



Environmental Reporting Standard

AECI Limited Group SHE	
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Table of Contents

1. Introduction	2
1.1. Scope	2
2. Key Performance Indicators	3
2.1. Total Energy Consumption	3
2.1.1. Electricity Purchased	4
2.1.2. Steam Purchased from Third Parties	4
2.1.3. Coal	4
2.1.4. Natural Gas	4
2.1.5. Diesel – Mobile (for transport)	5
2.1.6. Diesel – Stationary	5
2.1.7. Petrol – Mobile	5
2.1.8. Liquid Petroleum Gas (LPG)	6
2.1.9. Other Liquid Fuels: Heavy Fuel Oil (HFO) and Paraffin	6
2.1.10. Acetylene	6
2.2. Total Energy Exported	7
2.2.1. Electricity Exported	7
2.2.2. Steam Exported	7
2.3. Total Fresh Water Withdrawal	8
2.3.1. Potable Water	8
2.3.2. Underground Water	8
2.3.3. Surface Water	8
2.4. Total Non-Freshwater Withdrawal and Consumption	9
2.4.1. Sea Water	9
2.4.2. Underground Water – Brackish or Saline	9
2.4.3. Surface Water – Brackish or Saline	9
2.4.4. External Waste Water	9
2.5. Recycled and Reused water	10
2.5.1. Recycled Water	10
2.5.2. Re-used Water	10
2.6. Process Effluent (Water Discharge)	10
2.6.1. Effluent	10
2.7. Waste	11
2.7.1. Hazardous Waste	11
2.7.2. Non-Hazardous Waste	11
2.7.3. Recycled Waste	11
2.8. Air Emissions	12
2.8.1. Sulphur Dioxide (SO ₂) Emissions	12
2.8.2. Nitrous Oxide (N ₂ O) Emissions	12
2.8.3. Carbon Dioxide (CO ₂) Emissions	12
2.9. Other	12
2.9.1. Refrigerants	12
2.9.2. Production	13
2.10. Environmental Incidents	13
2.10.1. Minor Environmental Incident	13
2.10.2. Moderate Environmental Incident	13
2.10.3. Serious Environmental Incident	14
2.10.4. Major Environmental Incident	14
3. Reporting requirements	15
3.1. Reporting Method and Frequency	15
3.2. Accuracy and Completeness of Data	15
3.3. Responsibilities for Data Collection, Collation and Submission	15
3.4. Management Review	15
3.5. Audit Trail and Document Control	15
APPENDIX 1: Environmental Statistics Input Form	17
APPENDIX 2: Environmental Incidents Reporting Template	20

1. Introduction

AECI acknowledges that its operations have an impact on the environment and its management is therefore committed to the diligent management of the company's environmental footprint.

Being able to manage environmental issues is becoming increasingly important as knowledge and understanding of the changing global environment becomes more and more pronounced. AECI bases its business practices on its values, which include those of Responsibility and Going Green.

A key component of sound environmental management is the setting, measurement and reporting of achievement of targets. To manage and communicate environmental performance effectively, therefore, it is essential to measure what is managed. This measurement will be based on quantifiable key performance indicators (KPIs) which will be used to track performance.

In order to ensure consistent, complete and accurate reporting of data throughout the Group, AECI has compiled this Environmental Reporting Standard. This Standard sets out the minimum reporting requirements. It defines the scope of such reporting, the various data items involved, and the frequency of reporting.

AECI is supportive of the Global Reporting Initiative (GRI) G3 Guidelines for its reporting, and this Standard is based on the requirements of the G3 Guidelines, where applicable. Note that this Standard does not address every indicator in the G3 Guidelines, but only those KPIs which are deemed to be material and significant to AECI's operations. For further information on the GRI please consult <http://www.globalreporting.org>.

This Standard supports the existing 'Environmental Statistics Input Form', as depicted in **Appendix 1**, which is the default Excel based template used for monthly reporting of environmental data from business level to corporate Group office into the Cognos database.

1.1. Scope

The KPIs included in this Standard are listed in the following table:

ENERGY	Energy purchased <ul style="list-style-type: none"> * Electricity * Steam * Coal * Natural gas * Diesel 	<ul style="list-style-type: none"> * Petrol * LPG * Heavy fuel oil * Paraffin * Acetylene 	Energy self-generated and exported <ul style="list-style-type: none"> * Electricity * Steam
WATER	<ul style="list-style-type: none"> * Total freshwater withdrawal (including treated water eg from Rand Water) * Total non-fresh water withdrawal * Total recycled/re-used water * Other sources of water 		
WASTE	<ul style="list-style-type: none"> * Hazardous waste * Non-hazardous waste * Waste to recyclers 		
EFFLUENT	<ul style="list-style-type: none"> * Process effluent (chemical oxygen demand) * Process effluent (biological oxygen demand) 		
EMISSIONS	<ul style="list-style-type: none"> * SO₂ emissions * N₂O emissions * CO₂ emissions 		
EXPLOSIVES	Emissions due to use and/or production of: <ul style="list-style-type: none"> * Ammonium Nitrate * ANFO/Anfex * Emulsions 		
OTHER	<ul style="list-style-type: none"> * Refrigerants * Production 		
INCIDENTS	<ul style="list-style-type: none"> * Minor * Moderate * Serious * Major 		

2. Key Performance Indicators

2.1. Total Energy Consumption

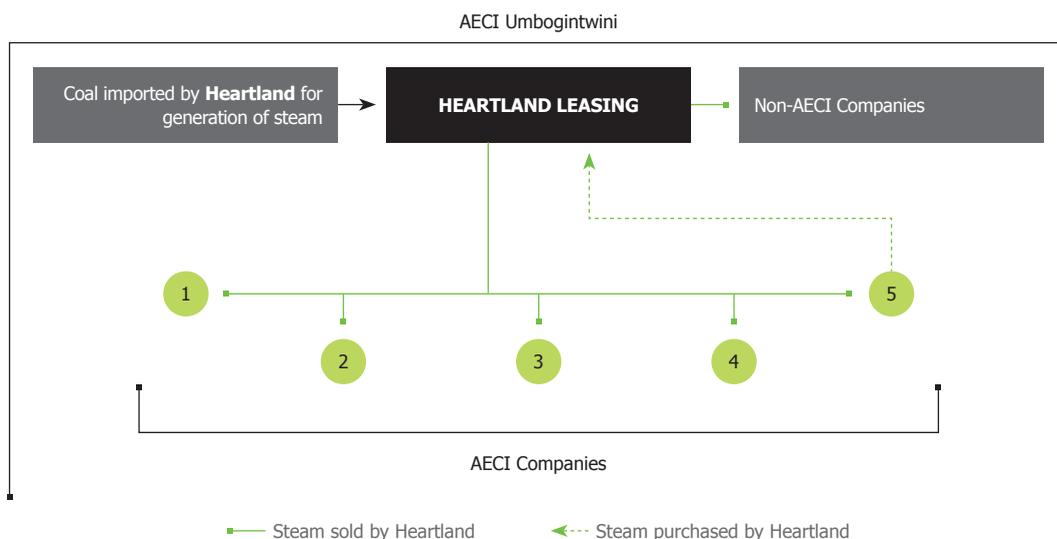
Definition: Total energy use is the sum of all energy inputs (i.e. self-generated and/or purchased). Energy inputs are comprised of:

- * Electricity purchased;
- * Steam purchased;
- * Coal;
- * Natural gas;
- * Diesel for transport (mobile);
- * Stationary diesel consumption;
- * Petrol;
- * Heavy fuel oil;
- * Liquid Petroleum Gas (LPG)
- * Paraffin; and
- * Acetylene.

Determination of reporting boundary for AECI reporting

The main purpose for the reporting of energy consumption indicators is for the measurement and management of resource utilisation in order to increase efficiency. The assessment of current utilisation, setting and monitoring reduction targets is facilitated by using the energy consumption indicators and the subsequent calculation of the Carbon Footprint for the Group. In order to ensure that the carbon footprint is accurately calculated and reported, it is important to ensure that reporting boundaries are clearly defined. This is essential to ensure that double accounting does not occur.

An example of setting the reporting boundaries is provided in the following figure.



The AECI Umbogintwini Industrial Complex is comprised of a number of companies within a single site. The site is characterised by AECI and non-AECI companies undertaking various activities. Heartland Leasing, which is also an AECI subsidiary, provides utility services such as water and effluent treatment, electricity distribution, and steam generation and distribution.

A critical indicator for the Carbon Footprint is steam generation and consumption. As indicated in section 2.1.3, if steam is generated from coal, only the amount of coal purchased must be recorded to avoid double accounting.

For the purposes of reporting for the Carbon Footprint, Heartland Leasing will report the total amount of coal purchased for the purposes of generating steam. While AECI companies which receive steam from Heartland Leasing may record and report the amounts of steam purchased, these amounts **will not** be included in the AECI Carbon Footprint calculation.

In addition, while Heartland leasing may record and report steam purchased from another AECI company, unless this steam is generated from coal or gas combustion, it will not be included in the AECI Carbon Footprint calculation.

It is important to note that for the calculation of the carbon footprint of individual businesses; all relevant indicators must be reported.

2.1.1. Electricity Purchased

Definition	Electricity used by the operation and purchased from an external electricity supplier.
Measurement unit	Kilowatt hours (kWh)
Scope	Electricity used for manufacturing and auxiliary (support) processes.
Examples of Verification Documents	<ul style="list-style-type: none">* Invoices from supplier* Log book showing internal meter readings* Calibration certificates for own meters where applicable
Key Aspects	<p>Electricity purchased must exclude any self-generated electricity or electricity exported off site to third parties.</p> <p>Businesses that purchase electricity from another AECI company should report their electricity use under electricity purchased.</p> <p>When an business shares the same premises with a third organisation (eg under a lease agreement) and the electricity supply is shared, it is necessary to calculate the proportion of electricity used by each site as the 'Environmental Statistics Input Form' should only include data associated with the relevant business.</p>

2.1.2. Steam Purchased from Third Parties

Definition	Steam used for the operation and purchased from external third parties, EXCLUDING other AECI companies.
Measurement unit	Tons (t)
Scope	Steam used for manufacturing and auxiliary (support) processes.
Examples of Verification Documents	<ul style="list-style-type: none">* Invoices* Purchase orders* Log book showing internal meter readings* Calibration certificates for own meters where applicable
Key Aspects	Steam purchased from other AECI sites and self-generated steam must not be included in this category.

2.1.3. Coal

Definition	Energy used by the operation, derived from the combustion of coal and converted to electricity, steam or heat.
Measurement unit	Tons (t)
Scope	Coal used as fuel for combustion purposes for manufacturing processes or to supply electricity or steam to other AECI or external companies.
Examples of Verification Documents	<ul style="list-style-type: none">* Invoices from supplier* Delivery notes* Purchase orders* Log book showing internal meter readings* Weigh bill records* Calibration certificates for own meters where applicable
Key Aspects	If steam is generated from coal, report as coal. It is important that electricity or steam derived from coal should not be double-counted.

2.1.4. Natural Gas

Definition	Natural gas consumed for combustion and utilised as an energy source.
Measurement unit	Cubic metres (m ³)
Scope	Natural gas used as fuel for combustion purpose for manufacturing or heating processes.
Examples of Verification Documents	<ul style="list-style-type: none">* Invoices* Log book showing internal meter readings* Calibration certificates for own meters where applicable
Key Aspects	<p>Exclude liquefied petroleum gas (LPG) and other liquid gases as these are reported separately.</p> <p>If steam is generated from natural gas, report as natural gas. It is important that electricity or steam derived from natural gas should not be double-counted.</p>

2.1.5. Diesel – Mobile (for transport)

Definition	Diesel consumed and combusted for on and off site transportation.
Measurement unit	Litres (ℓ)
Scope	Diesel consumed and combusted for on and off-site transportation in vehicles owned or controlled by AECI businesses.
Examples of Verification Documents	<ul style="list-style-type: none">* Purchase orders* Invoices* Fuel station slips and receipts* Flow meter readings (log book must be kept)
Key Aspects	<p>Diesel from vehicles, such as fleet vehicles owned by AECI and forklifts used in on-site transport, must be <i>included</i>.</p> <p>Diesel used by contractors must be <i>excluded</i> from the diesel for transport figures reported.</p> <p>Diesel use should not be estimated based on assumed fuel efficiency – records should be obtained from finance departments.</p> <p>Diesel used to produce power in on-site generators should be reported under <i>3.1.6 Stationary diesel</i>.</p>

2.1.6. Diesel – Stationary

Definition	Diesel consumed and combusted for stationary processes.
Measurement unit	Litres (ℓ)
Scope	Diesel consumed and combusted for stationary processes including electric power generated by the operation.
Examples of Verification Documents	<ul style="list-style-type: none">* Purchase orders* Invoices* Fuel station slips and receipts* Flow meter readings (log book must be kept)
Key Aspects	<p>Diesel combusted in back-up generators must be <i>included</i>.</p> <p>Diesel used in vehicles must be reported under <i>3.1.4 Mobile diesel</i>.</p> <p>Diesel used for a non-combustion process (eg blending, solvent) should not be included.</p>

2.1.7. Petrol – Mobile

Definition	Petrol consumed for processes and utilities.
Measurement unit	Litres (ℓ)
Scope	Petrol consumed for processes and utilities during the reporting period, including electric power generated by the operation and on-site transportation.
Examples of Verification Documents	<ul style="list-style-type: none">* Purchase orders* Invoices* Fuel station slips and receipts* Flow meter readings (log book must be kept)
Key Aspects	<p>Petrol from vehicles, such as fleet vehicles owned by AECI must be <i>included</i>.</p> <p>Petrol used by contractors must be <i>excluded</i> from the figures reported.</p> <p>Petrol use should not be estimated based on assumed fuel efficiency – records should be obtained from finance.</p> <p>Petrol used in vehicles where AECI directly pays for petrol use, i.e. through a company petrol card, must be included.</p> <p>It is assumed that there are no stationary sources of petrol eg petrol generators.</p>

2.1.8. Liquid Petroleum Gas (LPG)

Definition	LPG consumed and combusted for stationary and mobile processes during the reporting period.
Measurement unit	Kilograms (kg)
Scope	LPG consumed and combusted for stationary and mobile processes during the reporting period.
Examples of Verification Documents	<ul style="list-style-type: none">* Purchase orders* Invoices

2.1.9. Other Liquid Fuels: Heavy Fuel Oil (HFO) and Paraffin

Definition	Other liquid fuels, including Heavy Fuel Oil (HFO) and Paraffin <i>used for combustion purposes</i> and utilised as an energy source for processes and utilities during the reporting period.
Measurement unit	Litres (ℓ)
Scope	Paraffin and HFO.
Examples of Verification Documents	<ul style="list-style-type: none">* Purchase orders* Invoices

2.1.10. Acetylene

Definition	Acetylene consumed by the site for welding purposes during the reporting period.
Measurement unit	Kilograms (kg)
Scope	Acetylene
Examples of Verification Documents	<ul style="list-style-type: none">* Purchase orders* Invoices

2.2. Total Energy Exported

Definition: Total energy self-generated on-site, or generated and exported to external companies. Sources of exported energy include:

- * Electricity exported; and
- * Steam exported.

Each energy source is described in detail in the following subsections.

2.2.1. Electricity Exported

Definition	Electricity self-generated on-site from a combustion process and that is exported.
Measurement unit	Kilowatt hours (kWh)
Scope	Electricity that is generated on-site through a combustion process and that is exported to external companies, EXCLUDING other AECI companies.
Examples of Verification Documents	<ul style="list-style-type: none">* Invoices to client* Log book showing internal meter readings* Records of calibration for own meters where applicable
Key Aspects	The source (eg coal, gas) and destination of electricity should be identified. Electricity that is not generated from an energy source should be excluded. Electricity exported to other AECI sites must not be included in this category to avoid double counting.

2.2.2. Steam Exported

Definition	Steam self-generated on-site in a combustion process and that is exported to external companies.
Measurement unit	Tons (t)
Scope	Steam self-generated on-site in a combustion process and that is exported to external companies, EXCLUDING other AECI companies.
Examples of Verification Documents	<ul style="list-style-type: none">* Invoices to client* Log book showing internal meter readings* Records of calibration for own meters where applicable
Key Aspects	The source (eg coal, gas) and destination of steam should be identified. Steam that is not generated from an energy source should be excluded. Steam exported to other AECI sites must not be included in this category to avoid double accounting.

2.3. Total Fresh Water Withdrawal

Definition: The sum of all freshwater drawn into the boundaries of the reporting organization from the following sources for any use over the course of the reporting periods:

- * Potable (municipal) water
- * Underground water
- * Surface water

2.3.1. Potable Water

Definition	Potable water purchased from public water authorities or other water utilities.
Measurement unit	Cubic metres (m ³)
Scope	Potable water purchased from public water authorities or other water utilities used for manufacturing and auxiliary (support) processes.
Examples of Verification Documents	<ul style="list-style-type: none"> * Invoices from municipality (or third party supplier) * Log book showing internal meter readings * Records of calibration for own meters where applicable * Water balance
Key Aspects	<p>Potable water is water that is suitable for drinking or has been treated to a standard suitable for drinking.</p> <p>Any other high quality water purchased for use at the site should also be reported under this field.</p> <p>When a business shares the same premises with a second business (eg under a lease agreement) and the water supply is shared, it is necessary to calculate the proportion of water used by each site as the 'Environmental Statistics Input Form' should only include data associated to the relevant business.</p>

2.3.2. Underground Water

Definition	Groundwater abstracted and used for manufacturing and auxiliary (support) processes.
Measurement unit	Cubic metres (m ³)
Scope	Groundwater abstracted from wells or boreholes within or external to the operation boundary and used for manufacturing and auxiliary (support) processes.
Examples of Verification Documents	<ul style="list-style-type: none"> * Log book showing internal meter readings * Records of calibration for own meters where applicable * Water balance
Key Aspects	<p>Pump flow rates are usually metered.</p> <p>In the absence of a meter, consumption may be estimated by multiplying the pump flow rate by the duration of pumping operations.</p>

2.3.3. Surface Water

Definition	Water abstracted from streams, lakes and dams within or external to the operation boundary and used for manufacturing and auxiliary (support) processes.
Measurement unit	Cubic metres (m ³)
Scope	As per definition.
Examples of Verification Documents	<ul style="list-style-type: none"> * Log book showing internal meter readings * Records of calibration for own meters where applicable * Water balance
Key Aspects	<p>Pump flow rates are usually metered.</p> <p>In the absence of a meter, consumption may be estimated by multiplying the pump flow rate by the duration of pumping operations.</p>

2.4. Total Non-Freshwater Withdrawal and Consumption

Definition: The sum of all non-freshwater drawn into the boundaries of the reporting organization from the following sources for any use over the course of the reporting periods:

- * Sea water
- * Underground water – brackish or saline
- * Surface water – brackish or saline
- * External wastewater – untreated or partially treated wastewater from municipal or other external industrial source

2.4.1. Sea Water

Definition	Seawater withdrawn usually for use through closed cooling circuits.
Measurement unit	Cubic metres (m ³)
Scope	As per definition.
Examples of Verification Documents	<ul style="list-style-type: none"> * Invoices from municipality (or third party supplier) * Log book showing internal meter readings * Records of calibration for own meters where applicable * Water balance

2.4.2. Underground Water – Brackish or Saline

Definition	Brackish or saline groundwater abstracted from wells or boreholes within or external to the operation boundary and used for manufacturing and auxiliary (support) processes.
Measurement unit	Cubic metres (m ³)
Scope	As per definition.
Examples of Verification Documents	<ul style="list-style-type: none"> * Log book showing internal meter readings * Records of calibration for own meters where applicable * Water balance
Key Aspects	<p>Pump flow rates are usually metered.</p> <p>In the absence of a meter, consumption may be estimated by multiplying the pump flow rate by the duration of pumping operations.</p>

2.4.3. Surface Water – Brackish or Saline

Definition	Brackish or saline water abstracted from streams, lakes and dams within or external to the operation boundary and used for manufacturing and auxiliary (support) processes.
Measurement unit	Cubic metres (m ³)
Scope	As per definition.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none"> * Log book showing internal meter readings * Records of calibration for own meters where applicable * Water balance
Key Aspects	<p>Pump flow rates are usually metered.</p> <p>In the absence of a meter, consumption may be estimated by multiplying the pump flow rate by the duration of pumping operations.</p>

2.4.4. External Waste Water

Definition	Untreated or partially treated wastewater from municipal or other external industrial source.
Measurement unit	Cubic metres (m ³)
Scope	As per definition.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none"> * Log book showing internal meter readings * Records of calibration for own meters where applicable * Water balance
Key Aspects	<p>Pump flow rates are usually metered.</p> <p>In the absence of a meter, consumption may be estimated by multiplying the pump flow rate by the duration of pumping operations.</p>

2.5. Recycled and Reused Water

The total amount of recycled and reused water/wastewater.

2.5.1. Recycled Water	
Definition	The amount of used water/wastewater employed through another cycle back in the same process or in a higher use in the process cycle before discharge for final treatment and/or discharge to the environment. This usually includes intermediate treatment.
Measurement unit	Cubic metres (m ³)
Scope	As per definition.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none"> * Log book showing internal meter readings * Records of calibration for own meters where applicable * Water balance
Key Aspects	<p>Pump flow rates are usually metered.</p> <p>In the absence of a meter, consumption may be estimated by multiplying the pump flow rate by the duration of pumping operations.</p>

2.5.2. Reused Water	
Definition	The amount of used water/wastewater employed in another function in a lower use in the process cycle before discharge for final treatment and/or discharge to the environment.
Measurement unit	Cubic metres (m ³)
Scope	As per definition.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none"> * Log book showing internal meter readings * Records of calibration for own meters where applicable * Water balance
Key Aspects	<p>Reuse includes wastewater used for irrigation/dust suppression, harvesting of rainwater such as use of water from tanks or local storage dams.</p> <p>Pump flow rates are usually metered.</p> <p>In the absence of a meter, consumption may be estimated by multiplying the pump flow rate by the duration of pumping operations.</p>

2.6. Process Effluent (Water Discharge)

2.6.1. Effluent	
Definition	Effluent discharged to subsurface waters, surface waters, sewers that lead to rivers, oceans, lakes, wetlands, treatment facilities, and groundwater.
Measurement unit	Cubic metres (m ³)
Scope	Water effluent discharged outside AECI's boundary over the course of the reporting period to subsurface waters, surface waters, sewers that lead to rivers, oceans, lakes, wetlands, treatment facilities, and groundwater.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none"> * Invoices (with detailed meter readings) * Log book showing internal meter readings * Records of calibration for own meters where applicable
Key Aspects	<p>Effluent could be discharged through:</p> <ul style="list-style-type: none"> * A defined discharge point (point source discharge) * Over land in a dispersed or undefined manner (non-point source discharge) * Wastewater removed from the reporting organization via truck <p>Domestic sewage is not regarded as wastewater discharge.</p> <p>Process effluent that is not domestic sewage but is discharged into the municipal effluent sewer must still be recorded.</p>

2.7. Waste

Waste is defined as unwanted material, which no longer serves a purpose in the production or service delivery of an organisation.

2.7.1. Hazardous Waste

Definition	Hazardous waste is defined as: 'a substance that because of its quantity, concentration, toxic effects, carcinogenicity explosiveness, radioactivity or physical and chemical characteristics may pose a hazard to human health or the environment.'
Measurement unit	Tons (t)
Scope	Any hazardous waste generated from manufacturing processes and all other auxiliary (support) processes on and off site.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none"> * Waste manifest documents * Internal weighbridge records where applicable * Certificates of safe disposal * Calibration records of internal weighbridge where applicable
Key Aspects	<p>The rule of thumb to be applied for reporting purposes is that if the waste cannot legally be disposed in a local landfill along with general domestic waste then it should be considered hazardous.</p> <p>This waste category includes both routine and non-routine waste disposal.</p> <p>Waste lubrication, hydraulic oil, contaminated containers (reagent containers, oil/grease containers, anti-freeze drums, etc), medical waste, vehicle batteries and oil contaminated material are all regarded as hazardous.</p>

2.7.2. Non-hazardous Waste

Definition	Non-hazardous (general) waste that is sent to a general waste landfill site.
Measurement unit	Tons (t)
Scope	Any non-hazardous waste generated from manufacturing processes and all other auxiliary (support) processes on and off site.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none"> * Waste manifest documents * Internal weighbridge records where applicable * Certificates of safe disposal * Calibration records of internal weighbridge where applicable * Documented density and weights of bins
Key Aspects	<p>Waste data should be reported in absolute terms eg tons.</p> <p>If the site does not engage waste contractors (who will provide tonnages) waste tonnes can be calculated using the number and size of bins collected. Waste densities can be determined by weighing a representative sample of bins.</p> <p>Therefore weight of waste (tons) = Bin size (m³) x waste density (t/m³) x %full x number of collections per year.</p> <p>This waste category includes both routine and non-routine waste disposal.</p>

2.7.3. Recycled Waste

Definition	Recycled waste is waste which is separated and processed as a product or raw material.
Measurement unit	Tons (t)
Scope	Waste to recyclers generated from manufacturing and auxiliary processes.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none"> * Waste manifest documents * Internal weighbridge records where applicable * Certificates of safe disposal * Calibration records of internal weighbridge where applicable * Documented density and weights of bins
Key Aspects	<p>Products such as drums and pallets which are returned to the suppliers and are used for the same function, must not be classified as recycled waste. Only when these items reach their life time, and are scrapped and recycled, they must be classified as recycled.</p> <p>If the site does not engage waste contractors (who will provide tonnages) waste tonnes can be calculated using the number and size of bins collected. Waste densities can be determined by weighing a representative sample of bins.</p> <p>Therefore weight of waste (tons) = Bin size (m³) x waste density (t/m³) x %full x number of collections per year.</p>

2.8. Air Emissions

2.8.1. Sulphur Dioxide (SO₂) Emissions

Definition	Airborne emissions of sulphur and its compounds formed during direct combustion or other production processes and released to the atmosphere.
Measurement unit	Tons (t)
Scope	SO ₂ emissions from direct production processing either measured or theoretically calculated from the sulphur content of the fuel.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none">* Online stack monitoring records* Internal logbook records* Mass Balance* Laboratory records* Simplified process diagram and records of calculations and formulae
Key Aspects	SO ₂ emissions from combustion of petrol and diesel in mobile and stationary equipment as described in section 2.1 should not be included.

2.8.2. Nitrous Oxide (N₂O) Emissions

Definition	Airborne emissions of nitrogen and its compounds formed during direct combustion or other production processes and released to the atmosphere.
Measurement unit	Tons (t)
Scope	N ₂ O emissions from direct production processing either measured or theoretically calculated.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none">* Online stack monitoring records* Internal logbook records* Mass Balance* Laboratory records* Simplified process diagram and records of calculations and formulae

2.8.3. Carbon Dioxide (CO₂) Emissions

Definition	Direct process related CO ₂ emissions released and measured.
Measurement unit	Tons (t)
Scope	Actual measured or calculated amounts of CO ₂ released due to production activities.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none">* Online stack monitoring records* Internal logbook records* Mass Balance* Laboratory records* Simplified process diagram and records of calculations and formulae

2.9. Other

2.9.1. Refrigerants

Definition	Refrigerants consumed for use in the business's heating and cooling systems.
Measurement unit	Kilograms (kg)
Scope	Refrigerants used in the heating and cooling systems for manufacturing processes and maintenance of the site, including any office and storage space.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none">* Purchase orders* Invoices

2.9.2. Production

Definition	Quantities of product manufactured by the site.
Measurement unit	Tons (t)
Scope	Production quantities should include the following data: <ul style="list-style-type: none">* Produced: Total manufactured product;* Transported by road: Amount of final product transported by road; and* Transported by rail: Amount of final product transported by rail.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none">* Invoices to client* Sales/production figures recorded by internal management system

2.10. Environmental Incidents

An incident is an unplanned occurrence or event.

The National Environmental Management Act, 1998 defines "incident" as *"an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed"*.

The National Water Act, 1998 defines as incident as an *"emergency incident, such as an accident involving the spilling of a harmful substance that finds or may find its way into a water resource"*.

Definition: For purposes of this reporting an environmental incident is defined as: an unplanned or unexpected event, action or non-conformance with a procedure that has caused, or has the potential for causing adverse impact on the quality of air, land, water, wildlife or aquatic species. An environmental incident may be classified into one of the following categories based on severity of the incident:

2.10.1. Minor Environmental Incident

Definition	An incident that has caused minor, reversible environmental impact , requiring minor remediation , and is contained within site limits.
Measurement unit	Number of incidents
Scope	As per definition.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none">* Incident registers* Investigation reports* ISO14001 EMS incident reporting records

2.10.2. Moderate Environmental Incident

Definition	An incident that has caused moderate, reversible environmental impact with short-term effect, requiring moderate remediation . The incident may occur on or off site limits, with impacts occurring within and/or outside the boundary of the site.
Measurement unit	Number of incidents
Scope	As per definition.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none">* Incident registers* Investigation reports* ISO14001 EMS incident reporting records

2.10.3. Serious Environmental Incident

Definition	An incident that has caused serious environmental impact , with medium-term effect, requiring significant remediation . The incident may occur on or off site limits, with impacts occurring within and/or outside the boundary of the site.
Measurement unit	Number of incidents
Scope	As per definition.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none">* Incident registers* Investigation reports* ISO14001 EMS incident reporting records* Notification documentation to government departments
Key Aspects	While not necessarily linked to an authorization, the incident may be deemed to be a contravention of legislation and is reportable to the relevant authorities. The incident may involve the serving of a contravention notice, or similar directive by the regulatory authorities.

2.10.4. Major Environmental Incident

Definition	An incident that has caused disastrous environmental impact , with long-term effect, requiring major remediation . The incident may occur on or off site limits, with impacts occurring within and/or outside the boundary of the site.
Measurement unit	Number of incidents
Scope	As per definition.
Examples of Verification Documents and Data Sources	<ul style="list-style-type: none">* Incident registers* Investigation reports* ISO14001 EMS incident reporting records* Notification documentation to government departments
Key Aspects	While not necessarily linked to an authorization, the incident may be deemed to be a major breach of legislation and is reportable to the relevant authorities. The incident will involve the serving of a contravention notice, or similar directive by the regulatory authorities. The incident will involve significant adverse media attention.

3. Reporting requirements

3.1. Reporting Method and Frequency

At the end of every month each AECI business will complete a single consolidated 'Environmental Statistics Input Form' for all the operational sites within the specific business. The 'Environmental Statistics Input Form' must be submitted into the Cognos database by close of business on the 15th of each month. If the 15th falls on a weekend, Cognos submissions may be completed by close of business on the following Monday.

While the number of environmental incidents will be captured on the 'Environmental Statistics Input Form', a more detailed environmental incidents report must be submitted on a monthly basis in accordance with the template provided in **Appendix 2**. The environmental incidents report must be submitted by close of business on the 3rd working day of each month.

AECI Head Office will be responsible for collating environmental at the Group level.

3.2. Accuracy and Completeness of data

Data should be as accurate and complete as possible. Completeness requires that all sources of data within the scope of the parameter of the KPI are included and not left out based on insignificance. In order to ensure completeness of data, calculated estimates should be used when actual data is not available.

Data in the 'Environmental Statistics Input Form' must be reported in the correct units as described in *Section 3*.

The businesses should ensure that measuring equipment within the control of the business (eg electricity or water meters, scales, weighbridge, etc) are adequately maintained and calibrated at regular intervals, or at the manufacturing specifications.

In the event that specific data is not available by the submission deadline, an estimated amount must be reported for the submission. Once accurate data is available, changes to the submission must be logged via the Cognos Helpdesk.

Any data changes or alterations after the Cognos submission can only be made through the Cognos Helpdesk.

3.3. Responsibilities for data collection, collation and submission

The collection, processing and submission of data are the responsibility of Safety, Health and Environmental (SHE) practitioners at various levels within the organisation. It is incumbent on the businesses to ensure that the data submitted to Group office is complete and accurate.

3.4. Management Review

At business level the 'Environmental Statistics Input Form' will be reviewed by the designated SHE Manager/ Officer before it is sent for submission onto the Cognos database.

3.5. Audit Trail and Document Control

The businesses are required to keep an audit trail of source data and records, definitions, calculations, assumptions and references. These will be used to ensure completeness, accuracy and reliability of the data during internal and external assurance audits.

Appendix 1:
Environmental Statistics Input Form

Appendix 2:
Environmental Incidents Reporting Template

Appendix 1

Environmental Statistics Input Form

Form	Environmental Statistics – Input Form	Jan-12	Apr-12	Jul-12	Oct-12
SHE000002	Environment – Number of Sites				
	ENERGY PURCHASED				
SHE400000	Energy Purchased – Electricity (kWh)				
SHE400001	Energy Purchased – Steam (t)				
SHE400002	Energy Purchased – Coal (t)				
SHE400003	Energy Purchased – Natural Gas (m ³)				
SHE400004	Energy Purchased – Diesel Mobile (ℓ)				
SHE400005	Energy Purchased – Diesel Stationary (ℓ)				
SHE400006	Energy Purchased – Petrol Mobile (ℓ)				
SHE400007	Energy Purchased – LPG Mobile (kg)				
SHE400008	Energy Purchased – LPG Stationary (kg)				
SHE400010	Energy Purchased – Heavy Fuel Oil (ℓ)				
SHE400011	Energy Purchased – Paraffin (ℓ)				
SHE400012	Energy Purchased – Acetylene (kg)				
SHE400013	Energy Purchased – Other				
	ENERGY SELF-GENERATED AND EXPORTED				
SHE400014	Energy Self Generated/Export – Electricity (kWh)				
SHE400015	Energy Self Generated/Export – Steam (t)				
SHE400016	Energy Self Generated/Export – Other				
	WATER				
SHE400017	Fresh Water – Potable Water (m ³)				
SHE400018	Fresh Water – Underground Water (m ³)				
SHE400019	Fresh Water – Surface Water (m ³)				
SHE400099	Total – Fresh Water Withdrawal (m ³)				
SHE400100	Non-fresh Water – Sea Water (m ³)				
SHE400101	Non-fresh Water – Underground Brackish/Saline (m ³)				
SHE400103	Non-fresh Water – External Waste Water (m ³)				
SHE400102	Non-fresh Water – Surface Brackish/Saline (m ³)				
SHE400199	Total – Non-fresh Water Withdrawal (m ³)				
SHE400200	Recycled Water (m ³)				
SHE400201	Re-used Water (m ³)				
SHE400299	Total – Recycled and Re-used Water (m ³)				
SHE400300	Water – Other (m ³)				
	WASTE				
SHE400400	Waste – Hazardous Waste (t)				
SHE400401	Waste – Non-hazardous Waste (t)				
SHE400402	Waste – Recycled Waste (t)				
	EFFLUENT				
SHE400450	Effluent – Process Chemical Oxygen Demand (m ³)				
SHE400451	Effluent – Process Biological Oxygen Demand (m ³)				

Environmental Statistics Input Form

Form	Environmental Statistics – Input Form	Jan-12	Apr-12	Jul-12	Oct-12
	EMISSIONS TO AIR				
SHE400500	Air Emissions – SO ₂ (t)				
SHE400501	Air Emissions – N ₂ O Atmospheric Pressure Plant (t)				
SHE400502	Air Emissions – N ₂ O Plants – NSCR (t)				
SHE400503	Air Emissions – N ₂ O Plants – Process/Tailgas (t)				
SHE400504	Air Emissions – N ₂ O (t)				
SHE400505	Air Emissions – N ₂ O High Pressure Plants (t)				
SHE400506	Air Emissions – CO ₂ (Direct Emissions) (t)				
	EXPLOSIVES				
SHE500501	Explosives – Ammonia Nitrate (kg)				
SHE500502	Explosives – ANFO/Anfex (kg)				
SHE500503	Explosives – Emulsion (kg)				
	REFRIGERANTS				
SHE600600	Refrigerants – R22 (kg)				
SHE600601	Refrigerants – HFC-23 (kg)				
SHE600602	Refrigerants – HFC-32 (kg)				
SHE600603	Refrigerants – HFC-125 (kg)				
SHE600604	Refrigerants – HFC-134a (kg)				
SHE600605	Refrigerants – HFC-143a (kg)				
SHE600606	Refrigerants – HFC-152a (kg)				
SHE600607	Refrigerants – HFC-236fa (kg)				
SHE600608	Refrigerants – R401A (kg)				
SHE600609	Refrigerants – R401B (kg)				
SHE600610	Refrigerants – R401C (kg)				
SHE600611	Refrigerants – R402A (kg)				
SHE600612	Refrigerants – R402B (kg)				
SHE600613	Refrigerants – R403A (kg)				
SHE600614	Refrigerants – R403B (kg)				
SHE600615	Refrigerants – R404A (kg)				
SHE600616	Refrigerants – R407A (kg)				
SHE600617	Refrigerants – R407B (kg)				
SHE600618	Refrigerants – R407C (kg)				
SHE600619	Refrigerants – R407D (kg)				
SHE600620	Refrigerants – R407E (kg)				
SHE600621	Refrigerants – R408A (kg)				
SHE600622	Refrigerants – R410A (kg)				
SHE600623	Refrigerants – R410B (kg)				
SHE600624	Refrigerants – R411A (kg)				
SHE600625	Refrigerants – R411B (kg)				
SHE600626	Refrigerants – R412A (kg)				
SHE600627	Refrigerants – R413A (kg)				
SHE600628	Refrigerants – R415A (kg)				
SHE600629	Refrigerants – R415B (kg)				

Environmental Statistics Input Form

Form	Environmental Statistics – Input Form	Jan-12	Apr-12	Jul-12	Oct-12
	REFRIGERANTS continued				
SHE600630	Refrigerants – R416A (kg)				
SHE600631	Refrigerants – R417A (kg)				
SHE600632	Refrigerants – R418A (kg)				
SHE600633	Refrigerants – R419A (kg)				
SHE600634	Refrigerants – R420A (kg)				
SHE600635	Refrigerants – R500 (kg)				
SHE600636	Refrigerants – R503 (kg)				
SHE600637	Refrigerants – R504 (kg)				
SHE600638	Refrigerants – R-507 or R-507A (kg)				
SHE600639	Refrigerants – R-508A (kg)				
SHE600640	Refrigerants – R-508B (kg)				
SHE600641	Refrigerants – R-509 or R-509A (kg)				
SHE600642	Refrigerants – R12 (kg)				
SHE600643	Refrigerants – R502 (kg)				
	ENVIRONMENTAL INCIDENTS				
SHE700700	Environmental Incidents – Minor				
SHE700701	Environmental Incidents – Moderate				
SHE700702	Environmental Incidents – Serious				
SHE700703	Environmental Incidents – Major				
	TRAVEL				
SHE800800	Travel – Petrol Vehicle < 1.4 Litre (km)				
SHE800801	Travel – Petrol Vehicle 1.4ℓ < ℓ < 2.0ℓ (km)				
SHE800802	Travel – Petrol Vehicle > 2 Litre (km)				
SHE800803	Travel – Diesel Vehicle < 1.4 Litre (km)				
SHE800804	Travel – Diesel Vehicle 1.4ℓ < ℓ < 2.0ℓ (km)				
SHE800805	Travel – Diesel Vehicle > 2.0 Litre (km)				
SHE800806	Short Haul Flights – Economy (< 1600km) (km)				
SHE800807	Short Haul Flights – Bus/First (< 1600km) (km)				
SHE800808	Long Haul Flights – Economy (> 1600km) (km)				
SHE800809	Long Haul Flights – Economy Plus (> 1600km) (km)				
SHE800810	Long Haul Flights – Business (> 1600km) (km)				
SHE800811	Long Haul Flights – First (> 1600km) (km)				
	KEY PERFORMANCE INDICATORS				
SHE900900	KPIs – Nominal Profit (ZAR)				
SHE900901	KPIs – Head Count (#)				
SHE900902	KPIs – Product Produced (t)				
SHE900903	KPIs – Floor Space (m²)				

