



EARTHCHECK

BENCHMARKING ASSESSMENT REPORT

COMMUNITY BENCHMARKING

WESTFJORDS

ÍSAFJÖRÐUR, ICELAND



REPORT DATE: 26 October 2015

Benchmarking Data Collection Period: 1 January 2014 – 31 December 2014

The planet deserves more than half measures

OVERVIEW

This annual assessment of **Westfjords** was undertaken against EarthCheck benchmarking indicators and checklists developed for EarthCheck and listed below. ¹ They have been carefully selected to track performance in key areas of environmental and social performance impact. The Lead Agency responsible for collection, collation and authorization of the information required by the indicators was the **Municipality Association of the Westfjords**.

| | Indicator Measure (Benchmark) |
|----------------------------------|--|
| 1 Policy | Policy is produced and in place ² |
| 2 Energy | Energy Consumption (GJ / Person Year) ² Green Power (%) ³ Greenhouse Gas Emissions (Scope 1 and Scope 2) (t CO ₂ -e / Person Year) ³ Indirect Emissions (Scope 3) (t CO ₂ -e / Person Year) ³ |
| 3 Water | Potable Water Consumption (kL / Person Year) ³ Recycled / Captured Water (%) ⁴ |
| 4 Waste | Waste Sent to Landfill (m ³ / Person Year) ³ Recycled / Reused / Composted Waste (%) ⁴ |
| 5 Sector Specific | Nitrous Oxides Produced (kg / Person Year / Hectare) ^{3, 5} Sulphur Dioxide Produced (kg / Person Year / Hectare) ^{3, 5} Particulate Matter Produced (kg / Person Year / Hectare) ^{3, 5} Water Samples Passed (%) ² Habitat Conservation Area (%) ² Green Space (%) ² Accredited Operations (%) ² |
| 6 Lead Agency Performance | Water Savings Rating (Points) ⁶ Waste Recycling Rating (Points) ⁶ Paper Products Rating (Points) ⁶ Cleaning Products Rating (Points) ⁶ Pesticide Products Rating (Points) ⁶ |

¹ Refer to the EarthCheck Sector Benchmarking Indicator (SBI) document for more information. For frequently asked questions (FAQs) about benchmarking or specific help, please log on to 'My EarthCheck' and visit your EarthCheck Benchmarking software.

² Produced by the lead agency after consultation with the community and consensus

³ Person Year is equivalent to 365 person days. EarthCheck Communities must also allow for both resident and transient (tourist) populations in indicators assessed on a per person year basis. Tourist activity is classified into an "overnight stay" or "day tripper". An overnight stay is counted the same as a permanent resident, that is 1 person day. A day tripper is counted as 0.333 person day

⁴ These indicators are for guidance only and do not affect the overall benchmarking evaluation

⁵ Primary assessed impacts on air quality are emissions due to electricity consumption, vehicular transport, industrial processes and mining. The levels calculated on a per unit area basis using total emissions and total bounded area of the Community, including waterways. The data is then normalized against the average number of person years per area of the country

⁶ Assessed for the lead agency only

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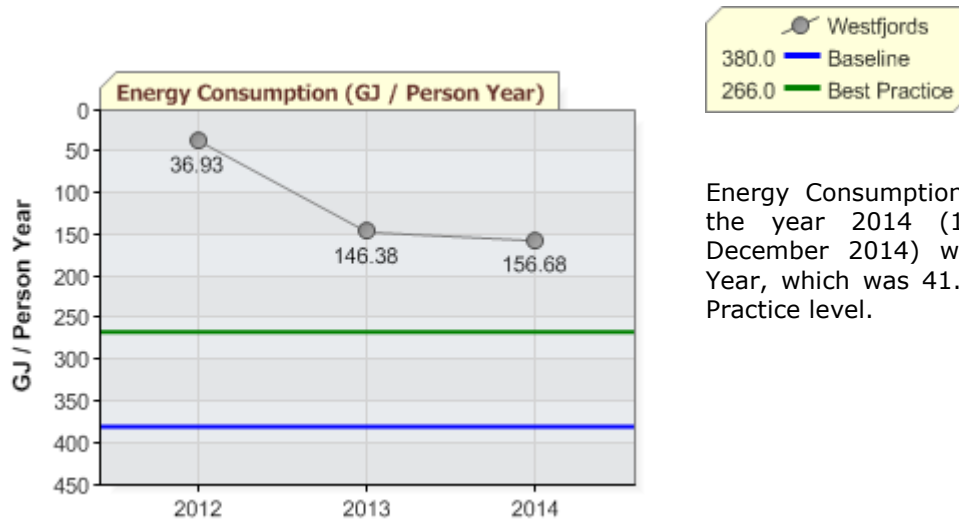
COMMUNITY PERFORMANCE BENCHMARKS

Current performance: Below Baseline ✖ At or above Baseline ✔ At or above Best Practice ★

1. Policy ★

2. Energy

Energy Consumption (GJ / Person Year) ★

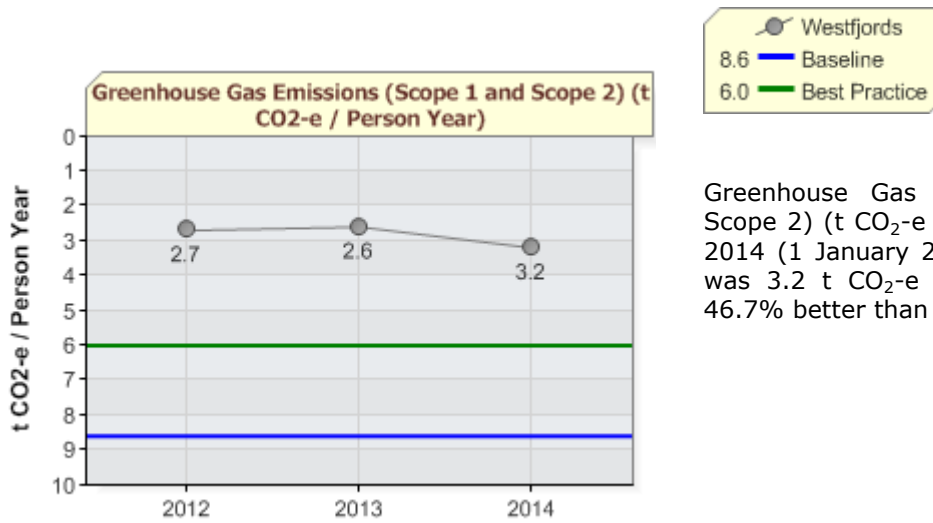


Energy Consumption (GJ / Person Year) for the year 2014 (1 January 2014 - 31 December 2014) was 156.68 GJ / Person Year, which was 41.1% better than the Best Practice level.

Green Power (%)

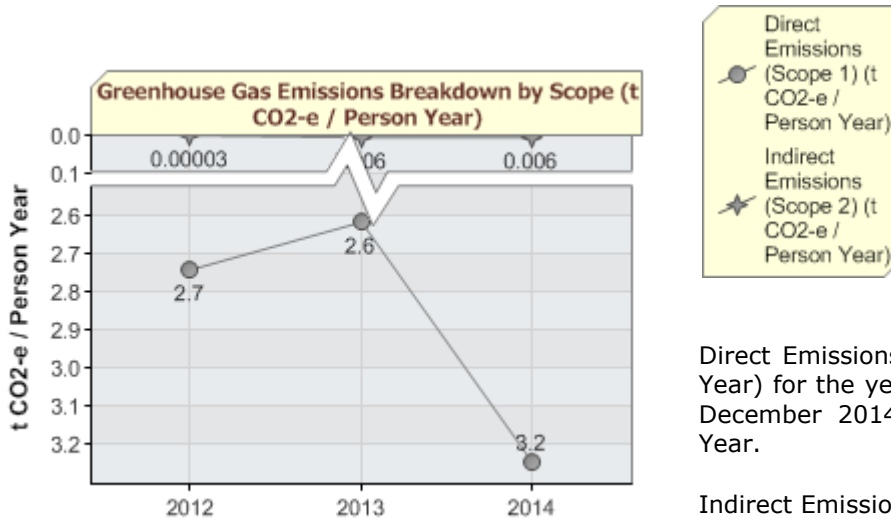
Not Applicable

Greenhouse Gas Emissions (Scope 1 and Scope 2) (t CO₂-e / Person Year) ★



Greenhouse Gas Emissions (Scope 1 and Scope 2) (t CO₂-e / Person Year) for the year 2014 (1 January 2014 – 31 December 2014) was 3.2 t CO₂-e / Person Year, which was 46.7% better than the Best Practice level.

Greenhouse Gas Emissions Breakdown by Scope (t CO₂-e / Person Year)

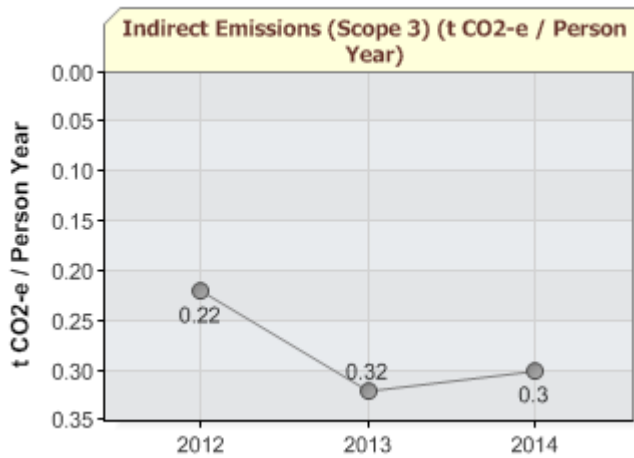


Direct Emissions (Scope 1) (t CO₂-e / Person Year) for the year 2014 (1 January 2014 – 31 December 2014) was 3.2 t CO₂-e / Person Year.

Indirect Emissions (Scope 2) (t CO₂-e / Person Year) for the year 2014 (1 January 2014 – 31 December 2014) was 0.006 t CO₂-e / Person Year.

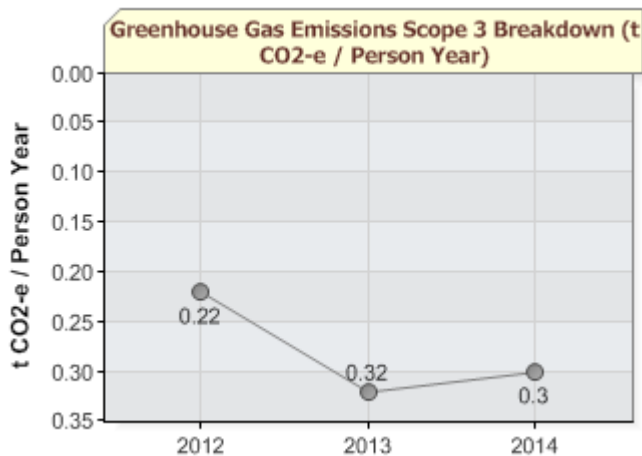
Indirect Emissions (Scope 3) (t CO₂-e / Person Year)

Westfjords



Indirect Emissions (Scope 3) (t CO₂-e / Person Year) for the year 2014 (1 January 2014 – 31 December 2014) was 0.3 t CO₂-e / Person Year.

Greenhouse Gas Emissions Scope 3 Breakdown (t CO₂-e / Person Year)



Waste Indirect Emissions (Scope 3) (t CO₂-e / Person Year)

Transport Indirect Emissions (Scope 3) (t CO₂-e / Person Year)

Transport Indirect Emissions (Scope 3) (t CO₂-e / Person Year) for the year 2014 (1 January 2014 – 31 December 2014) not measured as no data entered.

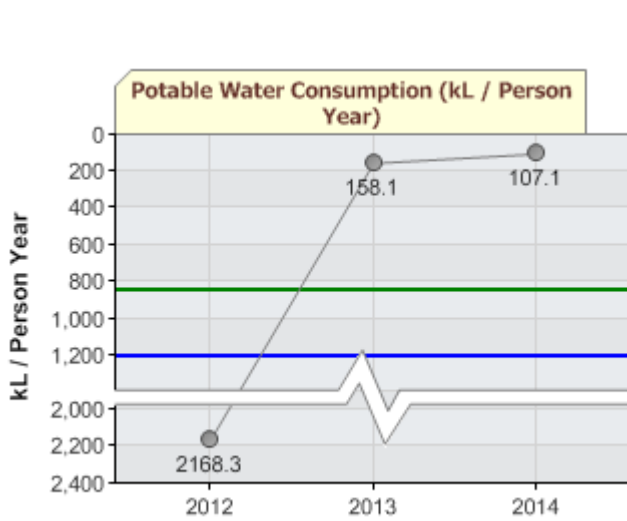
Waste Indirect Emissions (Scope 3) (t CO₂-e / Person Year) for the year 2014 (1 January 2014 – 31 December 2014) was 0.3 t CO₂-e / Person Year.

| Direct Emissions (Scope 1) | | | | | | | | | |
|--|----------------------|---|-----------------------------|--|--|---|---|---|--|
| Stationary Fuel Combustion | | | | | | | | | |
| 2014 | | | | | | | | | |
| Type | Quantity | Unit | Energy Consumption (MJ) | CO ₂ Emission Estimate (t CO ₂ -e) | CH ₄ Emission Estimate (t CO ₂ -e) | N ₂ O Emission Estimate (t CO ₂ -e) | Total Emission Estimate (t CO ₂ -e) | | |
| Diesel | 247.879 | litres (L) | 9468.2 | 0.7 | 0.002 | 0.002 | 0.7 | | |
| subtotal | | | 9468.2 | 0.7 | 0.002 | 0.002 | 0.7 | | |
| Mobile Fuel Combustion (road) | | | | | | | | | |
| 2014 | | | | | | | | | |
| Type | Quantity | Unit | Energy Consumption (MJ) | CO ₂ Emission Estimate (t CO ₂ -e) | CH ₄ Emission Estimate (t CO ₂ -e) | N ₂ O Emission Estimate (t CO ₂ -e) | Total Emission Estimate (t CO ₂ -e) | | |
| Diesel | 5370937 | litres (L) | 205153143.5 | 14441.8 | 16.0 | 235.6 | 14693.3 | | |
| Motor gasoline | 3441860 | litres (L) | 117720146.1 | 7750.1 | 58.7 | 277.3 | 8086.2 | | |
| LPG | 230619 | litres (L) | 6223936.6 | 353.5 | 7.3 | 0.3 | 361.1 | | |
| subtotal | | | 329097226.2 | 22545.3 | 82.0 | 513.3 | 23140.6 | | |
| Mobile Fuel Combustion (water) | | | | | | | | | |
| 2014 | | | | | | | | | |
| Type | Quantity | Unit | Energy Consumption (MJ) | CO ₂ Emission Estimate (t CO ₂ -e) | CH ₄ Emission Estimate (t CO ₂ -e) | N ₂ O Emission Estimate (t CO ₂ -e) | Total Emission Estimate (t CO ₂ -e) | | |
| Diesel | 7155 | litres (L) | 273298.8 | 19.2 | 0.04 | 0.2 | 19.4 | | |
| subtotal | | | 273298.8 | 19.2 | 0.04 | 0.2 | 19.4 | | |
| TOTAL | | | 329379993.2 | 22565.2 | 82.0 | 513.5 | 23160.7 | | |
| Indirect Emissions (Scope 2) | | | | | | | | | |
| Purchased Electricity | | | | | | | | | |
| 2014 | | | | | | | | | |
| Quantity | Unit | % Green Power | Provider | Energy Consumption (MJ) | CO ₂ Emission Estimate (t CO ₂ -e) | CH ₄ Emission Estimate (t CO ₂ -e) | N ₂ O Emission Estimate (t CO ₂ -e) | Total Emission Estimate (t CO ₂ -e) | |
| 219342000 | Kilowatt hour (kWh) | Not Applicable* | Iceland | 789631200.0 | 40.1 | 0.1 | 0.7 | 41.0 | |
| subtotal | | | | 789631200.0 | 40.1 | 0.1 | 0.7 | 41.0 | |
| TOTAL | | | | 789631200.0 | 40.1 | 0.1 | 0.7 | 41.0 | |
| Greenhouse Gas Emissions (Scope 1 and Scope 2) | | | | | | | | | |
| GRAND TOTAL | | | | 1119011193.2 | 22605.4 | 82.1 | 514.2 | 23201.7 | |
| Indirect Emissions (Scope 3) | | | | | | | | | |
| Waste Sent to Landfill | | | | | | | | | |
| 2014 | | | | | | | | | |
| Quantity | Unit | Type of Landfill | Type of Waste | Type of Operation | Source | CO ₂ Emission Estimate (t CO ₂ -e) | CH ₄ Emission Estimate (t CO ₂ -e) | N ₂ O Emission Estimate (t CO ₂ -e) | Total Emission Estimate (t CO ₂ -e) |
| 1792 | tonnes (uncompacted) | Covered and/or managed waste treatment facility | Unknown (mixed waste types) | Other Operation | International | 0.0 | 2150.4 | 0.0 | 2150.4 |
| subtotal | | | | | | 0.0 | 2150.4 | 0.0 | 2150.4 |
| TOTAL | | | | | | 0.0 | 2150.4 | 0.0 | 2150.4 |

*A Green Power Agreement is unavailable for purchased as standard grid supply of electricity is from close to 100% renewable energy sources in Iceland.

3. Water

Potable Water Consumption (kL / Person Year) ★

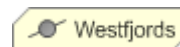
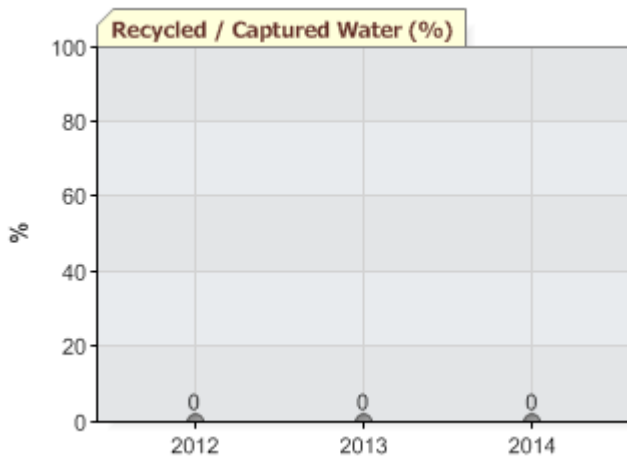


Potable Water Consumption (kL / Person Year) for the year 2014 (1 January 2014 – 31 December 2014) was 107.1 kL / Person Year, which was 87.2% better than the Best Practice level.

2014

| Quantity | Unit | Potable Water Consumption (kL) |
|-----------|--------------|--------------------------------|
| 764978291 | litres | 764978.3 kL |
| | TOTAL | 764978.3 kL |

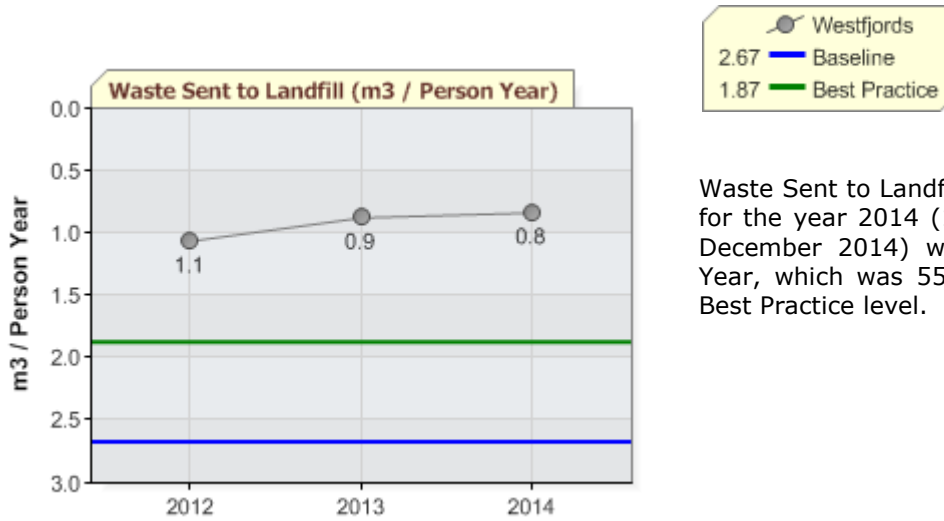
Recycled / Captured Water (%)



Recycled / Captured Water (%) for the year 2014 (1 January 2014 – 31 December 2014) was 0%.

4. Waste

Waste Sent to Landfill (m³ / Person Year) ★

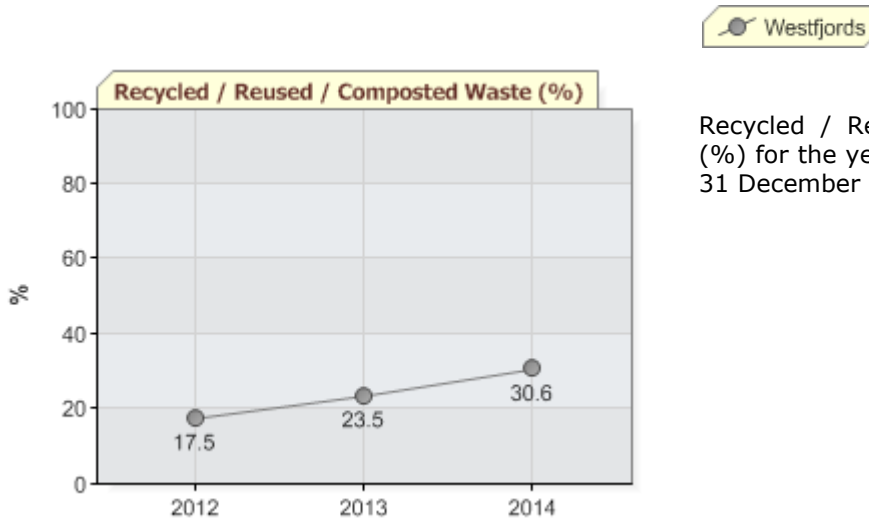


Waste Sent to Landfill (m³ / Person Year) for the year 2014 (1 January 2014 – 31 December 2014) was 0.8 m³ / Person Year, which was 55.2% better than the Best Practice level.

2014

| Quantity | Unit | Type of Landfill | Type of Waste | Type of Operation | Waste Sent to Landfill (m ³) |
|----------|----------------------|---|-----------------------------|-------------------|--|
| 1792 | tonnes (uncompacted) | Covered and/or managed waste treatment facility | Unknown (mixed waste types) | Other Operation | 5973.3 m ³ |
| | | | | TOTAL | 5973.3 m³ |

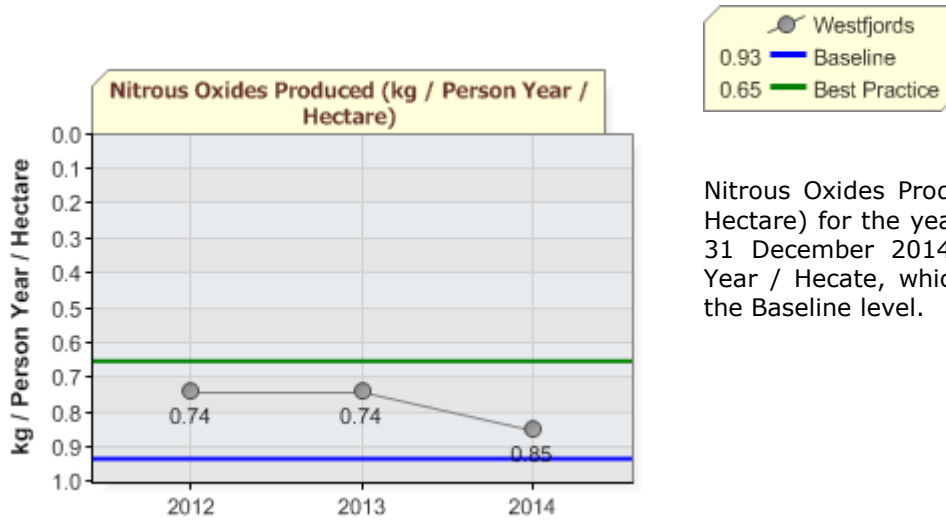
Recycled / Reused / Composted Waste (%)



Recycled / Reused / Composted Waste (%) for the year 2014 (1 January 2014 – 31 December 2014) was 30.6%.

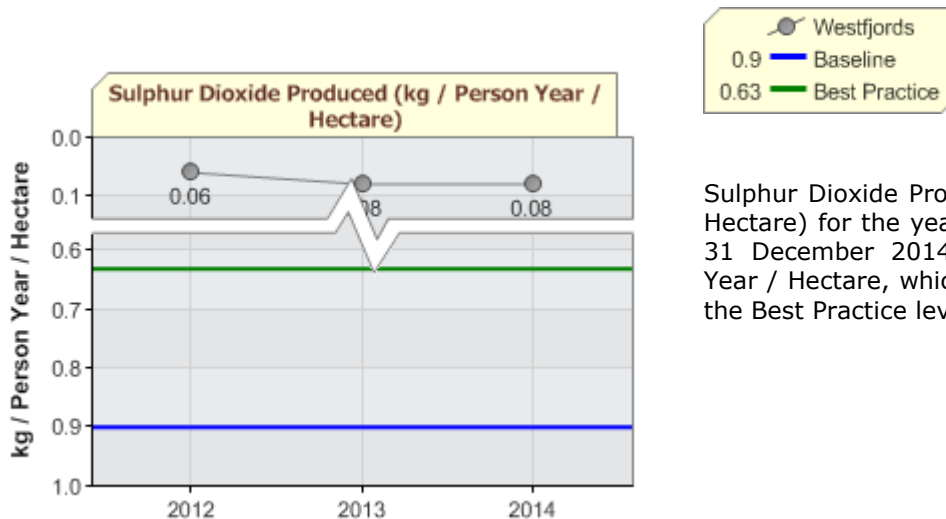
5. Sector Specific

Nitrous Oxides Produced (kg / Person Year / Hectare) ✓



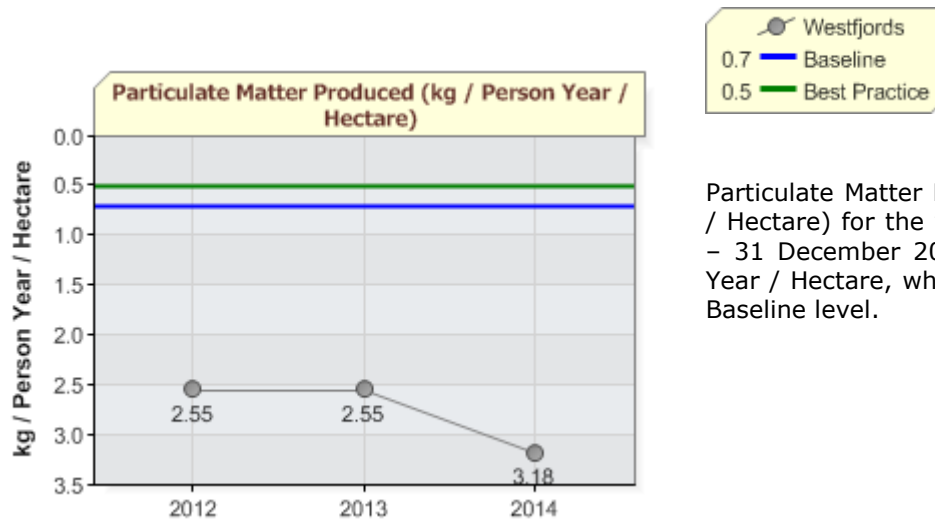
Nitrous Oxides Produced (kg / Person Year / Hectare) for the year 2014 (1 January 2014 – 31 December 2014) was 0.85 kg / Person Year / Hectare, which was 8.6 % better than the Baseline level.

Sulphur Dioxide Produced (kg / Person Year / Hectare) ★



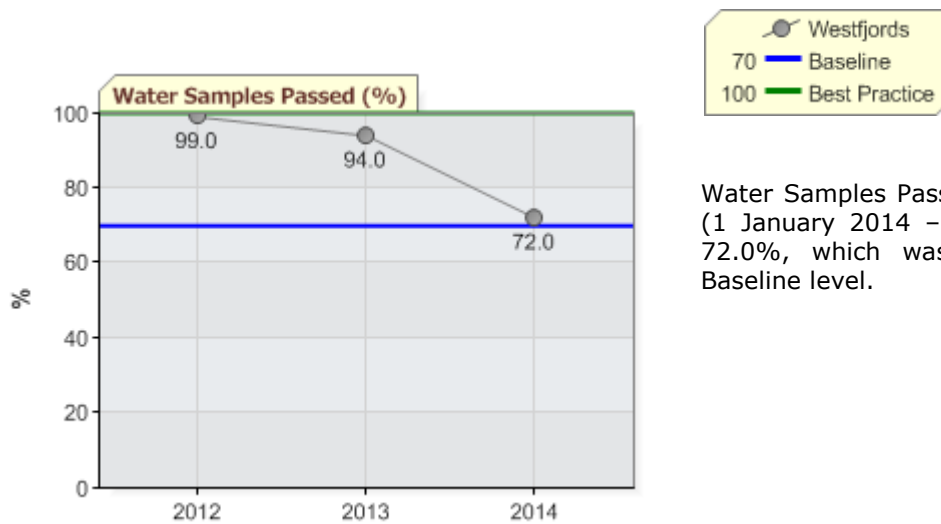
Sulphur Dioxide Produced (kg / Person Year / Hectare) for the year 2014 (1 January 2014 – 31 December 2014) was 0.08 kg / Person Year / Hectare, which was 87.3 % better than the Best Practice level.

Particulate Matter Produced (kg / Person Year / Hectare) ✘



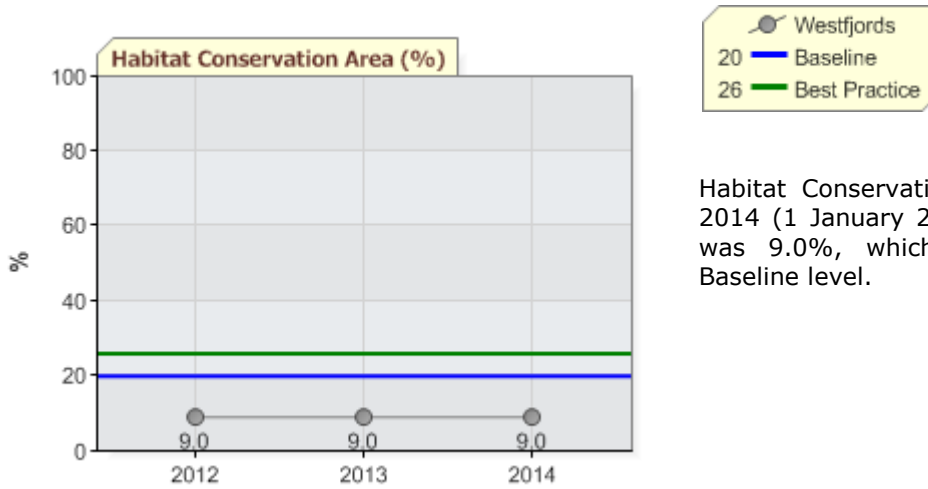
Particulate Matter Produced (kg / Person Year / Hectare) for the year 2014 (1 January 2014 – 31 December 2014) was 3.18 kg / Person Year / Hectare, which was 354.3 % below the Baseline level.

Water Samples Passed (%) ✔



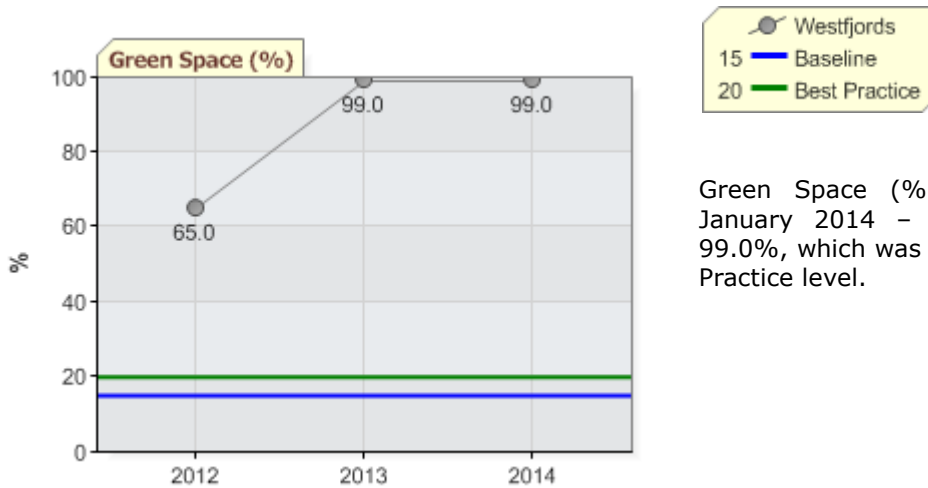
Water Samples Passed (%) for the year 2014 (1 January 2014 – 31 December 2014) was 72.0%, which was 2.0% better than the Baseline level.

Habitat Conservation Area (%) ✘



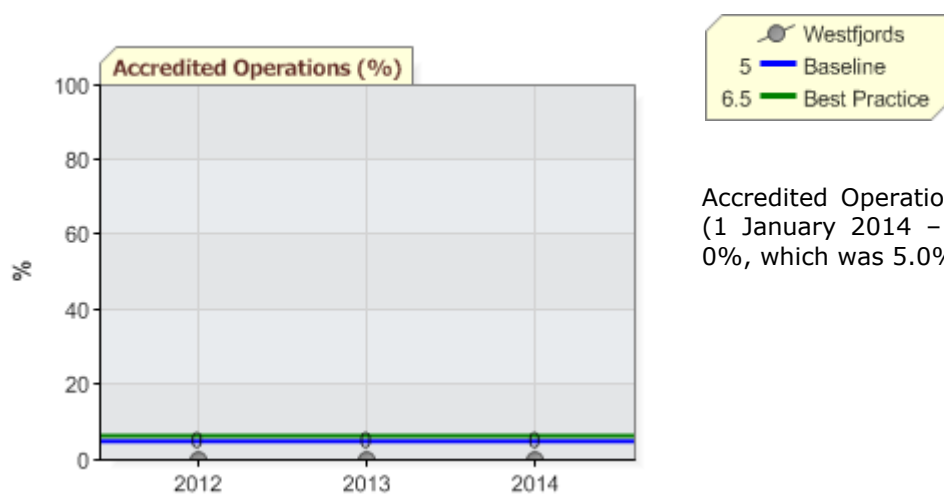
Habitat Conservation Area (%) for the year 2014 (1 January 2014 - 31 December 2014) was 9.0%, which was 11.0% below the Baseline level.

Green Space (%) ★



Green Space (%) for the year 2014 (1 January 2014 - 31 December 2014) was 99.0%, which was 79.0% better than the Best Practice level.

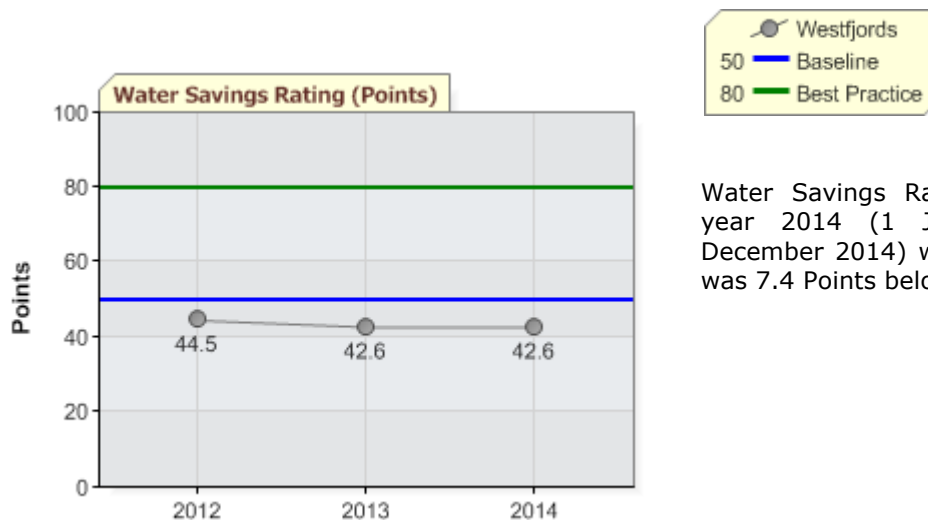
Accredited Operations (%) ✕



Accredited Operations (%) for the year 2014 (1 January 2014 – 31 December 2014) was 0%, which was 5.0% below the Baseline level.

6. Lead Agency Performance

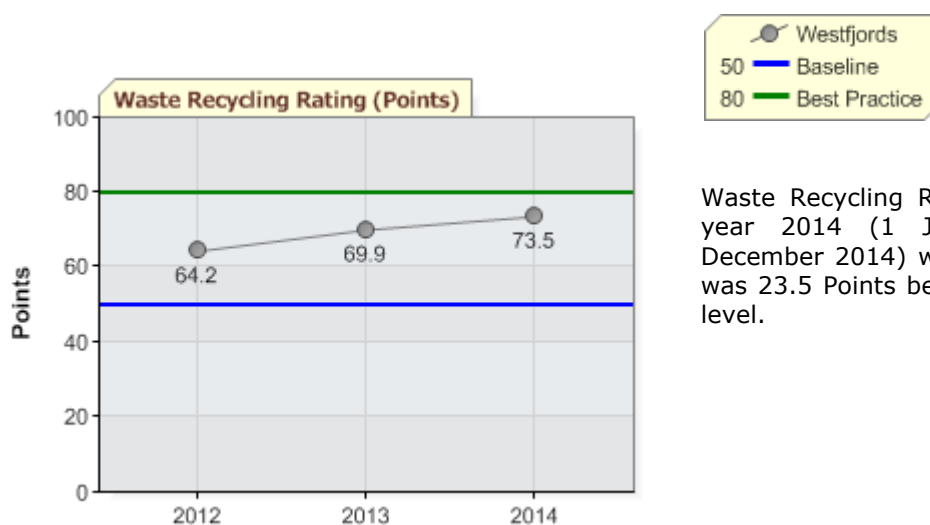
Water Savings Rating (Points) ✕



Water Savings Rating (Points) for the year 2014 (1 January 2014 – 31 December 2014) was 42.6 Points, which was 7.4 Points below the Baseline level.

| Water Savings Measures | Frequency / Percentage Rating | Water Savings Rating (Points) |
|----------------------------------|-------------------------------|-------------------------------|
| Check for leaks | Once a year | 54.0 Points |
| Low/dual flush toilets | 60-79% | 73.9 Points |
| Low flow tap fittings | 0% | 0.0 Points |
| Low flow shower fittings | Not Relevant / Available | - |
| Water sprinklers used after dark | Not Relevant / Available | - |
| Minimal irrigation landscaping | Not Relevant / Available | - |
| Use of recycle/grey/rain water | Not Relevant / Available | - |
| | Overall Rating: | 42.6 Points |

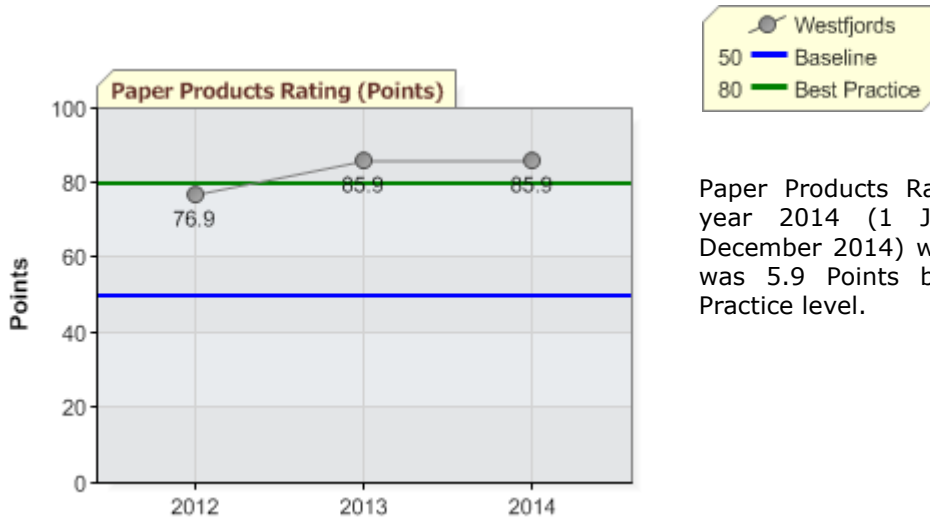
Waste Recycling Rating (Points) ✓



Waste Recycling Rating (Points) for the year 2014 (1 January 2014 – 31 December 2014) was 73.5 Points, which was 23.5 Points better than the Baseline level.

| Waste Recycling Measures | Frequency / Percentage Rating | Waste Recycling Rating (Points) |
|-------------------------------|-------------------------------|---------------------------------|
| Glass | 40-59% | 65.1 Points |
| Paper/card | 60-79% | 73.9 Points |
| Iron & steel (ferrous metals) | 100% | 100.0 Points |
| Other metals (non-ferrous) | 60-79% | 73.9 Points |
| Plastics | 60-79% | 73.9 Points |
| Rubber | Not Relevant / Not Available | - |
| Green waste | 1-19% | 54.0 Points |
| | Overall Rating: | 73.5 Points |

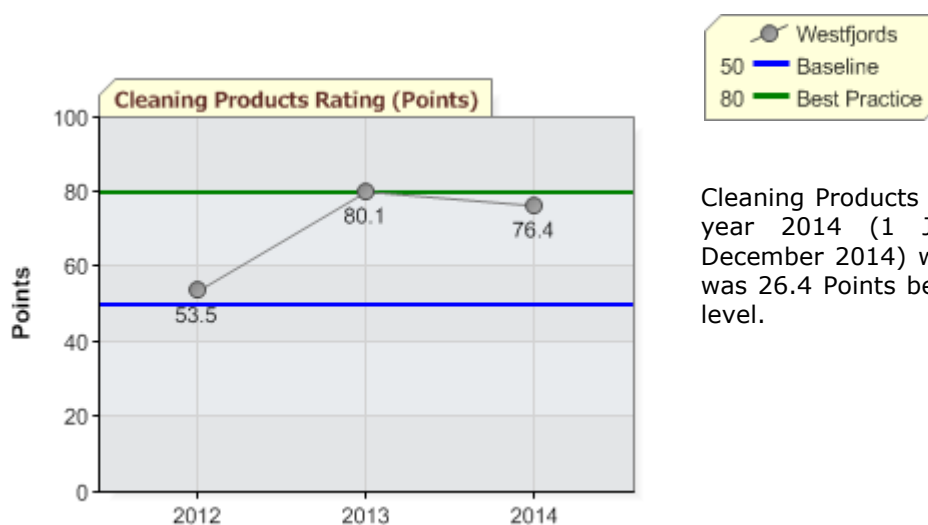
Paper Products Rating (Points) ★



Paper Products Rating (Points) for the year 2014 (1 January 2014 – 31 December 2014) was 85.9 Points, which was 5.9 Points better than the Best Practice level.

| Paper Products Measures | Frequency / Percentage Rating | Paper Products Rating (Points) |
|-------------------------|-------------------------------|--------------------------------|
| Office paper | 80-99% | 88.9 Points |
| Serviettes | 60-79% | 73.9 Points |
| Tissues | 80-99% | 88.9 Points |
| Toilet tissue | 80-99% | 88.9 Points |
| Paper towels | 80-99% | 88.9 Points |
| | Overall Rating: | 85.9 Points |

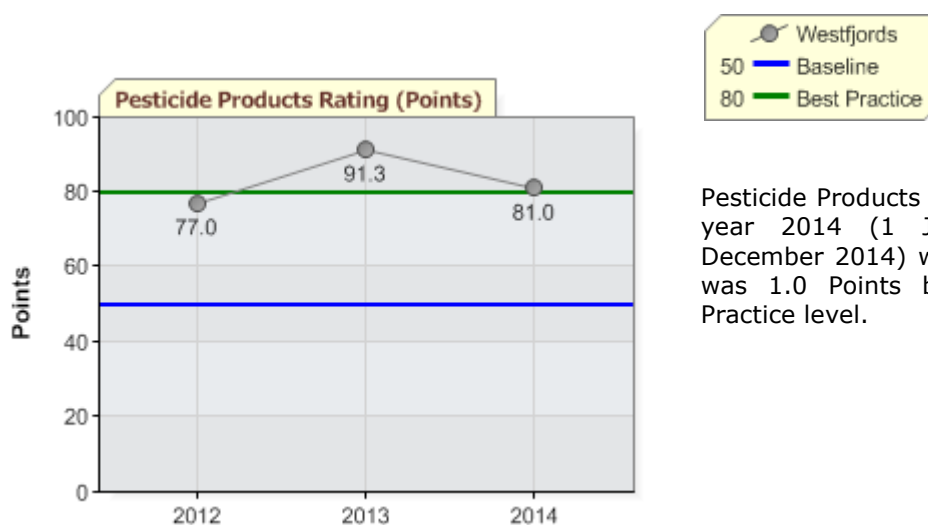
Cleaning Products Rating (Points) ✓



Cleaning Products Rating (Points) for the year 2014 (1 January 2014 – 31 December 2014) was 76.4 Points, which was 26.4 Points better than the Baseline level.

| Cleaning Products Measures | Frequency / Percentage Rating | Cleaning Products Rating (Points) |
|----------------------------|-------------------------------|-----------------------------------|
| Hard floor cleaners | 60-79% | 73.9 Points |
| Carpet cleaners | Not Relevant / Available | 100.0 Points |
| Interior surface cleaners | 40-59% | 65.1 Points |
| External surface cleaners | 20-39% | 58.8 Points |
| Glass cleaners | 60-79% | 73.9 Points |
| Detergents | 60-79% | 73.9 Points |
| Personal hygiene | 80-99% | 88.9 Points |
| | Overall Rating: | 76.4 Points |

Pesticide Products Rating (Points) ★



Pesticide Products Rating (Points) for the year 2014 (1 January 2014 – 31 December 2014) was 81.0 Points, which was 1.0 Points better than the Best Practice level.

| Pesticide Products Measures | Frequency / Percentage Rating | Pesticide Products Rating (Points) |
|-----------------------------|-------------------------------|------------------------------------|
| Weed killers | 60-79% | 73.9 Points |
| Fungal killers | Not Relevant / Available | 100.0 Points |
| Rodent killers | Not Relevant / Available | 100.0 Points |
| Insect killers | Relevant / Not Available | 50.0 Points |
| | Overall Rating: | 81.0 Points |

The supplied data has been compiled by **Westfjords** in the prescribed manner, authorised by a senior executive of the company and submitted for an annual assessment.

CONCLUSION AND RECOMMENDATIONS

Congratulations, **Westfjords** has met the requirements to be recognised as an EarthCheck Benchmarked Community.

In addition to having a Sustainability Policy in place, thirteen of the assessed EarthCheck indicators are at or above the Baseline level. From the benchmarking data provided, eight indicators, *Energy Consumption*, *Greenhouse Gas Emissions (Scope 1 and Scope 2)*, *Potable Water Consumption*, *Waste Sent to Landfill*, *Sulphur Dioxide Produced*, *Green Space*, *Paper Products Rating*, and *Pesticide Products Rating* are at or above the Best Practice level.

The three indicators that fell below the Baseline level were *Particulate Matter Produced*, *Habitat Conservation Area*, *Water Savings Rating*, and *Accredited Operations*.

The value for *Habitat Conservation Area* was 11.0% below the Baseline Level. **Westfjords** is encouraged to promote habitat conservation of land, wetlands and waterways to aid biodiversity conservation and support habitat protection within the region.

The value for *Accredited Operations* was 5.0% below the Baseline Level. **Westfjords** is encouraged to promote environmental accreditation to hotels, restaurants and other business within the community.

The value for *Water Savings Rating* was 7.4 Points below the Baseline level. The **Westfjords** is encouraged, therefore, to review current on-site water use and the possibility of increasing on-site recycling and reuse (e.g. using non-hazardous rain water and/or grey water for watering plants and washing exterior surfaces). The **Westfjords** is also encouraged to regularly check for possible leaks, and fitting (where appropriate) water saving devices such as low-flow shower heads and dual flush toilet cisterns.

The value for *Particulate Matter Produced* was 354.3% below the Baseline level. The **Westfjords** is encouraged to promote the use of public transport within the community and to investigate opportunities in switching to cleaner and more efficient combustion fuels (e.g. renewables, LPG) and processes.

The **Westfjords** is encouraged to continue to make improvements in the above indicators and to ensure that any indicators below baseline is addressed in the organisation's risk assessment and long term sustainability approach.

Improvements in all the EarthCheck indicators will not only help the environment, but can also help reduce operational costs. Due to the positive commitment that the **Westfjords** has demonstrated to the environment, the assessors are confident that they can maintain or improve performance, where appropriate and practical, in all indicators. In particular over the next 12 months, the **Westfjords** is encouraged to ensure that *Water Savings Rating*, *Habitat Conservation Area*, and *Accredited Operations* are at Baseline performance or better. In line with EarthCheck Policy this would enable the **Westfjords** to continue to meet the benchmarking requirements of the EarthCheck program.

APPENDIX

BENCHMARK REVIEW

As standard policy, all EarthCheck indicators are reviewed annually, along with the performance levels which operators have to achieve in order to meet the benchmarking requirements. This review takes into account "business-as-usual" changes in practices and equipment, and is used to update where appropriate Baseline and Best Practice levels.

The following benchmarks were revised as part of the review:

Iceland - Destination

Particulate Matter Produced (PM₁₀):

- Previous Baseline Level: 0.1 kg / Person Year / Hectare
- Previous Best Practice Level: 0.07 kg / Person Year / Hectare
- **Revised Baseline Level: 0.7 kg / Person Year / Hectare**
- **Revised Best Practice Level: 0.5 kg / Person Year / Hectare**

ACTIVITY MEASURE

Person Year

The Benchmarking Assessors sought clarification with regards to the *Person Year* figure of 183.99 initially submitted as it was considerably less than the previous assessment.

The **Westfjords** advised;

$$1. \text{ Person Year} = 6958 + (54985/365) + (36524/(3*365)) = \mathbf{7141,999}$$

- Total Community Residents: 6958
- Total No. of Overnight Visitor Stays: 54.985
- Total No. of Day Visitors: 36.524

Therefore, the Benchmarking Assessors have updated the *Person Years* figure to 7 142, as per the data provided. This figure has been used throughout the Benchmarking Assessment.

Total Destination Area

The Benchmarking Assessors sought clarification with regards to the *Total Destination Area* as the figure initially submitted was significantly greater than expected.

The **Westfjords** advised;

| 2. Total Destination Area – | | |
|-----------------------------|----------------|------------------|
| | Km2 | ha |
| Bolungarvíkurkaupst | 108,08 | 10808,28 |
| Ísafjarðarbær | 2380,56 | 238055,50 |
| Reykholahreppur | 1096,22 | 109622,06 |
| Tálknafjarðarhreppur | 175,38 | 17538,19 |
| Vesturbyggð | 1336,06 | 133606,04 |
| Súðavíkurhreppur | 750,34 | 75034,50 |
| Árneshreppur | 705,41 | 70541,45 |
| Kaldrananeshreppur | 458,4 | 45840,29 |
| Strandabyggð | 1833,79 | 183378,65 |
| Total | 8844,24 | 884424,96 |

The Benchmarking Assessors sought to confirm that the figure of 884 424.96 ha pertained to the entire Westjords area not just the urban areas.

The **Westfjords** advised;

*"884424,96 ha is the total area of the entire Westfjords.
The picture below shows what each urban areas in the Westfjords are many ha."*

| Tölur fyrir Þéttbýlisstaði á Vestfjörðum | | |
|--|-----------------|---------------|
| | Þéttbýli | |
| | km ² | ha |
| Bildudalur | 0,248729 | 24,87 |
| Bolungarvík | 0,672421 | 67,24 |
| Drangsnæs | 0,101369 | 10,14 |
| Flateyri | 0,239438 | 23,94 |
| Hnífsdalur | 0,153633 | 15,36 |
| Hólmavík | 0,369842 | 36,98 |
| Ísafjörður | 1,403285 | 140,33 |
| Patreksfjörður | 0,562629 | 56,26 |
| Reykhólar | 0,263172 | 26,32 |
| Suðureyri | 0,185059 | 18,51 |
| Súðavík | 0,31511 | 31,51 |
| Tálknafjörður | 0,266503 | 26,65 |
| Pingeyri | 0,350087 | 35,01 |
| Samtals | 5,131277 | 513,12 |

*Upplýsingar fengnar frá <http://www.lmi.is/mannvirki/> - Upplýsingar byggjarst á laginu is50v_mannvirki_flakar,



Therefore, the Benchmarking Assessors have updated the *Total Destination Area* to 884 424.96 ha.

ENERGY CONSUMPTION

The Benchmarking Assessors sought clarification with regards to the following *Energy Consumption* data;

- The *Purchased Electricity* figure initially submitted considerably less than expected.
- The *Green Power* figure of 93% was greater than expected.
- *Stationary Fuel Combustion – Motor gasoline* was submitted for the current assessment, however this fuel type was not submitted previously.
- No *Stationary Fuel Combustion – Diesel* had been submitted for the current assessment.
- No *Mobile Fuel Combustion (road) – Motor gasoline* had been submitted for the current assessment.
- The figure initially submitted for *Mobile Fuel Combustion (road) – Diesel* was significantly less than expected.
- *Mobile Fuel Combustion (water) – Diesel* was submitted for the current assessment, however this fuel type was not previously submitted.

The **Westfjords** advised;

"a) *Purchased Electricity* - The total energy consumption was obtained by examining the total power consumption of the municipality but not all residents of the Westfjords.
 b) The energy in the Westfjords is mainly obtained from plants except if there is a failure in the power station. Then oil is used at the time of failure. Total oil used was (I am still waiting for reply and will send to you when I have received it)
 There is no green power agreement in place with our electricity provider.
 c) *Petrol* – Total petrol was calculated from total usage of the Municipalities. The information was obtained from the municipalities accounting of cost about purchased motor gasoline and the information you have are supposed to be right.
 d) *Stationary Fuel Combustion* should be 0
 e) 52.986 L is supposed to be *Motor Fuel Combustion Road (Motor gasoline)* used on cars owned by the municipalities
 f) The *Diesel* quantity is right compared to the information the Municipalities gave up. These are only information about use of diesel for cars owned by the municipality, not all cars in the Westfjords.
 g) It has never before been included the usage of *Mobile Fuel combustion* in the Westfjords, but now one municipalities Isafjordur gave information about boat oil with quantity 7,155 L."

The **Westfjords** later advised;

"The amount of diesel spent to use at the power station for the year 2014 was 247.879 L"

The Benchmarking Assessors sought further clarification with regards to the *Energy Consumption* as the figures provided for the *Mobile Fuel Combustion (road)* and *Purchased Electricity* were considerably less than the previous assessment.

The **Westfjords** advised;

"Regarding the reduction in fuel consumption is because we have last two years calculated the estimated use of fuel of all residents in the Westfjords. The information we have used are all registered cars in the Westfjords. This year, as I stated when I returned the data, we only calculated consumption from the vehicles owned by the municipalities themselves."

To ensure the consistency of reporting for **Westfjords**, the Benchmarking Assessors recommended that the same methodology used to estimate the consumption for all vehicles in

Westfjords for previous assessments should be utilized, rather than only including those vehicles owned by the municipalities. As such, clarification was requested with regards to the *Mobile Fuel Consumption* for the whole destination. Additionally, further clarification was sought with regards to the *Purchased Electricity* as the figure provided remained significantly less than the previous assessment.

The **Westfjords** advised;

"Here in attachment are numbers from the Westfjords regarding usage of gasoline for vehicles the year 2014

Purchased Electricity
For 2014 was 219,342 MWh"

| Vehicle Type | Definition | Category in IRTD-database | Number registered by fuel type 2012 | | Average Vehicle Km Travelled per annum | Average Fuel Consumpt (l/100 km) | Fuel Usage (litres) per annum |
|--|---|---------------------------|-------------------------------------|-------|--|----------------------------------|-------------------------------|
| Passenger | Vehicle mainly for personal transport, max 8 pers. | B11 Fólksbifr. | Petrol | 2,532 | 12,909 | 8.49 | 2,774,428 |
| | | | Diesel | 1603 | 18,325 | 8.88 | 2,608,012 |
| | | | LPG | 397 | 12,909 | 4.50 | 230,619 |
| Light Commercial A | Vehicle mainly for goods transport, max 3,500 kg. | B14 Sendibifr. | Petrol | 448 | 11,231 | 8.14 | 409,414 |
| | | | Diesel | 224 | 13,992 | 8.51 | 266,749 |
| | | | LPG | | | | 0 |
| Light Commercial B | Vehicle mainly for personal transport, min 8 pers., max 5,000 kg. | B12 Hópbifr. 1 | Petrol | 20 | 8,500 | 15.00 | 25,500 |
| | | | Diesel | 41 | 25,059 | 11.25 | 115,582 |
| | | | LPG | | | | 0 |
| Heavy Duty A | Vehicle mainly for personal transport, min 8 pers., min 5,001 kg. | B13 Hópbifr. 2 | Petrol | 0 | | | 0 |
| | | | Diesel | 226 | 16,069 | 40.00 | 1,452,633 |
| | | | LPG | | | | 0 |
| Heavy Duty B | Vehicle mainly for goods transport, 3,501-12,000 kg. | B15 Vörubifr. 1 | Petrol | 0 | 18,504 | 25.00 | 0 |
| | | | Diesel | 151 | 16,543 | 25.00 | 624,498 |
| | | | LPG | | | | 0 |
| Heavy Duty C | Vehicle mainly for goods transport, min 12,001 kg. | B16 Vörubifr. 2 | Petrol | | | | 0 |
| | | | Diesel | 0 | 35,330 | 45.00 | 0 |
| | | | LPG | | | | 0 |
| Motorcycles A | Max 50 ccm | HJ2 - létt | Petrol | 76 | 8,375 | 1.50 | 9,547 |
| | | | Diesel | | | | 0 |
| | | | LPG | | | | 0 |
| Motorcycles B | Other | HJ3 - þung | Petrol | 193 | 4,060 | 2.50 | 19,590 |
| | | | Diesel | | | | 0 |
| | | | LPG | | | | 0 |
| Motorcycle C | Off road vehicle | Tofæruhjól og vélsleðar | Petrol | 202 | n/a | n/a | 161,600 |
| | | | Diesel | | | | |
| | | | LPG | | | | |
| Tractors | Dráttar-vélar | | Petrol | 57 | n/a | n/a | 41,781 |
| | | | Diesel | 414 | n/a | n/a | 303,462 |
| | | | LPG | | | | 0 |
| Total fuel usage in litres | | | Petrol | | | | 3,441,860 |
| | | | Diesel | | | | 5,370,937 |
| | | | LPG | | | | 230,619 |
| Total vehicle fuel usage in litres (Grand Total) | | | | | | | 9,043,416 |

Based on the updated data provided for *Mobile Fuel Combustion (road)* and *Purchased Electricity*, the Benchmarking Assessors updated the *Energy Consumption* as per below;

Stationary Fuel Combustion

| Type | Quantity | Unit | Energy Consumption (GJ) |
|--------|----------|------------|-------------------------|
| Diesel | 247.879 | litres (L) | 9.47 |

Mobile Fuel Combustion (road)

| Type | Quantity | Unit | Energy Consumption (GJ) |
|----------------|----------|------------|-------------------------|
| Diesel | 5370937 | litres (L) | 205153.14 |
| Motor gasoline | 3441860 | litres (L) | 117720.15 |
| LPG | 230619 | litres (L) | 6223.94 |

Mobile Fuel Combustion (water)

| Type | Quantity | Unit | Energy Consumption (GJ) |
|--------|----------|------------|-------------------------|
| Diesel | 7155 | litres (L) | 273.3 |

Purchased Electricity

| Quantity | Unit | % Green Power | Provider | Energy Consumption (GJ) |
|-----------|---------------------|---------------|----------|-------------------------|
| 219342000 | Kilowatt hour (kWh) | N/A* | Iceland | 789631.2 |

These sources produced a total of 1 119 011.19 GJ which equates to 156.68 GJ per *Person Year*. Total *Greenhouse Gas Emissions (Scope 1 and Scope 2)* was 23 201.7 t CO₂-e which equates to 3.2 t CO₂-e per *Person Year*.

POTABLE WATER CONSUMPTION

The Benchmarking Assessors sought clarification with regards to the *Potable Water Consumption* as the figure initially submitted was greater than expected.

The **Westfjords** advised;

"h) The water is not right the quantity is 764.978.291 L"

Therefore, the Benchmarking Assessors updated the *Potable Water Consumption* to 764 978 291 L. This equates to 107.1 kL per *Person Year*.

WATER SAVINGS RATING

The Benchmarking Assessors sought clarification with regards to the *Water Savings Rating* as 'Low flow tap fittings', 'Water sprinklers used after dark', 'Minimal irrigation landscaping' and 'Use of recycle/grey/rain water' were submitted as "Not Relevant / Available".

The **Westfjords** advised;

4. Water saving Rating
 Low flow tap fittings - Not relevant
 Water sprinklers used after dark – Not relevant -
 Minimal irrigation landscaping - Not relevant
 Use of recycle/grey/ rain water – Not relevant

Therefore, the submitted figures remained unchanged as per below;

| Water Savings Measures | Frequency / Percentage Rating |
|----------------------------------|-------------------------------|
| Check for leaks | Once a year |
| Low/dual flush toilets | 60-79% |
| Low flow tap fittings | 0% |
| Low flow shower fittings | Not Relevant / Available |
| Water sprinklers used after dark | Not Relevant / Available |
| Minimal irrigation landscaping | Not Relevant / Available |
| Use of recycle/grey/rain water | Not Relevant / Available |

This gives an overall *Water Savings Rating* of 42.6 Points.

WASTE SENT TO LANDFILL

The Benchmarking Assessors sought clarification with regards to the *Waste Sent to Landfill*, as the unit was initially submitted as "tonnes (compacted)", however in the previous assessment this was listed as "tonnes (uncompacted)". Additionally, the *Type of Waste* initially submitted differed from the previous assessment.

The **Westfjords** advised;

"1792 tonnes uncompact – type of waste – unknown (food + other household waste)"

Therefore, the Benchmarking Assessors updated the *Waste Sent to Landfill* as per below;

| Quantity | Unit | Type of Landfill | Type of Waste | Waste Sent to Landfill (m ³) |
|----------|----------------------|---|-----------------------------|--|
| 1792 | tonnes (uncompacted) | Covered and/or managed waste treatment facility | Unknown (mixed waste types) | 5973.3 m ³ |

The submitted value of 1 792 tonnes (1 792 000.0 kg) of waste (specified by the operator as uncompacted waste) has been converted into a volume by using the standard conversion of 1 kg (uncompacted waste) = 0.00333333 m³ or 3.33333 L (i.e. 1 792 000.0 kg x 0.00333333 = 5 973.3 m³). (If the waste is compacted, then the standard conversion is: 1 kg = 0.00153846 m³).

This equates to 0.8 m³ per *Person Year*.

AIR QUALITY

The Benchmarking Assessors have calculated *Air Quality* based on the submitted energy sources;

2014 Calendar Year

Nitrous Oxides Produced: 200 805 kg
 Sulphur Dioxide Produced: 15 685 kg
 Particulate Matter Produced: 748 094 kg

2012 & 2013 Calendar Year

The *Particulate Matter Produced* figures had been updated from previous benchmark periods in which there had been a technical inaccuracy. The system has been updated and the figure recalculated for the *Particulate Matter Produced* to revise these figures as per below:

2012

Revised PM₁₀ Figure: 600 646.00 kg

2013

Revised PM₁₀ Figure: 598 057 kg

These revised figures have been reflected in the current assessment.

WATER SAMPLES PASSED (%)

Prior to the submission of the Benchmarking Data, the **Westfjords** advised;

"I talked to the health department regarding water quality in the Westfjords. For the year 2014 99% of the water supply utility in the urban area have their samples passing. But in the rural areas, and primarily with the tourism there is a problem with the water samples. Am I supposed to put those samples in the Benchmarking data or should I only put information about water samples who are under the municipalities service?"

The **Westfjords** later advised;

"I did decide to submit all the data regarding the water samples, the rural areas included."

The Benchmarking Assessors sought clarification with regards to the submitted figure of 72% as it was less than expected.

The **Westfjords** advised;

"If only water samples from the urban area had been sent the rate would be 99% passed. But it was decided to send information about samples from urban areas as well as samples from the rural areas. That is why sample passed are 72% instead of 99%"

Therefore, the submitted figure of 72% remains unchanged.

HABITAT CONSERVATION AREA (%)

The Benchmarking Assessors sought clarification with regards to the *Habitat Conservation Area* as the figure of 76% initially submitted was significantly greater than expected.

The **Westfjords** advised;

"Is supposed to be 9%"

Therefore, the Benchmarking Assessors updated the *Habitat Conservation Area* to 9%.



EARTHCHECK

Benchmarks Assessed by EarthCheck

SUMMARY OF SUPPLIED BENCHMARKING DATA

Activity Measures

| | |
|------------------------|-----------|
| Person Years | 7142 |
| Total Destination Area | 884424.96 |

Supplied Benchmarking Data

Energy

Energy Consumption (GJ / Person Year)

| | |
|---------------|---|
| Supplied | 1119011.19 GJ |
| Calculated | 156.68 GJ / Person Year |
| Baseline | 380 GJ / Person Year |
| Best Practice | 266 GJ / Person Year |
| Difference | 41.1% better than the Best Practice level |

Green Power (%)

| | |
|------------|----------------|
| Supplied | Not Applicable |
| Calculated | Not Applicable |

Greenhouse Gas Emissions (Scope 1 and Scope 2) (t CO₂-e / Person Year)

| | |
|---------------|---|
| Supplied | 23201.7 t CO ₂ -e |
| Calculated | 3.2 t CO ₂ -e / Person Year |
| Baseline | 8.6 t CO ₂ -e / Person Year |
| Best Practice | 6.0 t CO ₂ -e / Person Year |
| Difference | 46.7% better than the Best Practice level |

Direct Emissions (Scope 1) (t CO₂-e / Person Year)

| | |
|------------|--|
| Supplied | 23160.7 t CO ₂ -e |
| Calculated | 3.2 t CO ₂ -e / Person Year |

Indirect Emissions (Scope 2) (t CO₂-e / Person Year)

| | |
|------------|--|
| Supplied | 40.95 t CO ₂ -e |
| Calculated | 0.006 t CO ₂ -e / Person Year |

Indirect Emissions (Scope 3) (t CO₂-e / Person Year)

| | |
|------------|---|
| Supplied | 2150.4 t CO ₂ -e |
| Calculated | 0.30 t CO ₂ -e / Person Year |

Transport Indirect Emissions (Scope 3) (t CO₂-e / Person Year)

| | |
|------------|--|
| Supplied | 0.0 t CO ₂ -e |
| Calculated | 0.0 t CO ₂ -e / Person Year |

Waste Indirect Emissions (Scope 3) (t CO₂-e / Person Year)

| | |
|------------|---|
| Supplied | 2150.40 t CO ₂ -e |
| Calculated | 0.30 t CO ₂ -e / Person Year |

Water

Potable Water Consumption (kL / Person Year)

| | |
|---------------|---|
| Supplied | 764978.3 kL |
| Calculated | 107.1 kL / Person Year |
| Baseline | 1200 kL / Person Year |
| Best Practice | 840 kL / Person Year |
| Difference | 87.2% better than the Best Practice level |

Recycled / Captured Water (%)

| | |
|------------|----|
| Supplied | 0% |
| Calculated | 0% |

Water Savings Rating (Points)

| | |
|---------------|-------------------------------------|
| Supplied | 42.6 Points |
| Calculated | 42.6 Points |
| Baseline | 50 Points |
| Best Practice | 80 Points |
| Difference | 7.4 Points below the Baseline level |

Waste

Waste Sent to Landfill (m³ / Person Year)

| | |
|---------------|---|
| Supplied | 5973.3 m ³ |
| Calculated | 0.8 m ³ / Person Year |
| Baseline | 2.66667 m ³ / Person Year |
| Best Practice | 1.86667 m ³ / Person Year |
| Difference | 55.2% better than the Best Practice level |

Recycled / Reused / Composted Waste (%)

| | |
|------------|-------|
| Supplied | 30.6% |
| Calculated | 30.6% |

Waste Recycling Rating (Points)

| | |
|---------------|--|
| Supplied | 73.5 Points |
| Calculated | 73.5 Points |
| Baseline | 50 Points |
| Best Practice | 80 Points |
| Difference | 23.5 Points better than the Baseline level |

Paper**Paper Products Rating (Points)**

| | |
|---------------|--|
| Supplied | 85.9 Points |
| Calculated | 85.9 Points |
| Baseline | 50 Points |
| Best Practice | 80 Points |
| Difference | 5.9 Points better than the Best Practice level |

Cleaning**Cleaning Products Rating (Points)**

| | |
|---------------|--|
| Supplied | 76.4 Points |
| Calculated | 76.4 Points |
| Baseline | 50 Points |
| Best Practice | 80 Points |
| Difference | 26.4 Points better than the Baseline level |

Pesticides**Pesticide Products Rating (Points)**

| | |
|---------------|--|
| Supplied | 81.0 Points |
| Calculated | 81.0 Points |
| Baseline | 50 Points |
| Best Practice | 80 Points |
| Difference | 1.0 Points better than the Best Practice level |

Sector Specific**Nitrous Oxides Produced (kg / Person Year / Hectare)**

| | |
|---------------|---------------------------------------|
| Supplied | 200805 kg |
| Calculated | 0.85 kg / Person Year / Hectare |
| Baseline | 0.93 kg / Person Year / Hectare |
| Best Practice | 0.65 kg / Person Year / Hectare |
| Difference | 8.6 % better than the Baseline level. |

Sulphur Dioxide Produced (kg / Person Year / Hectare)

| | |
|---------------|--|
| Supplied | 15685 kg |
| Calculated | 0.08 kg / Person Year / Hectare |
| Baseline | 0.9 kg / Person Year / Hectare |
| Best Practice | 0.63 kg / Person Year / Hectare |
| Difference | 87.3 % better than the Best Practice level |

Particulate Matter Produced (kg / Person Year)

| | |
|---------------|----------------------------------|
| Supplied | 748094 kg |
| Calculated | 3.18 kg / Person Year / Hectare |
| Baseline | 0.7 kg / Person Year / Hectare |
| Best Practice | 0.5 kg / Person Year / Hectare |
| Difference | 354.3 % below the Baseline level |

Water Samples Passed (%)

| | |
|---------------|-------------------------------------|
| Supplied | 72.0% |
| Calculated | 72.0% |
| Baseline | 70 % |
| Best Practice | 100 % |
| Difference | 2.0% better than the Baseline level |

Habitat Conservation Area (%)

| | |
|---------------|--------------------------------|
| Supplied | 9.0% |
| Calculated | 9.0% |
| Baseline | 20 % |
| Best Practice | 26 % |
| Difference | 11.0% below the Baseline level |

Green Space (%)

| | |
|---------------|---|
| Supplied | 99.0% |
| Calculated | 99.0% |
| Baseline | 15 % |
| Best Practice | 20 % |
| Difference | 79.0% better than the Best Practice level |

Accredited Operations (%)

| | |
|---------------|-------------------------------|
| Supplied | 0% |
| Calculated | 0% |
| Baseline | 5 % |
| Best Practice | 6.5 % |
| Difference | 5.0% below the Baseline level |

DETERMINATION OF BASELINE AND BEST PRACTICE LEVELS

General

The values for the Baseline and Best Practice levels for each indicator are derived from extensive worldwide research into available and appropriate case studies, industry surveys, engineering design handbooks, energy, water and waste audits, and climatic and geographic conditions.

National and regional data for per capita energy use, greenhouse gas and other emissions, wastes to landfill and water consumption, where available provide background data for normalisation of the expected performance values for per customer or employee, and/or overall performance of an enterprise being benchmarked. They are used to gauge the regional or national situation and environmental performances that an enterprise is based in, and hence what are reasonable levels to expect the enterprise to achieve.

A benchmarking result at, or above, the Baseline level demonstrates to all stakeholders that the enterprise is achieving above average performance. A result below the Baseline level indicates that an enterprise can and should carry out actions that will make beneficial improvements in performance.

Consideration of Climate

A major determinant of energy consumption in some sectors, primarily those centred on buildings such as accommodation, visitor centres and administration offices will be the dominant climatic conditions in which the enterprise is located. In general, to maintain the same level of indoor comfort, enterprises operating in hot or cold climates will consume more energy than those in temperate climates.

Similarly, it is recognised that in certain sectors a major determinant of potable water consumption will be the climate in which an enterprise is located, in particular those with large grounds and/or significant water-based facilities or activities. That is, enterprises located in hot climates are more likely to consume more potable water than equivalent ones located in cooler climates. Factors that are likely to lead to a higher level of potable water consumption, for example in the accommodation sector, include increased evaporation rates of swimming pools, personal bathing and irrigation demands of grounds. In consideration of this factor, Baseline and Best Practice levels can vary in relation to country location.

Waste Sent to Landfill

The benchmark indicator used for Waste Sent to Landfill is given in litres as waste bins are usually calibrated by volume, and it has been found that the majority of operations do not have access to the weight of material disposed of. However, if a weight is supplied, standard factors are used to convert from weight (e.g., kilograms (kg)) to volume (e.g., cubic metres (m³) or litres (L)). These are: 1 kg (uncompacted waste) = 0.00333333 m³ or 3.33333 L and 1 kg (compacted waste) = 0.00153846 m³ or 1.53846 L.

Operations should make note of the level of compaction when submitting data for assessment by EarthCheck.

Review of Performance Levels

The Baseline and Best Practice performance levels for EarthCheck indicators are continuously reviewed and are likely to change over time. This review by a team of international experts, takes into account "business-as-usual" changes in practices, equipment and facilities, as well as regulations and general improvement trends in performance and procedures. This review is used to update the levels of Baseline and Best Practice, and provides useful feedback to the user of the indicators.

The list below summarises the basic generic rules used to determine Baseline and Best Practice levels for EarthCheck indicators.

- If relevant enterprise sector specific case studies are not available for a type of activity in a designated region, then national averages will be used to ascertain the Baseline level. In this case, the Best Practice level will be set at a minimum of 30% better performance than the Baseline.
- If case study or national data are not available for a specific indicator, then the first enterprise that benchmarks will have its results set as 15% better than Baseline (i.e., half way between Baseline and Best Practice).