	461 484	43 362	35 251	6 726
Energy from electricity purchased by plants	140 882	108 600	101 732	125 548	72 023	57 515	7 533
Total electricity purchased	LA 630 085	578 717	587 386	593 441	LA 115 385	92 766	14 259

CLIMATE CHANGE AND EMISSIONS

At Northam, climate change has been assessed as a moderate risk which is managed primarily through the company's energy conservation initiatives. In addition, PGMs are used in the production of technologies to reduce emissions thus limiting the climate change risk.

Northam has considered the risks and opportunities relating to climate change, including the financial implications, in its seventh consecutive voluntary submission to the Carbon Disclosure Project (CDP), which may be found at www.cdp.net/en-US/Results/Pages/Company-Responses.aspx?company=13459.

Northam reports on emissions of carbon dioxide (CO_2) and SO_2, which are the most significant of its emissions.

In F2015, LA 5 734 tonnes of SO_2 were emitted by the Zondereinde operations attributed to direct emissions from the smelter. These emissions comprise SO_2 (directly from the smelting operations), CO_2 (both direct and indirect), potential discharges to water courses and dust from tailings dams. Gas cleaning equipment for SO_2 abatement will be required by 2020. Zondereinde is awaiting a response from the DEAT on its application for a five-year exemption.

Zondereinde's energy efficiency programmes have reduced the mine's GHG emissions.

ENERGY EFFICIENCY PROJECT AT ZONDEREINDE – F2015

In F2015, three new residence blocks were built and a decision was made to install solar hot water systems to reduce the consumption of electricity from the grid.

The solar hot water systems comprise 1 000 litre tanks with a 37 KW capacity. By using solar energy to heat the water during the day, we estimate that we will be drawing on grid electricity for just 30 minutes each day, relative to an assumed base case of six hours per day. This is part of an ongoing initiative, with four additional hostel blocks (and solar hot water systems) due to be commissioned in the near future.

Tailings storage facility at Booysendal.

MATERIAL ISSUES CONTINUED

GREENHOUSE GAS EMISSIONS (CO_2E TONNES)

	Zondereinde					Booysendal	
	F2015	F2014	F2013	F2012	F2011	F2015	F2014
Total Scope 1 emissions (direct emissions)	29 743	23 451	15 509	15 401	14 432	6 337	4 912
Total Scope 2 emissions (indirect emissions)	648 988	596 079	605 008	611 244	619 947	118 847	95 549
Total Scope 3 emissions (indirect emissions	746	580	665	815	1 089	–	–
Total emissions	679 477	620 110	621 183	627 460	635 468	125 184	100 565

DUST MANAGEMENT

Due to the nature of its operations, Zondereinde monitors dust fall-out and its stakeholder engagement programme is effective in dealing with any incidents and complaints logged. Since inception, Zondereinde has had no such complaints.

The tailings dam is continuously revegetated to reduce dust entrainment, and to minimise wind and water erosion.

Previously exposed areas at Booysendal have been paved, tarred or grassed, and the few areas where dust could be produced, are monitored and dust suppression is conducted as needed.

Continuous dust fall-out monitoring at Booysendal is conducted at potential receptor sites around the operation. Monitoring results indicate that dust fall-out within these areas is well within residential dust fall-out limits.

The mine's location in a valley surrounded by mountains means that dust dispersion into the surrounding communities is limited. No community or stakeholder complaints were received regarding dust emissions during the year.

LAND MANAGEMENT AND BIODIVERSITY

Northam acknowledges that biodiversity entails careful land management, especially with mining processes that could have an adverse impact on the environment. Careful planning for new mining projects, engagement with stakeholders and the surrounding community, and compliance with legislation adds value to the mining process and benefits land management.

REHABILITATION FUND (Rm)

	Provision at 30 June 2015	Investments held at 30 June 2015	Unfunded probability at 30 June 2014
Booysendal	72.7	18.4	54.3
Zondereinde	114.5	82.8	31.7
Total	187.2	101.2	86.0

Northam acknowledges that biodiversity entails careful land management, especially with mining processes that could have an adverse impact on the environment.

Zondereinde

Northam's land ownership of Zondereinde is larger than the actual mining operations, with a surface freehold of approximately 4 439 hectares. Land management and conservation at Zondereinde is simpler than it is at Booysendal for a number of reasons, including the fact that the required policies and practices have been established and entrenched over the years.

No animals or plants in the area are listed on the IUCN's Red List of Threatened Species nor the Red Data list.

While Zondereinde's operational footprint has been reduced, including the processing of waste rock, the unused footprint has not been rehabilitated. Several years ago, the borrow pits at the village and turn-off to the smelter plant were rehabilitated, and rubble heaps at the entrance to Setaria were levelled and covered with topsoil so that the area could be rehabilitated to a more natural state.

Final rehabilitation of Zondereinde's tailings storage facility will only take place after closure. However, ongoing rehabilitation continues for dust management as well as aesthetic reasons. The total rehabilitation and closure costs for F2015 were R90.8 million.

Booysendal

Booysendal's host area, the Dwarsrivier Valley, is situated within the Sekhukhuneland Centre of Plant Endemism (SCPE) and the Roossenekal Subcentre of Endemism. The Booysendal property encompasses several landscape types, which are critically important for conservation action and are prioritised by Mpumalanga's conservation authorities.

The Dwarsrivier Valley landscape includes forests, small wetlands, seepages and grasslands. Certain protected mammals and species of fish have also been recognised as endemic to this habitat. Research has also indicated that the threatened SCPE is not formally protected, and that more land needs to be incorporated within reserves to protect the province's biodiversity.

In the spirit of preserving the biodiversity of the area, Northam has set aside an offset area specifically for conservation and biodiversity purposes. A creative approach was adopted to generate long term funding to support the protection of the environment surrounding Booysendal. A key result was the Buttonshope Conservancy Trust, which funds Booysendal's conservation, offset management and expansion. (See the 2012 and 2013 sustainable development reports for details on governance and funding of this offset area – http://www.northam.co.za/investors-and-media/publications/sustainable-development-reports).

Rehabilitation and closure costs at Booysendal amounted to R72.7 million in F2015.

LAND USE (HECTARES)

	Zondereinde			Booysendal		
	F2015	F2014	F2013	F2015	F2014	F2013
Land disturbed by mining and related activities	136	137	137	521	521	521
Land leased for farming purposes	273	273	273	n/a	n/a	n/a
Land protected for conservation	800	800	800	960	960	960
Total land under management (freehold)	4 439	4 439	4 439	6 773	6 773	6 773