

# AFROX SHEQ SUSTAINABILITY REPORT

## 2010

(revision 1)

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## 1. Introduction by Chief Executive

### 1.1 Welcome

A warm word of welcome to Afrox's stakeholders interested in the information presented in the second Afrox SHEQ Sustainability Report.

Our company strives to be a sustainable enterprise that is profitable, cares about the health and welfare of our employees and acknowledges the importance of environmental protection. The information presented in this report demonstrates how our company achieves these objectives and how our business contributes lasting benefits to society by adherence to SHEQ (safety, health, environmental and quality) standards and good practice requirements.

We trust that you will find the information presented informative and comprehensive.

### 1.2 Afrox SHEQ Sustainable Development Reporting:

#### Introducing SHEQ Sustainability Reporting in Afrox:

Afrox, a subsidiary of the Linde Group acknowledges that the social, economic and natural environment that the company operates in must be established, evaluated and appropriately managed for the long term. Our employees, clients, the natural environment and the communities that our business operates in must not be exploited for the sake of increased revenue or quick and immediate profit. One of the foundational principles of the Afrox Spirit, a framework that helps guide our decisions and actions is sustainability. We undertake to act responsibly in every aspect of our business and commit to technologies and products that combine customer benefit with the promotion of sustainable development.

Sustainable development is part of our company's value system. The information contained in this report serves to demonstrate the various measures Afrox has implemented to illustrate that our company can prosper and grow whilst caring and respecting our employees, the public, our stakeholders and the planet.

We realise that global environmental issues like global warming, climate change, water shortages and pollution are no longer 'if' scenarios but rather 'how soon' and 'how severe'. Effective risk management practices are therefore implemented throughout our company and sustainable development is closely linked with the safety and health of our employees and customers, the environment in which we operate and the quality of the products that we supply and market (SHEQ).

Afrox have maintained sustainable development practices in our company for many years and SHEQ is an integral part of the business scorecard. In order to maintain sound sustainability principles, we are proactively addressing risks and opportunities by attending to sustainability issues. Actions taken include, but are not limited to complying with applicable safety, health and environmental legislation, implementing energy conservation programmes that will reduce our company's carbon footprint and auditing our customers that use high risk gases like ammonia.

Over the last year we have also conducted a carbon footprint of our South African Operations and developed a carbon asset management strategy in order to set targets for the reduction of our Carbon dioxide emissions, which has been approved by the Board SHEQ Committee

Afrox's SHEQ Sustainability Reporting Objectives:

We realise that sustainability issues are high on the agenda of stakeholders, local communities, consumers, investors and the media. Our approach is to create shareholder value by embracing opportunities and by having a responsible attitude towards people and the environment.

The objectives of the Afrox SHEQ Sustainability report is to present SHEQ data and to follow international standards for non-financial reporting in the collection of these statistics, such as the Global Reporting Initiative (GRI). Furthermore, we would like to demonstrate that our company adheres to our Code of Ethics that require the highest ethical standards of business in full compliance with applicable laws and industry standards. The information presented in this report also endeavors to:

- communicate the company SHEQ achievements and improvement areas in an open and honest manner
- demonstrate that we are serious about managing the company SHEQ risks appropriately
- demonstrate that we strive for continuous improvement of our SHEQ performance.

## 2. SHEQ Sustainable Development in Afrox

### 2.1 About SHEQ in Afrox

Afrox's commitment to sustainable development as a strategic priority encompasses the company's commitment towards SHEQ.

SHEQ is an integral part of how Afrox does business, and is encompassed in the Afrox spirit as one of our values. Afrox is committed to excellence in managing all activities in such a way that ensures the protection of the health and safety of colleagues, contractors, suppliers, customers and local communities, as well as the protection of the environment.

The Afrox Board SHEQ Committee assists the Board to monitor the effectiveness of SHEQ management systems within Afrox and to guide the Board in decision making from a SHEQ perspective.

A dedicated SHEQ Department works with the business to ensure that the company has deliverable policies is proactive in its risk assessment and professional in its remediation.

The Afrox SHEQ Department consists of a strategy team who define SHEQ systems and standards to enable the business to comply with relevant legislation and company standards in terms of the key focus areas of Safety, Occupational Health, Environment, Process Safety, Transport Safety, Quality and Integrated Management Systems. The SHEQ Implementation team as well as the SHEQ Manager for African Operations assists the parts of the business which they support to effectively implement the SHEQ strategy, systems and processes within the business. Further to the central SHEQ team, the business has identified SHEQ Co-Ordinators within their respective areas. These co-ordinators are responsible for executing SHEQ requirements in the line on a day to day basis. The Coordinators contribute significantly towards the SHEQ performance of the company by ensuring that the safety and health of employees are protected, the environment is preserved and high quality products are supplied to customers.

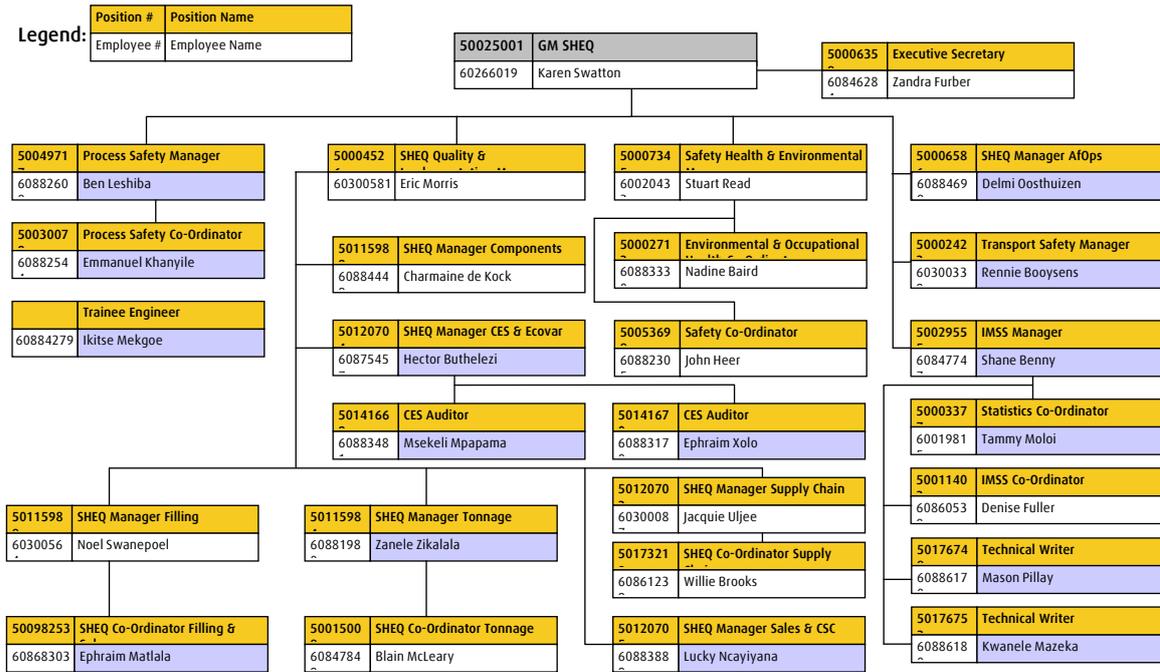
One of the key strategies for effective SHEQ performance is to ensure that all line managers have sufficient knowledge, tools and competence to accept their responsibility for SHEQ. It is crucial that SHEQ is a line management function, with support from the central team.

The SHEQ personnel are primarily responsible for:

- facilitating the implementation of the company SHEQ strategy and standards
- facilitating the development and implementation of SHEQ Plans in all business areas in accordance with company strategy
- managing the external certification of the business

- assisting line managers to effectively identify and mitigate SHEQ risks
- facilitating compliance with legal and company requirements and standards
- transferring SHEQ knowledge and experience to line functions.

**FIGURE 1: AFROX SHEQ STRUCTURE – 2010**



As a subsidiary of the Linde Group, the Afrox SHEQ strategy, policies and procedures are aligned to those of the Linde Group through a global peer group. The SHEQ strategy is developed in conjunction with the business needs. Linde Group policies and procedures are endorsed by the Afrox Managing Director and implemented by the Afrox Business Units with the support of the SHEQ function.

Afrox's objective is to be profitable in such a manner that it is accountable to the company employees, the broader society, communities in which the company operate and other stakeholders. Engagement with our stakeholders internally and externally is important for developing constructive relationships. We work closely with governmental bodies, communities and industry associations to meet the challenges of sustainable development.

The SHEQ Department has defined its stakeholders and communicates key issues in the manners indicated in Table 1:

**TABLE 1 COMMUNICATION WITH STAKEHOLDERS**

STAKEHOLDER	COMMUNICATION METHOD
Employees	<ul style="list-style-type: none"> <li>▪ SHEQ Bulletins/Communications/Newsletters</li> <li>▪ Training sessions</li> <li>▪ SHEQ Intranet Website</li> <li>▪ Meetings</li> <li>▪ E-mail announcements</li> <li>▪ Lessons from Incidents</li> <li>▪ SHEQ Alerts</li> <li>▪ GM's Business Address</li> <li>▪ MD's Business Address</li> <li>▪ Afrox E-leader and Focus Magazine</li> </ul>
Customers	<ul style="list-style-type: none"> <li>▪ Service and supply contracts: SHEQ information</li> <li>▪ Meetings</li> <li>▪ Personal visits and audits</li> <li>▪ Tele-Query where complaints can be logged</li> <li>▪ Material Safety Data Sheets</li> <li>▪ Afrox internet website</li> </ul>
Governmental Local Authorities and Regulatory Bodies	<ul style="list-style-type: none"> <li>▪ Formal and informal meetings</li> <li>▪ Consultations</li> <li>▪ Seminars and workshops</li> <li>▪ Incident reports and investigations</li> <li>▪ Railway Safety Regulator Reports</li> <li>▪ Statutory audit reports</li> <li>▪ Other Reports</li> </ul>
Public and Communities	<ul style="list-style-type: none"> <li>▪ Environmental Impact Assessment and Major Hazard Installation public participation processes</li> <li>▪ SHEQ contribution towards the Afrox Annual Report</li> <li>▪ Afrox Internet Website</li> </ul>
Suppliers and Contractors	<ul style="list-style-type: none"> <li>▪ Supplier visits and audits</li> <li>▪ Contractor induction: site SHEQ rules</li> <li>▪ SHEQ Communications</li> <li>▪ Training</li> <li>▪ Lessons Learned from Incidents</li> <li>▪ Risk assessments</li> </ul>
Afrox Board Members	<ul style="list-style-type: none"> <li>▪ Feedback and reports</li> </ul>

An example of communication with stakeholders in 2010 was our engagement with Rand Water, their appointed environmental consultants, local municipal officials and a number of our sites which will be affected by the upgrade of a water pipeline from Alberton to Boksburg over the next 3 to 4 years.

## 2.1 SHEQ Report

### INTRODUCTION

Afrox's vision for SHEQ reflects its corporate commitment to "SHEQ, 100% of our behaviour, 100% of the time". All Employees throughout the organisation are required to take personal responsibility for SHEQ and are expected to demonstrate this in their everyday behaviours. Unsafe practices and conditions are addressed by all personnel taking direct action. Afrox personnel work together as a team and value each other's well-being by adopting the correct SHEQ behaviours in their individual workplaces, thereby creating an interdependent behavioural culture.

The Afrox SHEQ Policy sets out mandatory guidelines in all areas of SHEQ. Managers are responsible for communicating this Policy, demonstrating safe behaviours, and creating the right conditions for continual improvement with the support of SHEQ Managers. The Policy commits to valuing the health and safety of employees and all who come into contact with the Afrox business and to not harm to the environment. The Policy further commits to the supply of high quality and safe products to our customers. A copy of the Afrox SHEQ policy is available on the Afrox web site.

To achieve the vision of being the leading gases and welding company in sub-Saharan Africa, Afrox personnel are expected to apply this Policy in their day to day behaviour and decisions. The key message from the Afrox SHEQ Policy is that Afrox does not want to harm people or the environment as a result of us doing business.

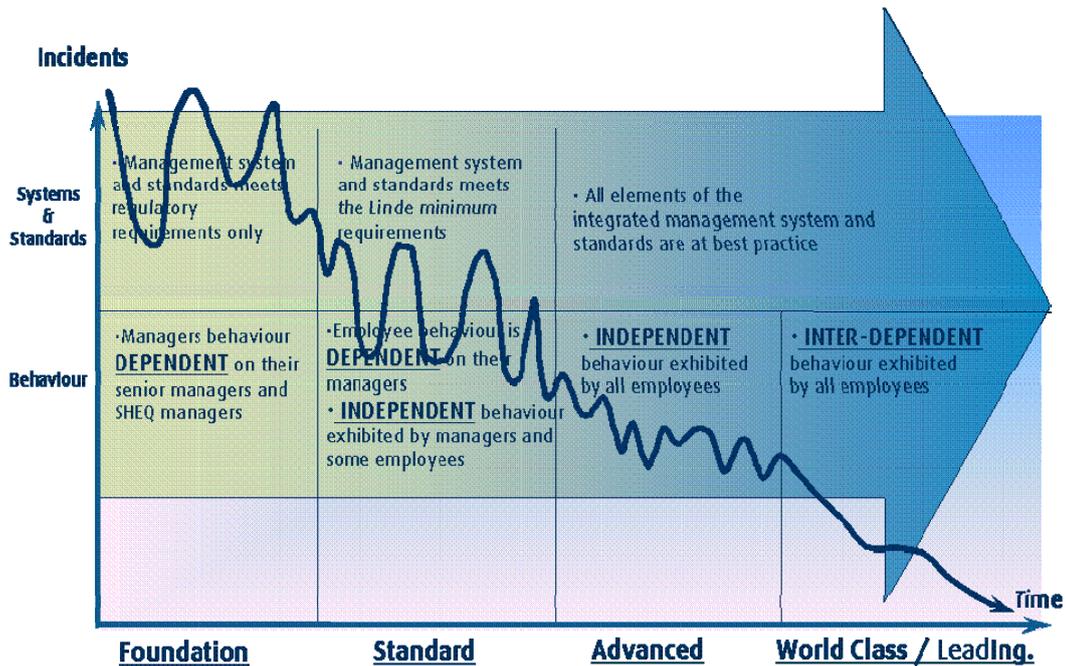
The top priority for safety is to reduce the number of incidents and injuries and vehicle-related accidents. Occupational health priorities include the preservation of our employee's health and well being and the reduction of occupational illnesses resulting from Afrox's activities. In the environmental arena we strive to continue to review the efficiency of our production processes, to conserve electricity, water and other raw materials, and minimise waste and pollution.

We believe that all incidents, no matter how small, are avoidable, and through the corrective and preventive actions taken we aim to half the number of all incidents.

Customer satisfaction and our competitiveness is dependant on the quality of our products and services. We aim to meet the highest quality and reliability standards in all our products at all times.

The Leading in SHEQ Roadmap, is a tool used to monitor Afrox's current status in terms of the effective implementation of various SHEQ components from a behavioural perspective. This strategic management tool helps the business units visualise World Class, High Performance and Leading in SHEQ. The tool is used to guide us on our journey through various levels (Entry -

Foundation – Standard – Advanced – World Class), and provides input to the development of SHEQ improvement plans.



The focus during 2010 was the assessment of 20 components and achieving Standard level in 6 priority components – Visible Leadership; Line Accountability and Responsibility; Motivation, Recognition and Discipline; Injury and Incident Investigation and Reporting; Contractor Safety; and Emergency preparedness.

Each component consists of a number of themes, against which sustainable activity plans are developed.

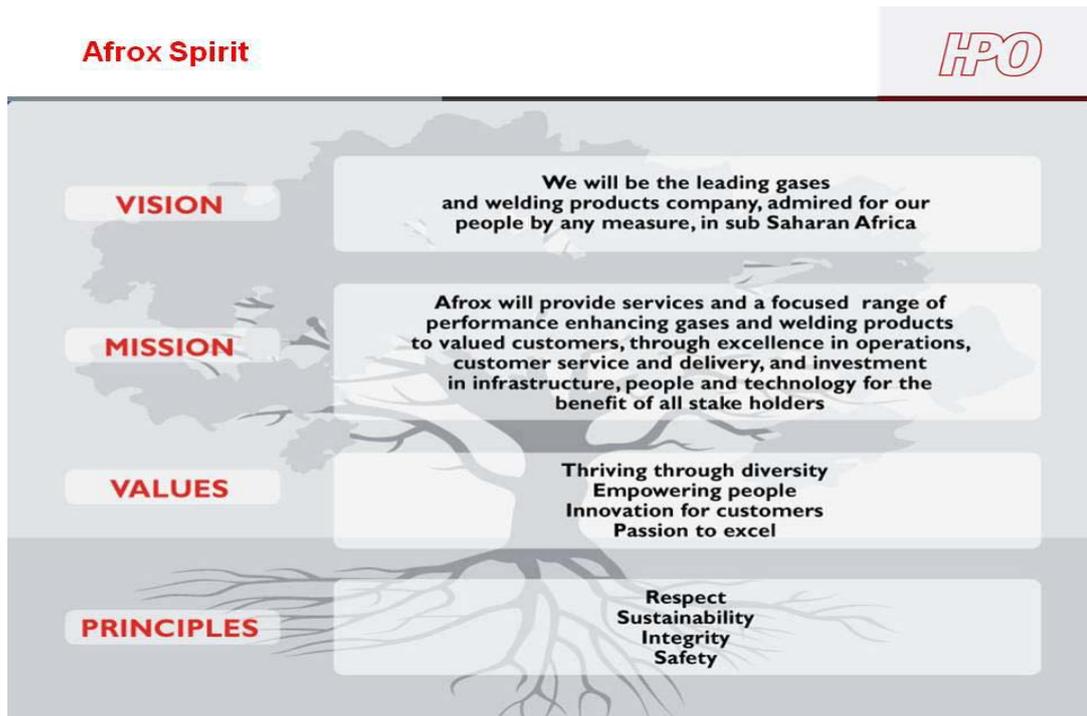
The Visible Leadership component was a high priority during the year – concentrating on ensuring that all leaders in the organisation display the desired behaviours for SHEQ, all the time. Good progress was made with this component as well as with the other priority components

The executive management team is focusing on various business unit lead themes and sponsoring the activity plans needed for the organisation to progress in the applicable components. The aim for 2011 is to sustain Standard level in the abovementioned components and progress towards Standard level in 5 additional priority components – Challenging SHEQ Goals and Targets; Management of Change; Health and Occupational Hygiene; Transport Operations Safety; and Manual Handling

The Leading. in SHEQ Roadmap	
1 Visible Leadership	Applicable
2 Working SHEQ Policy	Applicable
3 Challenging SHEQ Goals and Targets	Applicable
4 High Standards of Performance	Applicable
5 Integrated Network for SHEQ	Applicable
6 Line Accountability & Responsibility	Applicable
7 Motivation, Recognition and Discipline	Applicable
8 Injury & Incident Investigations and Reports	Applicable
9 Effective 2 Way Communications	Applicable
10 Continuous SHEQ Training	Applicable
11 Auditing	Applicable
12 Contractor Safety	Applicable
13 Management of Change	Applicable
14 Emergency Preparedness	Applicable
15 Lone Worker	Applicable
16 Health and Occupational Hygiene	Applicable
17 Transport Operations Safety	Applicable
18 Passenger Car Safety	Applicable
19 Product Stewardship	Applicable
20 Environment	Applicable
21 Manual Handling	Applicable

**IMPORTANCE OF SHEQ:**

Sustainability is closely related to issues connected with safety, health, environment and quality. The inspirational goal of zero harm to people or the environment motivates us to continually improve the SHEQ performance in ways appropriate to the risk, scale and impact of the products and services that Afrox supplies. SHEQ is an integral part of the Afrox spirit and forms one of the foundational principles of the company



Business priorities and key strategies are defined and understood by all personnel. Detailed goals and targets are defined and articulated in a Business Score Card. The Scorecard includes SHEQ requirements and plans and, in line with the aspirations of a high performing organisation, is cascaded down to unit, plant, factory, site and individual level.

The responsibility and authority for SHEQ is well described in individual Score Cards and job descriptions and evaluated during performance reviews. Everyone is personally responsible for SHEQ on our sites. It is expected of managers to be the leaders and to demonstrate their commitment to SHEQ both in word and in their actions.

Over the last couple of years we have launched and introduced to all employees a suite of Golden Rules of Safety, which if adhered to, could have prevented almost 80% of our 2008/9 major incidents. Managers, employees and contractors are expected to adhere to these rules, consider any breach during incident investigations and site inspections, and where necessary apply consequence management.

The Afrox SHEQ Golden Rules



**1. Incident Reporting**

We will report and investigate incidents so that the causes can be identified and corrected, and learning shared



**2. Driving & Vehicles**

We will operate our vehicles safely and responsibly at all times and use the safety equipment provided.



**3. Permit to Work**

We will use the Permit to Work system where necessary to ensure hazards and risks are understood and controlled.



**4. Working at Height**

We will only work at height when the required safety measures to prevent falls are in place.



**5. Lifting Operations**

We will ensure lifting operations utilising cranes or other lifting devices are carried out safely.



**6. Contractor Management**

We will select and manage our contractors so that they meet Linde Group’s safety requirements.



**7. Engineering Management of Change (EMOC)**

We will only proceed with technical changes to process plants and process equipment when an Engineering Management of Change process addressing the safety risks has been completed.

Strategic business decisions and new projects consider and evaluate the SHEQ risks associated with such activities. A high level company SHEQ risk assessment is conducted annually where the most significant SHEQ risks are identified. Mitigation measures for these risks are implemented in Afrox operations across Africa.

The business SHEQ performance is reported to the Afrox SHEQ Department monthly. Comprehensive monthly reports of all important indicators, major incidents, audit findings, directives, legal non-compliances and Tele-Query customer complaint statistics are compiled for evaluation by the Executive Management.

The SHEQ performance of the company is discussed and evaluated at executive level during the monthly Executive Committee Meetings. The General Manager SHEQ presents the SHEQ performance indicators to the Afrox Board on a quarterly basis.

Good SHEQ performance of sites and individuals are recognized during the annual SHEQ Awards. The SHEQ performance of sites for the financial year is evaluated and awards are given to selected large, medium and smaller sites for superior SHEQ performance. Individuals who have excelled with regards to SHEQ are also recognised

During 2010, SHEQ awards were awarded to the following sites:

Large site: Roodekop

Medium Site: Pietermaritzburg ASU

Small site: Navachab ASU, Namibia

Afrox strives to become truly leading in SHEQ by developing action plans and improvement programmes at all sites annually. Local SHEQ plans consider company policy objectives and the Linde Group’s SHEQ strategy so that plans are in line with key risks. SHEQ considerations are integrated into business plans for all current and future operations and developments.

## SHEQ LEADING INDICATORS:

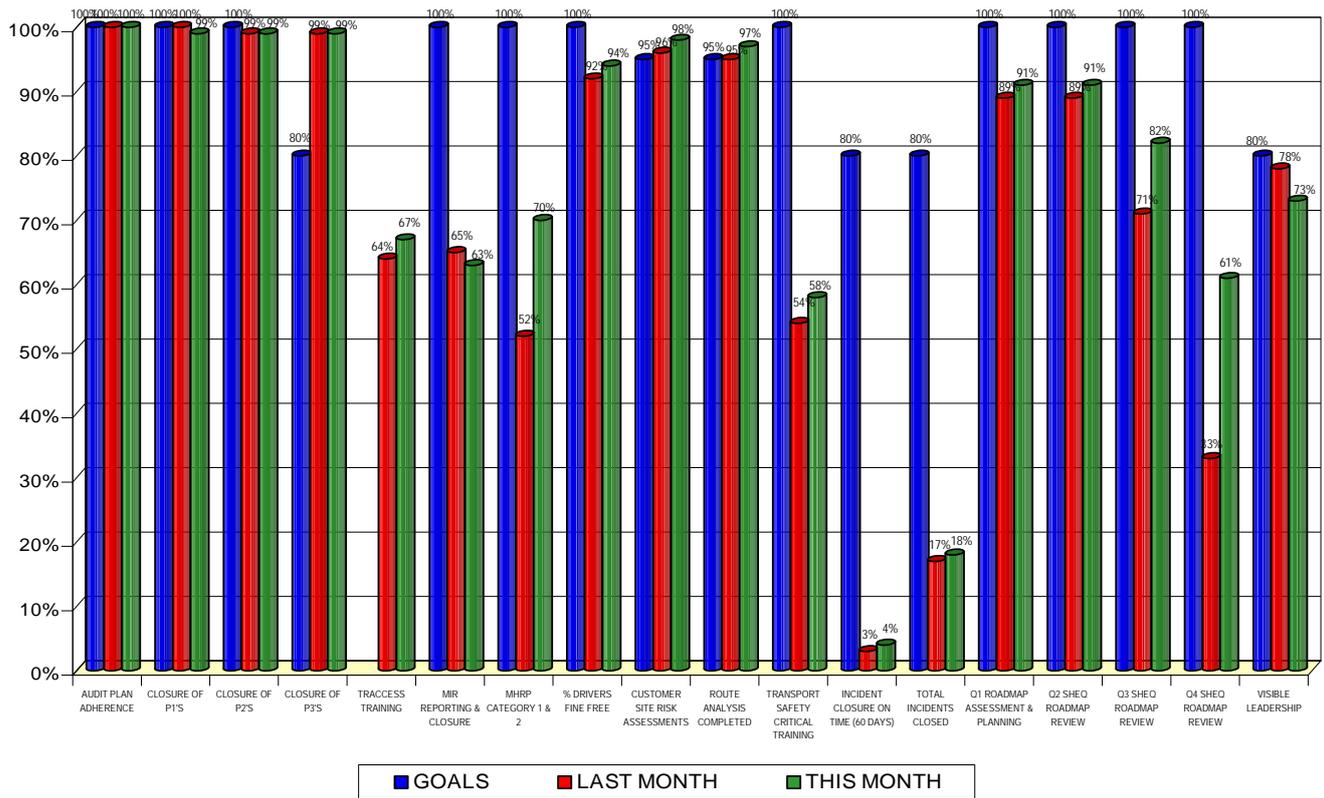
Critical SHEQ interventions are tracked and measured by means of Leading Indicators. Leading Indicators measure performance in areas where SHEQ is being addressed proactively and are used as a “temperature check” to determine whether what we are doing is having the desired effect.

The Leading Indicators for 2010 included:

- Audit plan adherence
- Close out of audit findings in time
- Integrated Management System (IMS) TRACCESS training
- Major incident reporting and investigation closure
- Major Hazard Review Programme category 1 & 2 licensing
- Drivers fine free
- Customer site risk assessments and route analysis completed
- Incident investigation closure
- Leading in SHEQ RoadMap progress
- Visible Leadership.

Performance targets are agreed with the business and set at the beginning of the financial year and then monitored and reported to the Executive committee monthly. See Graph 1 for the 2010 Leading Indicator performance. Where targets have not been achieved, plans are in place to address them.

Graph 1: Afrox SHEQ Leading Indicators for 2010



Major Incident reporting and investigation, and the newly introduced Incident Closure measures have highlighted some weaknesses in our incident management system, and our 2011 strategic objectives include plans to address this.

With regards the Major Hazard Review Programme progress measure, the number of category 1 & 2 sites was adjusted upwards during the course of the year, and the approval process by The Linde Group was found to be a lengthy experience.

The Transport Safety Critical Training measure was our initial attempt to monitor progress with a new Linde Group Leading Indicator which will be measured over the 2011/12 period.

Our newly introduced quarterly Leading in SHEQ RoadMap measure showed progress during the course of the year, however some areas failed to review their progress in Q4.

The Visible Leadership measure hovered around the required rate during the course of the year, however the December measure (as seen above) was negatively effected by the implementation of a number of new VL matrices.

## SHEQ LAGGING INDICATORS:

Lagging indicators measure events that have happened and are used to measure the safety performance over a specific period of time.

Afrox Lagging indicators include:

- Lost Time Injury Rate (LTIR) per 1 000 000 (one million) hours worked. According to best international practice, the LTIR includes all fatalities and injuries resulting in the loss of one complete day of work) Afrox include injuries that occur to employees as well as contractors in this rate
- Total Recordable Case Rate (TRCR) per 1 000 000 (one million) hours worked. Tthis includes all injuries and occupational illnesses requiring medical treatment as well as lost work day cases
- Passenger Car Avoidable Accident Rate (PCAAR) per 1 000 000 (one million) kilometers travelled. This rate includes all accidents relating to personnel or contractors travelling on company business, whether in a company or personal vehicle.
- Truck Avoidable Accident Rate (TAAC) per 1 000 000 (one million) kilometers travelled. This rate includes both Afrox and contractor commercial vehicle accidents.

2010 was a very disappointing year for Afrox when one of our colleagues, Mr Fana Maseko, a Cryospeed Technician, lost his life in a road traffic accident. Furthermore our general safety performance did not improve. The exception to this is in the case of the number of avoidable passenger car accidents which was half of that in 2009 and the number of major incidents decreased from that in 2009. Senior management have identified four priority focus areas which are focusing on this and action plans are in place to improve our performance.

Graph 2 illustrates the performance of the company with respect to Lagging Indicators for the years 2000 - 2010

**GRAPH 2: AFROX LAGGING INDICATOR PERFORMANCE (2000 – 2010)**

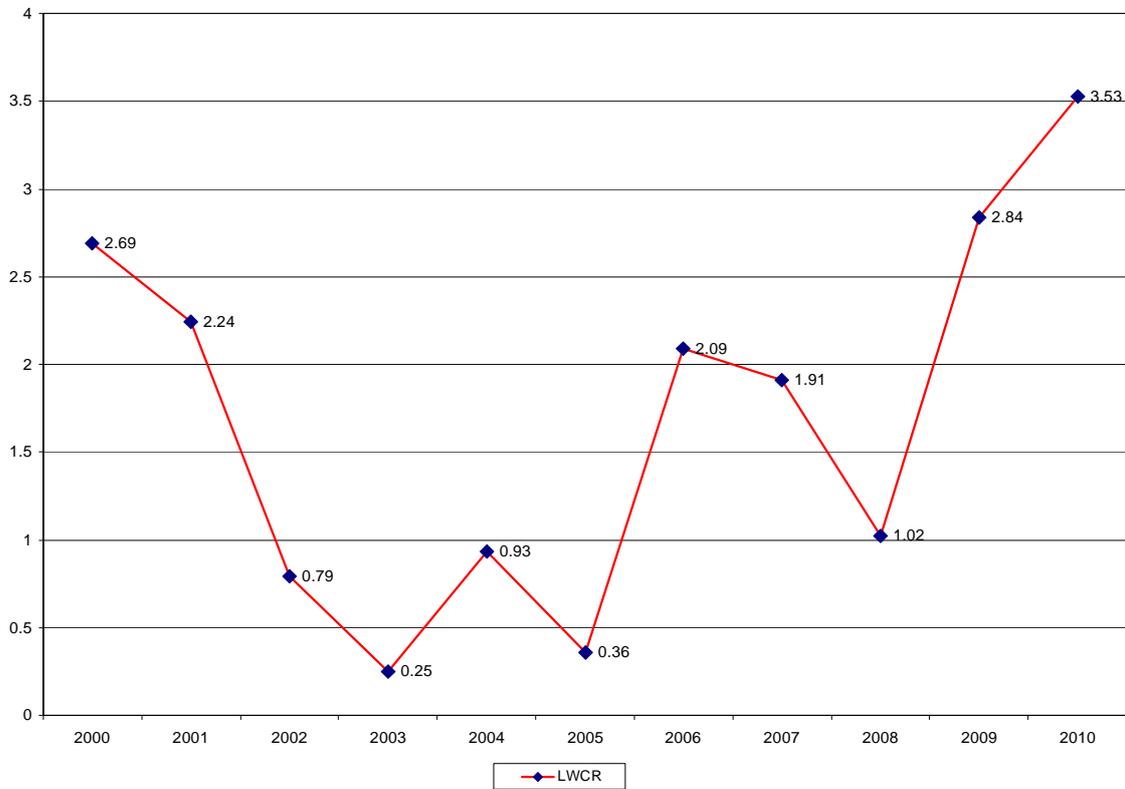


Table 2 illustrates the number of incidents, hours worked and Lost Time Injury Rate for the years 2000 to 2010:

**TABLE 2: INCIDENTS, HOURS WORKED AND LWCR**

YEAR	NUMBER OF HOURS WORKED	NUMBER OF INCIDENTS	LTIR
2000	8 550 150	23	2.69
2001	7 594 313	17	2.24
2002	7 640 312	6	0.79
2003	7 946 340	2	0.25
2004	8 556 479	8	0.93
2005	8 264 378	3	0.36
2006	8 596 744	18	2.09
2007	14 346 576	27	1.88
2008	14 658 723	15	1.02
2009	11 286 039	32	2.84
2010	10 477 908	37	3.53

At the end of 2010, the following sites achieved significant numbers of hours or years worked without a lost time injury.

IS – 2 782 255 hours

Malawi – 2 691 129 hours

Head Office – 2 217 440 hours

Nigeria – 2 968 369 hours

Vredenburg – 32 years

Springbok – 28 years

Paarden Eiland – 20 years

Vredendal – 11 years

### SHEQ RELATED CERTIFICATIONS:

#### ISO 14001 AND OHSAS 18001:

Afrox has an SHEQ management system that aims to respect the right of all people and company stakeholders to a healthy and safe environment. By managing the environmental impacts of daily operations, the company contributes towards the preservation of the environment and to sustainable development.

The implementation of safe work systems and the protection of the health of our employees and contractors are high priorities for the company.

The business is progressing well with the implementation of ISO 14001 and OHSAS 18001 requirements. The Selby Head Office, the Gas Equipment Factory, the Self Rescue Division, Cryogenics as well as the Ndola and Nairobi sites are ISO14001 and OHSAS 18001 certified. Numerous other business areas have completed a gap analysis or Stage 1 (initial assessment) audit in preparation for their certification audits scheduled for 2011/12.

#### ISO 9001:

To ensure supply of quality products/services, all Aprox business areas have ISO 9001 listings.

Quality systems are regularly reviewed for their adequacy and improvement programmes are implemented where required.

During 2010, all existing ISO 9001:2008 certificates issued by Price Waterhouse Coopers were maintained after all surveillance audits were carried out. Company strategic planning resulted in a review of the company's ISO 9001 certificates whereby systems were streamlined and combined resulting in a reduction of individual certifications. The aim is to ultimately combine all company ISO 9001 certification under one umbrella certificate. The result of single certifications for certain

areas of the business has a twofold benefit. The cost of auditing is reduced as there are less audits required for Multi-sited certification and secondly, the disruption due to audits is reduced with less auditing taking place and all processes need to be streamlined and uniform throughout the organisation. These changes have resulted in twenty-six previous certificates being consolidated into eleven.

During 2010 a number of countries that form part of Afrox's African Operations maintained ISO 9001:2008 certification. These countries include Malawi, Zambia, Nigeria, Mauritius and Kenya.

#### OTHER CERTIFICATIONS:

All sites that manufacture and fill gas for use in the medical industry comply with the Good Manufacturing Practice (GMP) requirements. The Medicines Control Council (MCC) has accredited all medical gases sites.

Facilities where cylinders are tested are registered with SANAS as approved testing facilities and certificated to ISO 17020.

Afrox sites with railway sidings have successfully retained their Railway Safety Regulator permits ensuring the safe operation of their private railway sidings. Each of these sites have contracts with Transnet and implemented safety standards, including operating procedures, risk assessments, emergency plans and preventative maintenance programs, as per the requirements of the Railway Safety Regulator (RSR) standards. The annual Safety Implementation Plan was reviewed and updated as required by the RSR, and no railway siding incidents occurred in 2010.

During the course of 2010, Afrox sites have also been audited by Coca Cola and all sites have been authorised to supply Carbon dioxide (CO<sub>2</sub>) to food & beverage industry standards.

Certain of the factories have the Product Certification Mark for certain products. These areas are regularly audited by the certification bodies to ensure compliance with the standard.

#### AFROX SHEQ MANAGEMENT SYSTEM STANDARDS:

The company has a well developed and integrated SHEQ Management System based on the principles of ISO 9001, ISO 14001, OHSAS 18001 as well as the relevant legislative requirements. The integrated system allows for integrated SHEQ audits, risk assessments and management reviews. The system also facilitates employee involvement in the SHEQ risk management, compliance with industrial requirements, compliance with local and national legislation and for the implementation of operational best practice in all areas of SHEQ. Management system standards are documented in the company's Integrated Management System Standards (IMSS).

Teams of Excellence (ToE's) consisting of operational and standard specialists are responsible for writing and reviewing the company SHEQ, technical and business process standards. ToE members meet regularly in order to ensure that specific identified standards (referred to as "chapters") are developed or revised.

Audit questions are developed for each new chapter and included in Audit Manager, the company's auditing management tool. New chapters are, on recommendation of the ToE's, added to identified personnel's License to Work Traccess profiles.

#### PRODUCT STEWARDSHIP:

Product Stewardship is defined as the ethical and responsible management of the safety, health and environmental risks of all products manufactured and distributed by Afrox. The Afrox Product Stewardship programme started with the high risk gas products and the Packaged Chemicals portfolio – potentially hazardous products that include ammonia, sulphur dioxide, ethylene, Sulphur Hexafluoride, Ripegas, Insectigas, Hydrogen Chloride and Carbon monoxide. Additional products are being added to the list annually.

An audit process is used to determine if such high risk products are being safely and responsibly used and managed by our customers. The audit process focuses on the safe handling, storage and usage of the products at customer sites. Orders are only accepted from customers who successfully complete the audit.

The company's product stewardship programme aims to go beyond legislative obligations by managing the safety, health and environmental risks of our products throughout their "life" cycle. As part of this programme all potential hazards of new products are systematically identified prior to their introduction into the market.

Customers are informed and advised regarding the risks of the products that Afrox supplies. Higher risk products are only supplied to customers that have measures in place to mitigate and manage such risks.

Part of Product stewardship programme is the management of new product introduction (NPI) into the business that has been revised to include more stringent controls. The NPI process enables the business to ensure that the risks associated with any new products are known, understood and mitigated before the product is introduced to the market.

## SHEQ RISK ASSESSMENT:

All SHEQ risks that could impact on our employees, communities that we operate in, contractors working on our premises and the environment we operate in are identified, assessed and appropriately managed.

Site SHEQ risks are identified and assessed by using the electronic Afrox integrated SHEQ Risk Assessment Tool. The tool allows sites to conduct “on line” risk assessments and to automatically score and prioritise significant site risks, and monitor controls. Trained operational teams do risk assessments for all new projects, products and processes, and any operational changes.

High level SHEQ risks have been identified during a risk assessment workshop by senior management.

The four priority risks, which are sponsored by members of the Executive team are:

- 1) Visible Leadership  
Ensuring that all levels of leaders within the company are genuine in our commitment to SHEQ performance and that we are believed
- 2) Line Management  
Ensuring that all our line managers have the correct competencies, capacity and line of sight
- 3) Change Management  
Helping the business understand the implications of all changes made in the organization and how those changes affect the SHEQ performance
- 4) Distribution Contractor Quality  
Conducting a review of our distribution activities and assessing the key areas that need attention with the goal of reducing the number of vehicle related incidents.

Progress with regards to the implementation of plans regarding the 4 priorities is discussed monthly with the executive management team.

Major safety, health and environmental risks at site level identified during 2010 include:

- Transport activities
- Contractor activities
- Manual handling activities
- Machine operation and equipment failure
- Activities at Customer sites
- Exposure of personnel to excessive noise and hazardous chemical substances (eg. Silica, Nitrous oxide, Asbestos and welding fumes) in the workplace

- Compliance with Environmental Impact Assessment authorizations (Records of Decision)
- Prohibiting the use of asbestos containing material eg. Acetylene cylinder mass.
- Leaking underground storage tanks
- Shot blast pollution and historical pollution at some of our factories
- Renewal of and compliance with municipal industrial effluent permits

## QUALITY:

### QUALITY SYSTEM:

The Quality Management System in Afrox is designed to ensure all products and services are supplied to predetermined International, National and Company Standards.

These standards are housed within the electronic, on-line Integrated Management Systems and Standards (IMSS) system which encompasses all business processes and operations within Afrox.

To ensure that products meet these standards, the specifications within the system mandate the testing frequency, required minimum standard as well as the test equipment to be used. Backup or follow up testing is regularly carried out by the Afrox Gases Operation Centre's laboratory on bulk products as well as compressed product. Testing of welding consumables is carried out at the Welding Consumables Laboratory in Brits. Gas Equipment, especially the Integrated Valve Regulator (IVR) valve undergo rigorous testing within the Research and Development department at the Gas Equipment factory in Germiston.

The Quality Management System requires regular auditing of the processes and products by ensuring that Quality Assurance is built into each process.

Quality Systems require understanding and commitment to the quality system principles by all employees – especially Management. These are monitored during audits and formalised during regular Management Review meetings.

## CUSTOMER FOCUS:

The SAP Telequery system has been implemented within the business. Telequery is an operational tool, which enables customer queries and complaints to be logged and followed through to resolution. It also serves as a management tool to report on the root causes of enquiries and complaints.

Customer Surveys are carried out nationally with Afrox customers at least every second year, facilitated by the Communications Department. The result of these surveys are analysed and action plans established to address areas of concern for the attention of the Sales force. Additional focused surveys are also carried out at regional level by the Sales Regions

## SAFETY:

### SAFETY STANDARDS:

SHEQ performance is managed through continuous improvement and all Afrox employees take responsibility for safety. Safety is a prerequisite to any business we undertake and safe behaviour is a condition of continued employment within Afrox.

Over many years we have worked hard to ensure the highest standard for safety. Through visible leadership, communication, training, checks and audits we strive to improve our SHEQ performance, and an environment where incidents are simply not acceptable as part of doing business.

Key safety standards, which are published in the IMSS system include, but are not limited to: risk assessment, Permit to Work, contractor management, training, incident reporting & investigation and managing legislative compliance.

### PROCESS SAFETY:

Process Safety is one of the major areas for the management of safety on our sites. It focuses on minimising the risk of incidents involving the release of hazardous materials, energy, fires and explosions at production plants.

An important component of Process Safety management is the requirement that a risk assessment or Hazop be conducted prior to an engineering change being implemented. This risk assessment identifies and mitigates the hazards associated with the process changes resulting in a significant reduction of engineering related risks.

Other key elements of the process safety programme in Afrox include:

- Engineering Management of Change
- Permit to Work
- Risk assessment
- Operator competence and training
- Emergency response planning
- Auditing
- Critical instrumentation review
- Hazard and Operability studies and risk assessments

Afrox utilizes Major Hazard installation (MHI), Major Hazard Review Programme (MHRP) and hydrocarbon risk assessments (for Air Separation Units) as part of the business's Process Safety programme. These specialised risk assessments are fundamental in reducing and managing the major risks of installations that could potentially result in major disasters.

As technology grows, safety becomes a more complex issue, spanning a spectrum of activities from the elimination of common workplace hazards through to the sophisticated analysis of major hazard risks from large-scale fires and explosions and releases of hazardous or toxic materials. During 2010 Afrox obtained accreditation on Major Hazards Installation risk assessment in accordance with recognised International standard ISO/IEC:17020:1998 from South African National Accreditation System (Sanas) and was also approved as an Approved Inspection Authority (AIA) from South African Department of Labour.

The New Linde Group MHRP is a formal process for identifying and assessing large scale site hazards that may pose risks to our employees or the off-site public. The control of major accident hazards covers all safety disciplines, but is primarily managed through process safety. This is also aligned with the European SEVES II Directives, USA OSHA Process Safety and South African Occupational Health and Safety Act.

#### BEHAVIOURAL SAFETY:

In Afrox we believe that behavioural change within the organization is the single greatest contributor to improving the SHEQ performance of the business. During 2010 we continued to roll out our Behavioural SHEQ programme, and its various tools. The purpose of the programme is to:

- deliver a positive step change in our SHEQ culture and behaviours
- improve our SHEQ performance
- be recognised as a High Performance and Leading in SHEQ Organisation
- achieve our SHEQ Vision of not wanting to harm people or the environment.

This programme helps leaders and employees better understand the concept of total integration of all our SHEQ systems and standards, implement them effectively, and assists with entrenching an interdependent behavioural approach to SHEQ.

The LeadSafe behavioural assessment tool is used by leaders to demonstrate their Visible Leadership for SHEQ, and their care and concern for the well being of employees. Through this approach Leaders recognise and support safe behaviours, address and change unsafe behaviours, and motivate employees at all levels in the organisation to work safely. Numerous LeadSafe workshops have been held with line managers and supervisors, and in some areas, front line employees have also been trained in this positive and peer-to-peer engagement approach.

A Visible Leadership matrix tool has been introduced with management teams across the organization, starting with the Executive team. This tool is used by a management team to select and monitor a set of behaviours, which they believe will visibly demonstrate their individual and teams commitment to SHEQ, and to build employee confidence that management takes SHEQ seriously. Individuals and teams monitor themselves monthly, which allows for them to review appropriate behaviours and identify Visible Leadership activities to further improve our SHEQ performance. In 2011 we plan to implement this tool with management teams at all our large sites.

During 2010 we commenced with the roll-out of a Behavioural Safety programme for our Drivers called “ActSafe for Drivers”. The objectives of this programme are to better understand how our Drivers’ behaviours are influenced, for Drivers to understand how unsafe behaviours can be changed to reduce risks, and to create an inter-dependant safety culture amongst our drivers in order to eliminate road traffic accidents and injuries. Outputs from this programme include self and peer-to-peer Critical Behaviour Checklist assessments and improved communications with management. Most of the Drivers at our Inland Bulk Distribution sites have gone through the programme, and further roll-outs in other areas are planned for 2011.

A similar Behavioural Safety programme is being developed for our Customer Engineering Service technicians, and a pilot programme is scheduled for 2011.

A SHEQ Culture survey and various on-site Behavioural Safety programme sustainability reviews are planned to take place in 2011, which will further assist management in identifying appropriate Behaviours and Visible Leadership activities in order to improve our SHEQ performance.

## OCCUPATIONAL HEALTH:

Our aim is to ensure that occupational health is integrated into all our management systems and core operations and to prevent occupational illnesses. Occupational health programmes focus on minimising the major risks in the workplace which includes noise exposure, manual handling and hazardous chemical exposure.

To ensure that Afrox personnel stay healthy and fit for their jobs, Occupational Health clinics operate at eight (8) sites within South Africa and at four (4) sites in other African countries. Well trained medical personnel operate these clinics and contribute towards ensuring that high health standards are maintained throughout the company. Furthermore, mobile occupational health clinics operate at smaller sites.

Policies for pre and post placement medical examinations for designated job categories with specific job-related physical requirements and exposure to chemicals, and rehabilitation guidelines for employees with occupational injury or illness have been developed and are currently being implemented. A well defined medical surveillance programme is in place to monitor the health of employees engaged in certain types of activities.

At Afrox, we have three sites across the continent that manufacture and fill nitrous oxide cylinders. We also have three sites that only fill nitrous oxide cylinders. In 2010, we conducted a personnel exposure monitoring survey at our South African site where we both manufacture and fill cylinders. Where results indicate that some of our employees are exposed to limits higher than the recommended limits, plans are being developed to lower the exposure levels.



Manual handling activities, and specifically cylinder handling, is a core part of our business operations and we have recognised the risk it poses to our employees. In 2010 there was an increase in injuries as a result of manual handling, and to reduce this risk, our manual handling training material was updated. We are in the process of identifying and developing Manual Handling Champions who will deliver the training into the business and be involved in all aspects

that relate to manual handling activities eg. risk assessments, site initiatives to eliminate or reduce manual handling activities, incident investigations, etc.



At a few of our sites we work with crystalline silica, and our well developed medical surveillance programme monitors the health and well being of employees handling this hazardous substance. As per regulatory requirements, we conduct exposure surveys and submit a report to the Department of Labour every 6 months. Where results indicate that some of our employees are exposed to limits higher than the recommended limits, plans are being developed to lower the exposure levels.

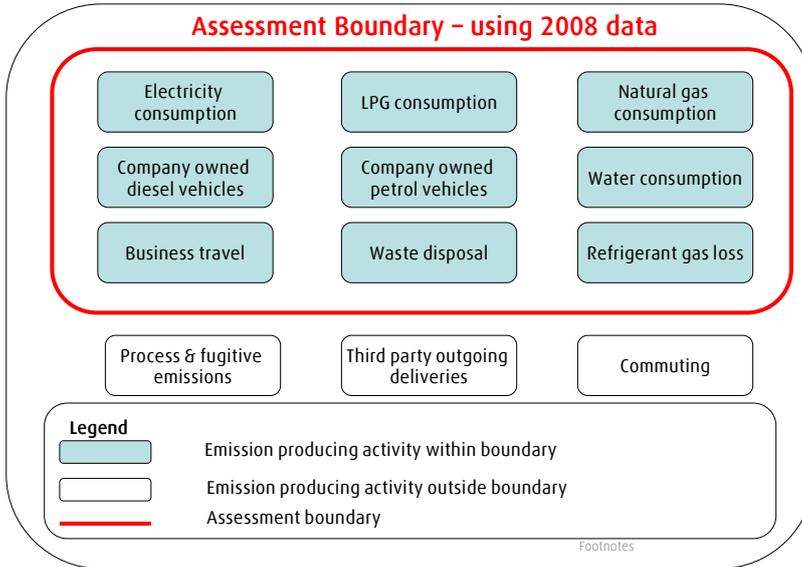
Over the last few years there has been a number of Noise Induced Hearing Loss claims, and one of our focus areas in 2011 will be further developing our hearing conservation programme, which will include updated line manager training.

#### ENVIRONMENT:

The Afrox Managing Director bears overall responsibility for Afrox's environmental performance. He has delegated authority to the General Manager SHEQ for ensuring due environmental performance through company standards, directives and strategic direction.

The Afrox Board is kept informed of the company's environmental compliance and high-level environmental risks through regular reports and presentations.

Through the services of a consultant, Afrox completed a baseline Carbon Footprint assessment using 2008 data. The assessment boundary for the Afrox carbon footprint is given below.



The overall carbon emissions for Aprox South Africa, have been calculated as follows in terms of the WBCSD scope as well as for each business unit:

Overall emissions by WBCSD scope

Source of emissions	WBCSD Scope	Total CO <sub>2</sub> e (t/yr)	Proportion of total
Premises – Natural gas consumption	Scope 1 (Direct control)	1 327	0.2%
Premises – LPG consumption		218	0.03%
Company owned vehicles – diesel consumption		18 112	2.1%
Company owned vehicles – petrol consumption		7 394	0.85%
Premises – refrigerant gas losses		0	0
<b>Subtotal</b>		<b>27 051</b>	<b>3.1%</b>
Premises – Electricity consumption	Scope 2	822 985	95%
<b>Subtotal</b>		<b>822 985</b>	<b>95%</b>
Premises – Waste	Scope 3 (Indirect control)	10 094	1.2%
Premises – Water consumption		387	0.04%
Contractor owned vehicles – diesel consumption		2 565	0.3%
Business travel – Flights		1 910	0.2%
Business travel – Accommodation		328	0.04%
Business travel – Car hire		215	0.02%
<b>Subtotal</b>		<b>15 499</b>	<b>1.8%</b>
<b>Total</b>		<b>865 536</b>	<b>100%</b>

## Overall emissions by Business Unit

Business Unit	Total equiv. CO <sub>2</sub> (t/yr)	% Total Equiv. CO <sub>2</sub>
Afrox Air Separation Units	761 621	88%
Afrox Nitrous Oxide	18 574	2.1%
Afrox Carbon Dioxide plants	18 419	2.1%
Welding consumables production	14 645	1.7%
Afrox Hydrogen plants	11 130	1.3%
National Distribution	10 097	1.2%
Afrox Acetylene plants	7 563	0.9%
Afrox Gas and Gears	6 121	0.7%
Gas equipment production	4 375	0.5%
Gas filling sites	3 934	0.5%
Afrox enabling functions	2 748	0.3%
Afrox Head Office	2 238	0.3%
LPG, refrigerants and propellants filling	2 113	0.2%
Bulk tank manufacturing	1 141	0.1%
Self Rescue Pack Assembly	680	0.1%
Afrox Customer Engineering Services	137	0.02%
<b>Total</b>	<b>865 536</b>	<b>100%</b>

In line with the output of the Carbon Footprint, it was identified that electricity consumption within the Air Separation Units accounted for the majority of the emissions within the company. As a result the Afrox Carbon Asset Management strategy, which has been agreed with the Afrox Board, is focused on energy reduction.

An energy assessment of our major users has been conducted and an energy reduction programme established to lower our energy consumption. Energy reduction targets per unit are in the process of being set. It is intended that these targets will be set over a 5 year period.

Our 2010 data will now be taken into account, using a custom made carbon calculator, and we will identify further opportunities and consider appropriate options and actions to continue to reduce our footprint.

Afrox acknowledges the changes in the national legislative and policy environment with regards to climate change and will ensure that plans are in place to address all requirements with regards to energy as well as emission reduction targets.

After a retrospective Environmental Impact Assessment (EIA) application for the upgrade of an Air Separation Unit was submitted. Afrox was fined R81 000 by the authorities for commencing the activity without the required EIA Record of Decision.

## ENVIRONMENTAL MANAGEMENT SYSTEM:

Afrox's environmental impacts are split into direct and indirect impacts. Direct impacts are actions that affect the environment directly as a result of our operations, e.g. accidental releases of materials into the air, water and land. These impacts include emissions of atmospheric pollutants, e.g. combustion emissions from transport, emissions of ozone depleting substances and greenhouse gases such as carbon dioxide.

We monitor and report key environmental considerations that result from the businesses we operate. All sites monitor the consumption of water, electricity and raw materials monthly and keep an inventory of hazardous waste types generated and quantities disposed of.

Our indirect environmental impacts occur as the result of the resources and materials used, and the products and services we supply to customers. We have limited control over these impacts because they are either derived from or passed on to third parties. For example, we use substantial quantities of electricity for our air separation processes.

Non-renewable resources such as oil and coal are burnt to generate electricity. This results in emissions of carbon dioxide to the atmosphere. We have limited direct control over the fuel used and emissions generated by our energy suppliers, but we work with our suppliers and partners to ensure we use energy efficiently.

Afrox recognises the need for formal documented management systems. Afox's environmental management system is well developed, documented and fully integrated into the company SHEQ system. Environmental standards for the management of significant environmental risks have been developed and the requirements thereof implemented. Management standards are applicable to water, waste, industrial effluent, hazardous chemicals, and legislative compliance.

Environmental Management Programmes (EMP's) are developed in order to manage impacts during the development and operation of existing and new facilities. Implementation of such EMP's is important for continuously improving the environmental performance of Afox sites.

## ENVIRONMENTAL FOCUS:

The Linde Group goal of being the leading environmental performer in the gas industry sector is also important for Afox. To achieve this goal our environmental focus during 2010 included the following:

- Maintenance of and working towards ISO14001 certifications at production sites
- Review of various environmental permits and licenses, and their conditions in order to ensure compliance
- Communication within the business of the trends and analysis, and proposed corrective actions for external ISO 14001 audit findings

- Updating our internal Legal Compliance Checklists based on findings from external legal compliance audits and changes in legislation
- Review of Environmental Authorisations (Records of Decision) issued as a result of Environmental Impact Assessments and their conditions in order to ensure compliance
- Ensuring compliance with the Asbestos Regulations - Regulations for the Prohibition of the Use, Manufacturing, Import and Export of Asbestos Containing Materials, 2007
- Audit and approval of various hazardous waste service providers
- Involvement in innovative technological ideas to sustain our environment e.g. the ammonia fuel cell project which will reduce the need for diesel operated generators, a Mail & Guardian commendation award winning project.

#### WASTE MANAGEMENT:

Most of Afrox's releases to land result from waste generation. Our sites recognise the importance of effective on-site waste management and strive to comply with the company standard for waste handling storage and disposal. The company Standard for waste management governs the storage, treatment and disposal of general and unavoidable hazardous waste legally and responsibly. The standard makes provision for the responsible handling and legal storage and disposal of waste streams like scrap cylinders, carbide sludge, waste oil, empty chemical containers, asbestos and spent fluorescent tubes.

In addition to adhering to legal requirements for storage and disposal, we make use of various recycling schemes. Scrap metal such as copper swarf and scrap cylinders is sold to dealers for recycling, while significant amounts of plastic, paper and cardboard are also recycled.

Contractors used for the transportation and subsequent disposal of Afrox's hazardous waste streams are approved by the SHEQ Department and their operations audited regularly.

Afrox sites manage their waste responsibly by maintaining site waste inventories, doing regular inspection of waste areas and ensuring that waste assembly and storage areas meet company and legal requirements.

Acetylene production produces lime as a useful by-product in the form of a slurry or filter cake. Approximately 93% of this lime product is re-used by selling the product to other industries that use the lime for the following purposes:

- Neutralisation of acid mine effluent,
- Construction of roads
- White washing (paint industry)
- Cement manufacturing

Hazardous waste generated by Afrox’s sites includes used oil, empty chemical containers, paint related waste, used solvents, asbestos etc. Where possible, this waste is recycled or reused or safely disposed of at licensed facilities.

Stringent measures are in place to safely handle and dispose of asbestos-containing waste from scrapped acetylene cylinders. The company has actively implemented a programme to replace the asbestos in acetylene cylinders with a safer product, and a new plant where cylinders are filled with a safer product has been commissioned.

In order to comply with the requirements of the Regulations for the Prohibition of the Use, Manufacturing, Import and Export of Asbestos Containing Materials(2007), Afrox has obtained an Asbestos Registration Number and submitted an asbestos phase out plan to the Minister of Environmental Affairs. This phase out plan has been accepted by the authorities, and the required external annual audit provided a positive outcome. We continue to work towards achieving our asbestos phase out plan goals in line with the legislation and authorities requirements.

Major waste type quantities generated and land-filled in registered hazardous waste landfill sites are included in Table 3:

**TABLE 3: MAJOR WASTE TYPE QUANTITIES**

WASTE TYPE	QUANTITY GENERATED	UNIT OF MEASUREMENT	BUSINESS UNIT
Trichloroethylene used for oxygen cleaning	13 440	Litres	Afrox Gas Equipment Factory
Acid dip waste	186.65	Ton	Afrox Gas Equipment Factory
Asbestos containing waste	122	Ton	Afrox Porous Mass Plant
Cylinder massing sludge	122.52	Ton	Afrox Porous Mass Plant
Nitrous Oxide Plant Waste	437.78	Ton	Afrox Gases Operation Centre
Flux powder and welding rod production waste	1 109 68	Ton	Afrox Welding consumables Factory
Scrap Cylinders	519.54	Ton	Afrox Gases Operation Centre and Afrox Roodekop

**RAW MATERIAL CONSUMPTION:**

A number of different raw materials are used for the production of Afrox's gases, welding consumables, gas welding and cutting equipment, Self Rescue Packs as well as bulk vessels and tankers. Sites are required to monitor their consumption of raw material monthly and ensure that processes are efficient and deliver optimal yields and outputs.

Table 4 indicates the consumption of major raw materials used in the manufacture of acetylene gas and nitrous oxide gas.

**TABLE 4: RAW MATERIAL CONSUMPTION FOR SPECIFIC GAS PRODUCTION**

MATERIAL	QUANTITY USED	PRODUCTION PROCESS	NUMBER OF PLANTS
Calcium Carbide	7 238 Ton	Acetylene production	9
Ammonium Nitrate	1 173 Ton	Nitrous Oxide Production	3

Table 5 indicates the raw material consumption for the production of welding rods, gas equipment and Self Rescue Packs:

**TABLE 5: RAW MATERIAL CONSUMPTION FOR OTHER PRODUCTS**

PRODUCTION PROCESS	RAW MATERIAL	QUANTITY USED	BUSINESS UNIT
Welding rod manufacturing	Metal Flux Powders and Chemicals	4498 Ton 3262 Ton	Afrox Welding Consumables Factory
Welding equipment production	Metal (brass and copper) Solvents Lubricating Machine Oil Chemicals	291.2 Ton 240 Ton 5 Ton 3 Ton	Afrox Gas Equipment Factory
Self Rescue Pack manufacturing	Chemicals Metal Rubber	8.28 Ton 24.21 Ton 4.75 Ton	Afrox Self Rescue Division
Bulk tank manufacturing	Mild and Stainless Steel	83 Ton	Afrox Cryogenics
Cylinder maintenance	Shot Zinc Wire Paint Thinners	15 Ton 18 Ton 80 Ton 71 Ton	Afrox Gases Operation Centre and Afrox Roodekop

#### PACKAGING MATERIALS:

A large proportion of Afrox's products are either delivered in returnable cylinders or as cryogenic liquids into dedicated storage facilities. However, some products supplied by Afrox are packaged, therefore generating waste, and necessitating the use of raw materials.

Afrox sites use cardboard and plastic as materials for packaging of Afrox's welding consumables, gas welding and cutting equipment and self rescue packs. During 2010, 255 tons of packaging material was used.

Afrox also uses cylinders to supply gases. A gas cylinder is a fully reusable package and in most cases is refillable. An Afrox owned cylinders will only become waste when it can no longer be used at the end of its economic life (well in excess of 20 years). Cylinder waste is fully recyclable. It is only in exceptional circumstances that gas cylinders are land filled after being made safe to do so, e.g. scrapped acetylene cylinders.

#### POLLUTION PREVENTION:

Prevention of pollution at source is more cost effective and sustainable than clean up or remediation after pollution has occurred. International and local regulatory pressure is continually increasing and requires industry to adopt preventative solutions to pollution. It is therefore imperative that the principals of pollution prevention are understood at all levels within Afrox.

All sites identify possible environmental emergencies that could result in pollution of the environment in their site risk assessments and site Emergency Preparedness and Response Plans. Procedures for handling such emergencies are available in the Integrated Management System and Standards and sites are expected to conduct emergency drills for site-specific environmental emergencies at least annually. Spill prevention and other emergency equipment are available at sites where such risks exist.

#### DIRECT ENERGY UTILISATION AND ENERGY CONSERVATION PROGRAMMES:

Our primary source of energy is electricity, while other sources of energy include LP gas, diesel and petrol. The production of oxygen, nitrogen and argon from air, the process conducted at Afrox's Air Separation Units, is energy intensive which indirectly results in the release of a significant quantity of greenhouse gas.

Afrox ASU and CO<sub>2</sub> plants contribute about 90 % of the total Afrox electricity usage with a total monthly consumption of approximately 38 371 005 kWh. There have been no significant changes in the usage across the top ten sites over the last two years. The Air Separation Units (ASUs) represent the most energy intensive section of the Afrox business, accounting for nearly 85 % of

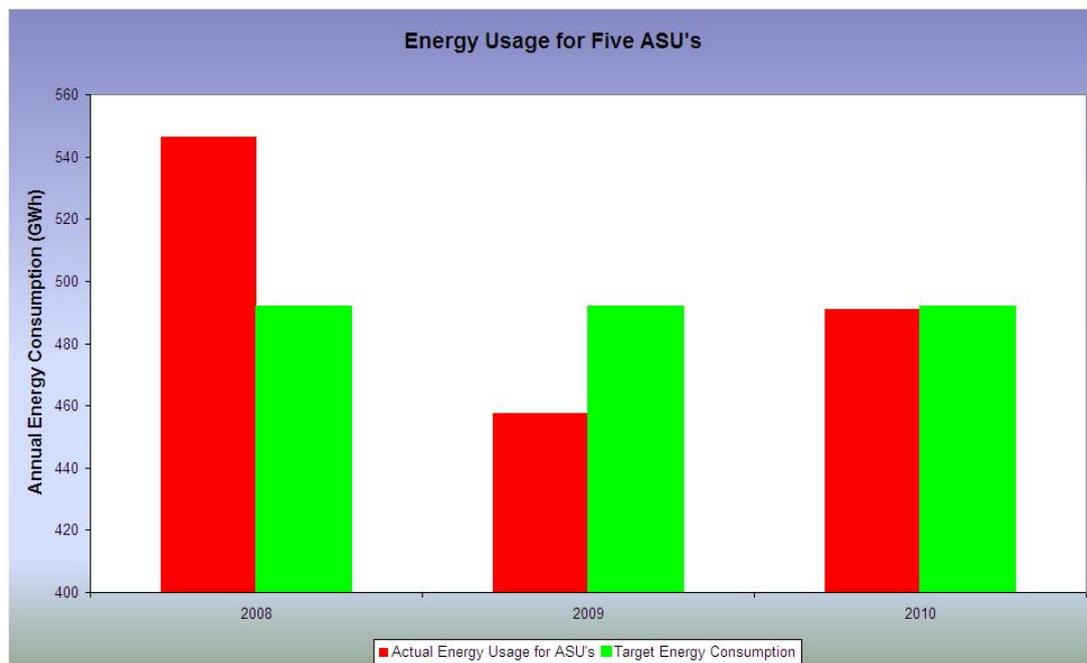
the energy consumed by Afrox. An energy management strategy was developed and implemented in 2009/2010, resulting in an estimated 108 000 000 kWh savings in electricity.

Energy management programmes minimise costs and reduce our environmental impact. Our plants harness maximum demand controls and "Specific Power", measure of the energy used per ton of product produced is reported monthly. Production sites have also introduced Power Factor Correction to make optimum use of electricity. Energy consumption for South African Air Separation units is indicated in the Table 6.

TABLE 6: ASU ENERGY CONSUMPTION

PLANT	ANNUAL CONSUMPTION (Megawatt Hour)	CONSUMPTION kWh/TON OF PRODUCT 2010
Highveld Plant	189 924	1.67
Pretoria West Plant	155 630	0.87
Kuilsriver Plant	173 595	1.67
Wadeville plant	47 818	2.42
Pietermaritzburg Plant	49 385	1.61
Mondi Plant	13 688	-
Xstrata Plant	17 249	-

Energy consumption for our five largest ASU's...the 2009 "actual energy used" was lower due to reduction in demand for product.



Afrox is committed to contributing to the South African economy and in 2009 we reduced our electricity consumption by more than the required 10%. In 2010 Afrox continued to sustain reduced consumption levels through various initiatives eg. Energy audits, tariff optimizations, power factor corrections, reducing the Nitrogen Liquefying Unit operation at Pietermaritzburg ASU, and shutting down the second unit at the Pretoria ASU, participation in the Eskom Demand Market Participation initiative.

To date significant investment and resources have been made available within Afrox to reduce our electricity consumption. The actions taken thus far include:

- The development of an energy management policy to reduce electricity consumption
- Installing meters at major sites to be able to monitor electricity consumption
- Training of employees to understand their roles and responsibilities in reducing their energy consumption and rolling out a “Kill-a-Watt” awareness programme within our business. The training highlighted the financial, operating and strategic risks of not reducing our electricity consumption
- Development of detailed action plans for each Plant to reduce energy consumption. The detailed action plans focus on energy savings through more efficient operation of plants, i.e. improved maintenance practices, improved quality, reduce over production, etc. 90% of our large sites have such action plans in place.
- Conducting energy audits at major sites and identifying opportunities for electricity savings.
- Numerous GAP (Growth and Performance) projects have been identified and are in the process of being implemented.
- A tariff analysis was conducted at each plant to reduce costs.

#### WATER CONSUMPTION:

Water is used in Afrox’s processes primarily for:

- Manufacturing of gases like acetylene and nitrous oxide
- functioning of cooling systems
- hydrostatic testing of vessels and cylinders
- emergency deluge systems
- office purposes.

Water is sourced from municipal or regional utilities and some sites use boreholes for gardening purposes. Sites are required to monitor their water consumption monthly and trends are analysed to identify conservation possibilities. Approximately 957 785 m<sup>3</sup> of water was consumed during 2010 (almost 22% less than that consumed in 2008).

Our activities do not have a significant effect on any water resource, natural habitats or related ecosystems.

**AIR QUALITY:**

Afrox operates a large commercial vehicle fleet and the environmental implications are well recognised. It is our goal to minimise the environmental impact of our transport and distribution operations.

Fuel efficiency continues to be a focus of improvement through vehicle design, driving techniques and optimised delivery routing.

The production of acetylene in South Africa is now a listed activity under the new NEMA: Air Quality Act. Afrox are developing plans to obtain the emission licenses now required under new Act, however the current registration certificates issued under the old Atmospheric Pollution and Prevention Act are valid until 2013. The main sources of the emission of acetylene gas from these plants include the generators, lime pits, cylinder filling, cylinder maintenance and compression.

Emissions from these sources are calculated using a standard mass balance methodology for acetylene plants from the European Industrial Gases Association (IGC Doc 84/02/E). Less acetylene was emitted, partly due to the closure of our plant in Port Elizabeth. Table 7 reflects the emission statistics for the South African plants from 2007 to 2010:

**TABLE 7: ACETYLENE EMISSIONS FROM SA PLANTS**

YEAR	AMOUNT OF CARBIDE USED (TON)	AMOUNT OF ACETYLENE PRODUCED (TON)	TOTAL ACETYLENE EMITTED (TON)	ACETYLENE EMITTED/TON PRODUCED
2007	7 077	2 784	16	5.73 kg/Ton
2008	5 644	2 282	9.2	4.10 kg/ton
2009	4 847	1 338	6.8	5.1 kg/Ton
2010	4 828	1 209	6.7	5.5 kg/ton

Production processes also contribute towards other fugitive greenhouse gas emissions e.g. nitrous oxide (N<sub>2</sub>O) production and cylinder filling.

Carbon dioxide storage vessel condenser units and a number of Afrox’s refrigeration units use R-22, an ozone depleting agent with ozone depleting potential of 0.055. All new condenser units and units that are repaired are being filled with R-404A which has zero ozone depleting potential.

Carbon dioxide storage vessel condenser units and a number of Afrox’s refrigeration units use R-22, an ozone depleting agent with ozone depleting potential of 0.055. All new condenser units and units that are repaired are being filled with R427A which has zero ozone depleting potential.

Afrox supports the phase out of ozone depleting substances as per the Montreal Protocol. We have identified R427A as the most suitable and environmentally responsible HFC alternative which will support industries in the phase out of R22. To show our commitment towards a sustainable environment, we will be converting all our R22 with R427A.

The production of atmospheric gases from our Air Separation Units has a minimal direct impact on the environment. Air separation processes use air as feedstock and are physical processes that do not involve chemical reactions. Only materials originally present in the air could end up in waste gas streams (purges and vents). The potential consequences to the environment are the use of water and energy as well as the use of oil for lubrication purposes. To minimise these impacts, we improved the energy efficiency of our Air Separation Units continuously, through equipment design, maintenance and efficient operating practices.

**NOISE POLLUTION:**

The noise producing capability of our activities is recognised and regular monitoring provides the foundation for actions to minimise and wherever practicable eliminate the impact. Some concerns were raised by the community in the Kuils River area, however these were adequately dealt with through engineering changes in the plant.

**TRANSPORTATION IMPACTS:**

The Afrox transport fleet is well maintained and regularly serviced to ensure limited emissions & noise, and economical fuel consumption. The environmental impacts of our transport fleet are the use of fuels (diesel and petrol), noise, air pollution by carbon monoxide and other combustion products, accidents and waste created during vehicle service.

Afrox and contractor trucks travelled a total distance of 31 582 129 km (16% less than that travelled in 2008) and passenger cars a distance of 20 525 915 km (26% less than that travelled in 2008) during 2010

Afrox vehicles cover large distances to distribute our products resulting in significant volumes of diesel and petrol being consumed. Table 8 indicates the fuel consumption for the 2010 financial year:

**TABLE 8: FUEL CONSUMPTION FOR AFROX'S VEHICLES**

FUEL	CONSUMPTION (Kilo litres)
Diesel	9 277.91
Petrol	264

#### EFFLUENT MANAGEMENT:

Afrox's major source of liquid effluent is cooling water blow down which contains various treatment chemicals such as chlorine based corrosion inhibitors, biocides and acids. Developing a close working relationship with suppliers of water treatment chemicals, and establishing monitoring and testing programmes at all sites, enables Afrox to minimise the quantity of chemicals used and to ensure that the quality of the effluent is of the required standard.

Afrox sites discharge industrial effluent to the municipal sewer system under Permit conditions. Fifteen sites have permits issued by the local authorities. These sites monitor the quality of the effluent regularly and have management interventions in place to ensure compliance with Permit conditions.

No permit contraventions were reported in 2010, however we have experienced difficulties in renewing a permit in the Western Cape area and we continue to engage with the local authorities.

#### LAND AND BIODIVERSITY RICH HABITATS:

Most of our sites are located in industrial or commercial areas. However, there are a few environmentally sensitive areas close to some of Afrox's sites. Where sites are close to the ocean, bird sanctuaries or other sensitive habitats stringent management controls are in place to ensure that our activities do not adversely affect these areas.

#### ENVIRONMENTAL EXPENDITURE:

Afrox recognises that our environmental impact can never be absolutely zero, but our behaviour demonstrates that we care about not harming the environment and we continuously strive to achieve this goal. Environmental best practice is developed and employed and environmental improvement programmes are included and implemented annually.

Environmental expenditure during 2010 was approximately R 500 000 and includes the following items:

- consultancy fees (environmental impact assessments, external audits and legal advice)
- updating the Afrox SHE Legal Register
- spill prevention equipment
- upgrading of chemical and waste storage areas
- process and infrastructural modifications
- the planting of trees at most sites to celebrate Arbor Day
- Installation of a facility at Port Elizabeth to capture rain water
- Implementation of waste recycling and waste management programmes
- Soil rehabilitation, storm water drain cleaning and upgrade of shot blast facility including the filtration system at Cryogenics

- o and the purchase of shopping bags made from re-cycled plastic for our employees to celebrate World Environmental Day.

**TRANSPORT SAFETY:**

During the years 2009 to 2010 the number of significant vehicle incidents increased. Many of these incidents resulted in vehicle roll-overs. As part of the corrective action relating to these incidents Afrox reinforced the “Transport Safety Critical Activities Training” for first and second line manager’s throughout RBU Africa.

Through intensive investigation, the root cause of most of these roll-overs was due to driver fatigue and veering off the road due to concentration loss and correcting the vehicle back onto the road. To raise awareness amongst our drivers and their families, Afrox hosted a Wellness day which highlighted the importance of rest periods and the importance of not driving under the influence of alcohol, drugs and medication. The wellness day was well received by our drivers and their families. Due to the success of these days, this event will take place in 2011 where we will reach more of our drivers and their families.



**DRIVER FATIGUE AWARENESS**

FATIGUE CONTRIBUTES TO 30-40% OF HEAVY TRUCK ACCIDENTS OF WHICH 31% ARE FATAL ACCIDENTS

PEOPLE OFTEN THINK THAT DRIVER FATIGUE MEANS FALLING ASLEEP AT THE WHEEL, HOWEVER FALLING ASLEEP IS AN EXTREME FORM OF FATIGUE

**WHAT CAUSES DRIVER FATIGUE?**

NOT ENOUGH SLEEP	LONG DISTANCE DRIVING	DRUGS	ALCOHOL	ROAD CONGESTION
	SHIFT PATTERNS (DAY TO NIGHT)	MEDICATION		WORKING LONG HOURS

**THESE ARE EXAMPLES OF WHAT PEOPLE “TEND” TO THINK WILL HELP THEM STAY AWAKE.**

GRANDPA AND COKE DOES NOT WORK	REDBULL / COFFEE THE AFFECT ONLY LASTS 20 MINUTES	STAY AWAKE PILLS
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**BY DRIVING UNDER FATIGUE CONDITIONS, THINK OF HOW MANY LIFE'S YOU ARE ENDANGERING!**

**THE DRIVER FATIGUE PROGRAMME AIMS TO BRING AN AWARENESS TO THE DRIVERS AND THEIR FAMILIES, HIGHLIGHTING THE IMPORTANCES OF REST PERIODS AND NOT DRIVING UNDER THE INFLUENCES OF DRUGS, ALCOHOL, MEDICATION, ETC.**

TRANSPORT SAFETY MANAGER, RBU/AFRICA

To further create awareness of hazards amongst drivers Afrox are in the process of implementing the ACT Safe Driver Behavioural Programme. The main objective of this programme is to prevent all road accidents including truck roll-overs This programme teaches our drivers how to identify the hazards on the road, assess the risk which is associated with the hazard and then take the right decision to prevent an accident. Our Drivers will ensure the sustainability of the programme with assistance from their management. This programme will be rolled-out over the next three years to ensure all RBU Drivers are reached.

Key learning from our drivers who have attended the ACT Safe Drive Behavioural Programme include:



**Agreement Nldovu - Heavy truck driver**

I use to retaliate when someone passes me on the highway but I commit to not doing this again. **I endeavor to sharpen my skills to become a better and safe driver.** I promise to share what I have learned with other people.



**Jack Makoko - Heavy truck driver**

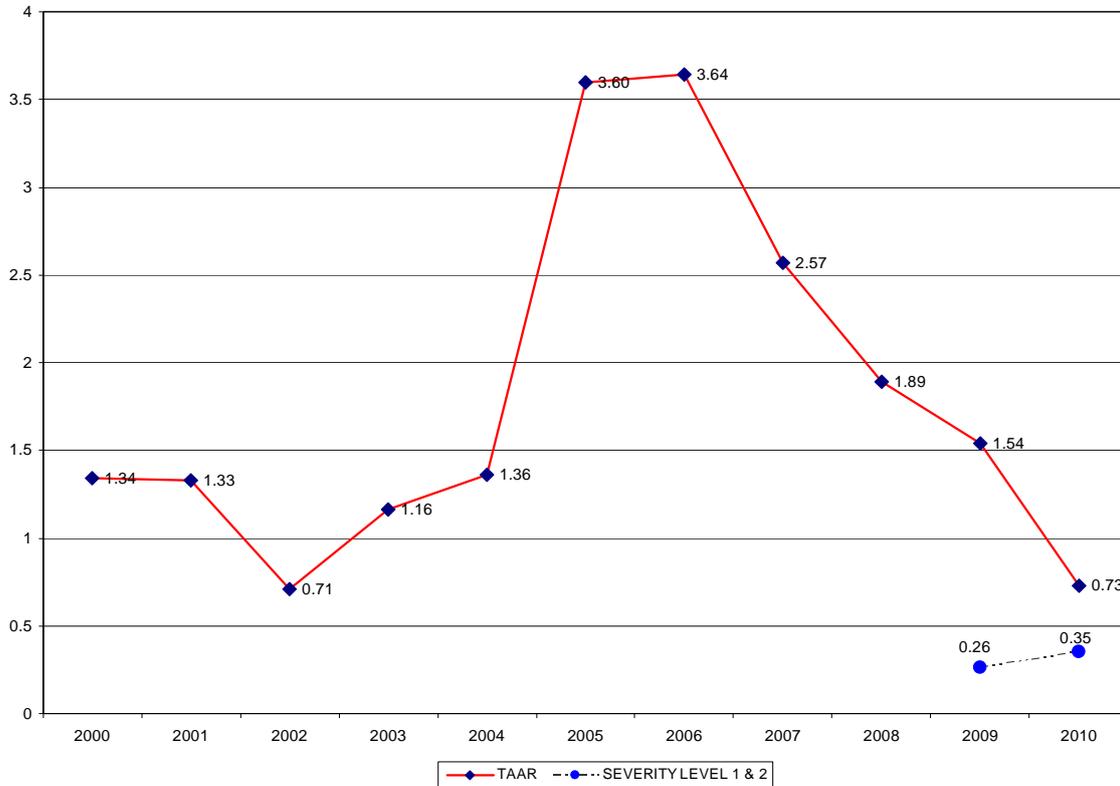
I can feel that **I am equipped with the knowledge of safe driving and I could easily assess risks.** From now onwards I promise I will never use my cellphone whilst driving. I'm happy that I can still learn something new at my age. I will pass this knowledge to my family and others.

Another initiative that is being considered within the company is specific Roll-Over Avoidance Training for heavy duty drivers. This training is currently underway in parts of Europe for the Linde Group. This training will further skill our Drivers and ensure that roll-over incidents/accidents are prevented



Graph 3 illustrates how the severity levels of road accidents have decreased in the period 2000 to 2010.

**GRAPH 3: ROAD ACCIDENT SEVERITY LEVELS**



Note: An additional 34 Severity 4 (minor) Truck Avoidable Accidents have been identified during 2010. These were previously classified as “damage” incidents and have subsequently been reclassified as “Avoidable” truck accidents

**AUDITING:**

SHEQ performance, improvements and compliance with internal and legal requirements are assessed via regular audits. SHEQ audits are performed annually as part of the company's integrated management system audits. The integrated SHEQ audits include the following aspects:

- Operations and Engineering
- SHEQ Management systems
- Medical Gases - Good Manufacturing Practice (GMP) and Good Distribution Practices (GDP)
- Railway Safety
- SHEQ legal compliance
- Transport Safety
- Customer Engineering Services

- Process safety
- Security
- MHRP (Major Hazard Review Programme)

An audit schedule is developed and implemented annually and lead auditors are trained in the theoretical and practical components of auditing. Approximately 90 operational Afrox sites were audited during 2010.

Audit Manager, one of the pillars of IMSS is a database used to capture and manage internal and external audit findings. It is also used by Site Management and Afrox Internal auditors to assess site processes, activities and the effectiveness of the implementation of the company's management systems. This system also allows for the management of non-conformances and for central analysis and trending.

Effective close out of audit findings are monitored by the Executive Team on a monthly basis.

In 2011 KPMG will be conducting verification audits on selected sites within the Linde Group to verify the data supplied via the Credit 360 process. For 2011, the Witbank ASU has been chosen within Region Africa to be audited.

#### TRAINING AND COMPETENCE:

The company SHEQ Policy and Standards cover all operational aspects and activities that could influence the safety and health of employees and the environment. These are available to all employees via IMSS.

The company's Traccess system is a Learning Database linked to IMSS. The system allows for the creation of profiles for all employees. The profiles specify the content of the learning programme that will ensure competence prior to starting a task (License to Work). Contractors that work on Afrox sites are treated in the same manner as employees and are expected to maintain the same level of competence and operational excellence as Afrox employees. Suitable Traccess/Licence to Work profiles are also allocated to such persons. An upgrade of the Traccess system was launched by the Linde Group last year and is currently being implemented within Region Africa.

In 2010, Afrox went out to tender to identify new preferred SHEQ related training service providers to ensure consistency in training material and standards. Two service providers have been identified, each providing different training courses, and contracts and service level agreements will be finalised shortly. These contracts allow us to enjoy preferential corporate training pricing and to customise training material in line with Afrox standards and requirements,

and allows the business units to make use of a preferred service provider. Other training and coaching tools include SHEQ Bulletins and Newsletters as well as lessons from incidents.

The behaviour of articulated and rigid drivers have significantly changed since training material was revised and made more practical and team work was included in the training. Driver training material is aligned with the Transport Education and Training Authority (TETA). All personnel that travel on behalf of the company undergo defensive driver training and are required to be reassessed on a 2 yearly basis.

Each employee's responsibility to protect the environment is also reinforced by celebrations of national environmental programmes at Afrox sites, such as Arbour Week and Water Week and international events, such as World Environmental day.

Afrox-specific environmental awareness training packages are available within IMSS. These include:

- • environmental awareness
- • waste management
- • storm water pollution prevention
- • environmental videos

**INCIDENT MANAGEMENT:**

At Afrox we believe that all incidents are avoidable. The company's web-based incident reporting system, known as SYNERGI, is used to report and investigate all near misses, incidents, injuries and accidents. Major SHEQ incidents (MIR's) are reported to the Linde Group. The closing of all incidents are carefully monitored and MIR's are closed out at Afrox and Linde Group Board level.

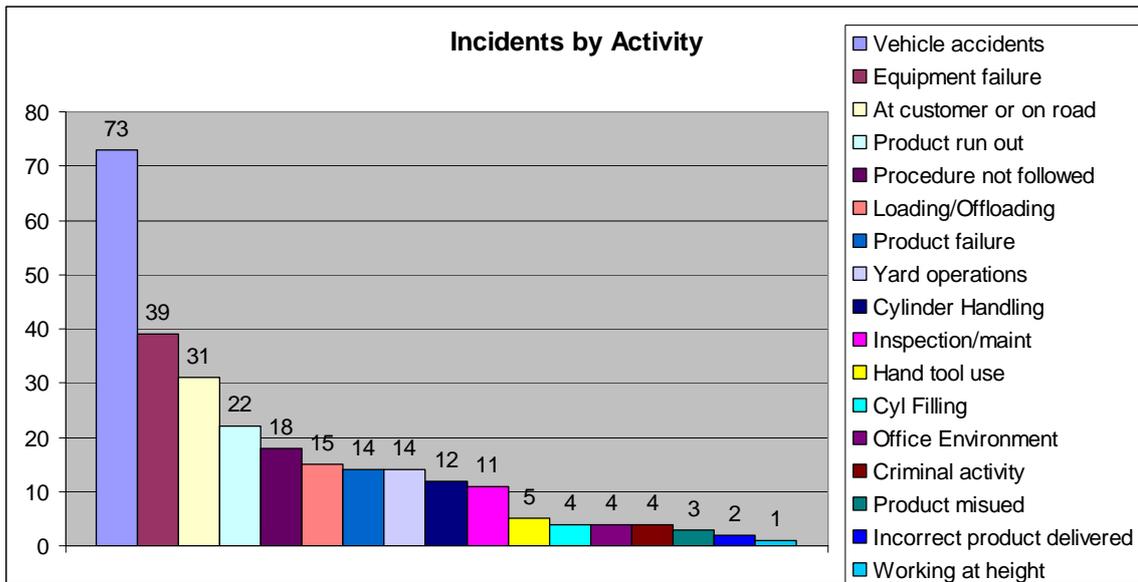
Table 9 indicates the number of MIR's and the type of incident reported in 2010:

TABLE 9: MIR'S REPORTED

NUMBER OF MIR'S	TYPE OF INCIDENT
7	Vehicle roll overs
5	Broken bones
3	Fire
3	Fatality and third party fatalities
2	Equipment failures
2	Hijacking and armed robberies
1	Cylinder rupture

Other SHEQ – related incidents are also recorded and reported monthly. Trending and analysis of such incidents are done regularly. Root causes are identified and addressed and preventative measures implemented for all types and levels of incidents.

Analysis of the types of incidents for 2010 is illustrated in Graph 4:



A number of minor environmental incidents were reported. Table 10 illustrates the specific environmental incidents reported in 2010:

TABLE 10: ENVIRONMENTAL INCIDENTS

EFFLUENT SPILL	DIESEL SPILL	CHEMICAL SPILL	UNCONTROLLED GAS RELEASE
3	2	2	7

A number of major customer quality related incidents (MCIR's) were reported and investigated during the year. Table 11 indicates the number of incidents and root causes of these incidents:

TABLE 11: MAJOR QUALITY INCIDENTS

TYPE OF MCIR	NUMBER OF MCIR'S
Medical run out	3
Off specification product	3
Industrial run out	14
Equipment failure	1
Faulty product supplied	2

The number of Occupational Illnesses reported to the compensation Commissioner during 2010 is indicated in Table 12. It is our goal to ultimately reduce the occurrence of occupational illnesses to zero by implementing appropriate engineering controls, medical surveillance programmes and training of our personnel.

TABLE 12: OCCUPATIONAL ILLNESSES

Year	Number of Incidents	Type of Incidents
2007	4	4 x Noise induced hearing loss
2008	4	3 x noise induced hearing loss 1 x dermatitis skin condition
2009	2	2 x noise induced hearing loss
2010	4	2 x noise induced hearing loss 2 x aggravated rhinitis / asthma

In general, we are pleased that incidents are reported and we are focusing on management's behaviour towards better managing incident investigations and learning lessons from these.

#### LEGAL COMPLIANCE:

A company wide framework is provided to facilitate SHE legal compliance. This includes a company SHE Legal Register, a SHE Legal Compliance Checklist and annual SHE legal compliance audits at selected sites performed by an external legal specialist.

Via the Afrox Information Centre's subscription to legislative updates and SANS Standards, as well as regular legal updates from other service providers, the business is constantly informed of any changes that impact on our activities and our SHE legal checklist is updated annually.

Legal compliance at site level is verified and checked through annual site self audits and during the integrated SHEQ audits conducted at identified Afrox sites each year.

Minor SHE legal non-conformances were reported and corrected and no legal contraventions that lead to prosecution or fines were reported during 2010. Three contravention notices were issued to Afrox by the Department of Labour during site inspections covering machine guarding, lift inspection and maintenance, Major Hazard Installation notification, and ensuring pressure equipment inspection authorities are approved. All these contraventions have been effectively actioned.

The annual external audits to monitor our progress with our asbestos phase out plan, as well as the 6-monthly Slica exposure surveys are submitted to the authorities as per legal requirements.



#### SUPPLIER SELECTION:

Afrox is a responsible company and as such is concerned about the environmental impact of all its activities throughout Africa and those of its suppliers. We seek to work with those suppliers who are routinely able to demonstrate to us effective and ethical performance, and who have a SHEQ Management Policy ensuring that:

- Its activities comply with all applicable legislation and regulations
- Its products or services are designed, procured, produced, packaged, delivered, capable of being used and ultimately disposed of, in ways that are appropriate from an environmental viewpoint
- Its strategic planning for future investment and growth reflects both current and emerging needs concerning the environment and protects the safety and health of people.

Selecting the right supplier for Afrox is fundamental to our being able to conduct our business and provide for the diverse needs of our customers. Throughout our business we are adopting a process to ensure that the selected supplier best matches our precise business needs and covers consideration of health, safety and environment.

### 3. AFROX BUSINESS UNITS SHEQ PERFORMANCE INTRODUCTION

Afrox business units in South Africa and other African countries have well developed SHEQ systems based on the Afrox Integrated Management System Standards. Each site identifies specific SHEQ improvement programmes - bases on high priority SHEQ risks – which are actioned and implemented annually.

Specific case studies where improvement programmes resulted in cost savings, more efficient operations or solutions for customers are included in this Section of the Report.

Pretoria Branch



"On Friday the 26<sup>th</sup> of February a "Waste segregation programme" was rolled out to all staff at the Pretoria Branch. Different coloured wheelie bins for each type of waste was purchased and labeled, indicating the type of waste that must be disposed of in that bin. Romien Roux - Branch Services Manager for Pretoria pledged commitment to the programme and encouraged staff to help keep the site clean by segregating waste. Employees had the opportunity to participate in a site competition and winners were announced and prizes received. Recyclable gifts were handed to staff. Romien also thanked the SHEQ committee for showing passion towards the environment by driving the programme. The SHEQ Department is extremely proud of the Pretoria Branch for taking the lead towards caring for the environment!

## Ammonia Fuel Cells



In line with our SHEQ Policy objectives of supplying environmentally sound products and preventing pollution to the environment, Afrox has partnered with a UK based company – Diverse Energy to develop Ammonia Fuel Cells.

The technology uses ammonia to extract hydrogen as a fuel source to efficiently power cell phone towers that have no access to main grid electricity. This new hydrogen fuel-cell technology could revolutionise the African telecommunications market – bringing clean, low-cost power to remote cell-towers.

The Diverse Energy's PowerCube system, acts as a compact energy source, which could replace diesel generators, delivering higher efficiency and reducing fuel and maintenance costs.

The environmental benefits of this innovative technology include an 82% reduction in Carbon Dioxide, zero local emissions and no disposal of waste hydrocarbons. Afrox was awarded a commendation award at the Mail and Guardian – Greening the future awards for the, ***“Most innovative environmental strategy”***

This technology is low cost, environmentally friendly solution for power to cell phone towers in rural areas without access to electricity

## Recycling initiative at Afrox HO

EnviroServ has been appointed as the service provider to work with the Afrox Head Office in Selby.

Colour coded bins have been placed in strategic areas on site for collection of recyclable waste. The bins display a photo-poster, indicating what is meant by “Mixed Recyclables” if instance.

The program was launched in June 2010 and has been growing steadily over the next 6 months, as indicated by the volume report attached.

Waste is collected on a weekly basis and weighed on the EnviroServ disposal site.

There are no costs involved as the Afrox site do not receive any re-imbursement for the waste collected and EnviroServ is also not paid for this service.

Staff are encouraged and reminded to bring recyclable materials from home for collection on site and staff members are actively contributing.

During site Safety Induction Sessions, which happen twice annually, EnviroServ displays artwork and products made from recyclable materials. This initiative seems to encourage and motivate staff to participate in the recycling programme.



Afrox HO						
Summary of recyclables in kilograms						
Month	Cardboard	Paper	Common Mis Waste (CMW)	Mixed Recyclables	Glass	Total
June 10	112	118	20	19		267
July 10	177	22	139	118		456
Aug 10	87	39	38	126		310
Sept 10	59	125	0	222		407
Oct 10	52	50	0	247		349
Nov 10	121	92	0	296		509
Dec 10	300	124	59	23		506
<b>Total</b>	<b>1007</b>	<b>598</b>	<b>117</b>	<b>1073</b>	<b>0</b>	<b>3895</b>

