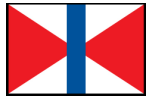


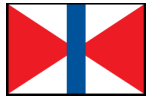


# Environmental Report 2006



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## 1.0 Environmental Statement

In 2006, the Executive Committee of Swire Pacific Offshore issued an environmental statement to reinforce its commitment to environmental protection and sustainable development. The text of the official statement is reproduced below:

*“Sustainable development, the protection of the environment and the effective monitoring of a business’ impact on the environment are all criteria that every Corporate Citizen must strive to meet. Swire Pacific Offshore is committed to be an industry leader capable of innovating and improving standards in line with its reputation for best operating practices in the industry.*

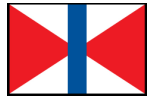
*We aim to constantly strive to reduce the negative impact that our business has on the environment, to monitor performance and identify areas for improvement. This focus is the responsibility of every individual within the organisation and is fully incorporated into the Company’s Management System.*

**Swire Pacific Offshore will:**

- *take all reasonable steps to minimise the impact of our business on the environment;*
- *formulate and apply appropriate operating procedures and practices to ensure, that, as a minimum, we comply with all applicable environmental regulations, standards and laws and endeavour to apply ‘best in class’ standards where laws or regulations do not exist;*
- *empower all our employees to be proactive and have a positive attitude to environmental issues to ensure that everyone can contribute to raising standards;*
- *to encourage the widest possible environmental awareness among staff, their families and the general public;*
- *to ensure that suppliers follow an acceptable environmental policy and to discourage dealing with those who do not;*
- *communicate with all our stakeholders and the public on our environmental record, policy and performance;*
- *review and evaluate our operations regularly to effectively measure progress and ensure compliance with this policy;*
- *respond quickly, openly and effectively to any incidents resulting from our operations;*

*This policy applies to all personnel, whether at sea or ashore. The Executive Committee of Swire Pacific Offshore Holdings Ltd is accountable to the Board and shareholders for ensuring this policy is enacted.”*

***(Signed by the Executive Committee of Swire Pacific Offshore, 1<sup>st</sup> December 2006)***



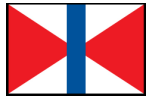
## 2.0 Baseline (2006) and Goals (2007)

To establish a baseline for comparison of environmental performance, Swire Pacific Offshore's year-end statistics for 2006 are reported in this section. Going forward, environmental performance is to be measured against this baseline, so that the impact of various initiatives can be directly assessed and tracked.

In 2006, the environmental statistics reported as part of the Swire Group companies' EHS requirements were as follows:

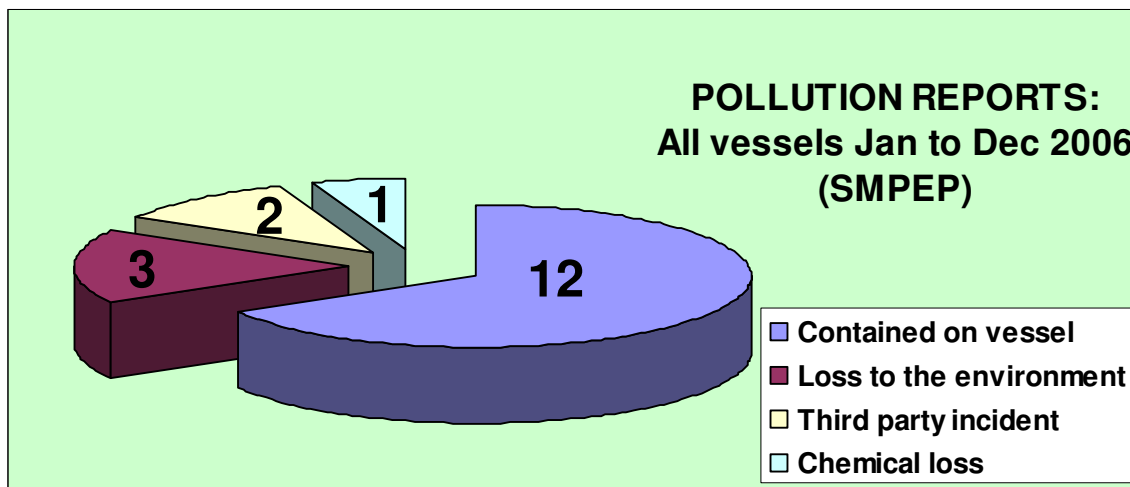
Category	Code	Sub-Category	Total 2006	Input Unit
0001G Energy and Fuel	00A03	Industrial diesel consumed	127,341,029.00	Litres (L)
	00A08	Electricity consumed	338,498.00	kWh
	00A18	Ultra-low sulphur diesel consumed (vehicles)	14,222.50	Litres (L)
0002G Water Quality	00B11	Potable water consumed (for industrial / wash process)	123,654.97	m3
0003G Materials Use	00C13	Paper and paper products consumed	2,109.20	Kg
	00C18	Paints consumed	13,753.39	Litres (L)
0004G Solid Waste Disposal	00D01	Commercial / Industrial waste disposed of	89,061.30	Kg
0005G Solid Waste Recycling	00E01	Paper cardboard recycled	1,187.70	Kg
	00E08	Printing cartridges sent for recycling / refilling	114.00	nos
0006G Chemical Waste Disposal	00F06	Waste lubrication oil disposed of	523,255.00	Litres (L)

These statistics are collated from the figures reported throughout the year from vessels in the fleet and from SPO's offices around the world. The framework for this process is through the environmental reporting function in ORBIS, the company-wide business reporting system. As part of the specific initiatives targeting the areas of concern identified in the previous section, this reporting format is revised periodically to capture information that will present a clearer picture of SPO's environmental impact.



Based on the 7 important aspects identified through the impact assessment, the statistics collected in 2006 are scaled appropriately and presented below as the baseline for each sub-category. The 2007 target goals for each sub-category are also provided against the 2006 baseline for comparison.

The pie chart shown below shows the statistical breakdown for the first 3 aspects, based on data collected in 2006.



In addition to the above, a total of 445 drills were conducted during the year in relation to these aspects. The 2007 targets for these aspects are outlined under the individual aspects below.

### 1. Hydrocarbons – Fuel Handling:

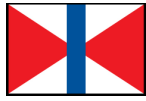
The target for this aspect in 2007, outlined in the Environment Management Manual (EMM), is to prevent all uncontrolled releases or spills.

### 2. Waste Oil / Sludge Disposal:

The 2007 target for this aspect, also outlined in the EMM, is to prevent all waste oil losses or spills.

### 3. Chemical and Material Handling:

The target for this aspect in 2007, once again outlined in the EMM, is to prevent all chemical spills.



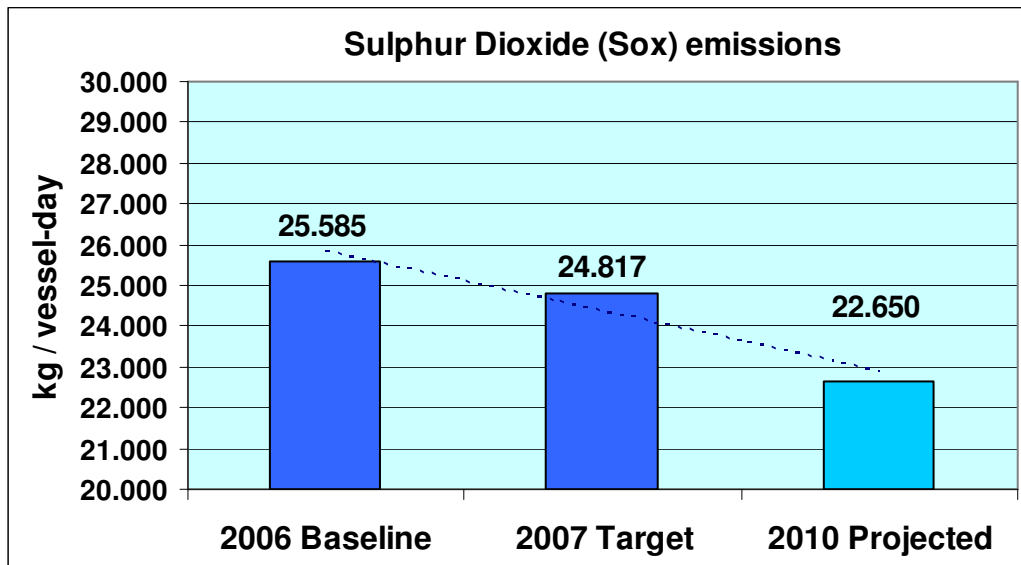
Aspects 4 and 5, referring to direct emissions, are laid out below with the baselines and targets. It should be noted that these statistics are measured **per vessel-day**, which is defined as total vessel on-hire days in 2006.

#### 4. Emissions to Air – Fugitive Emissions:

This aspect refers directly to the emission of chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs) and hydrochlorofluorocarbons (HCFCs). These were not measured until April 2007. The baseline and goals in this area will be established in 2008.

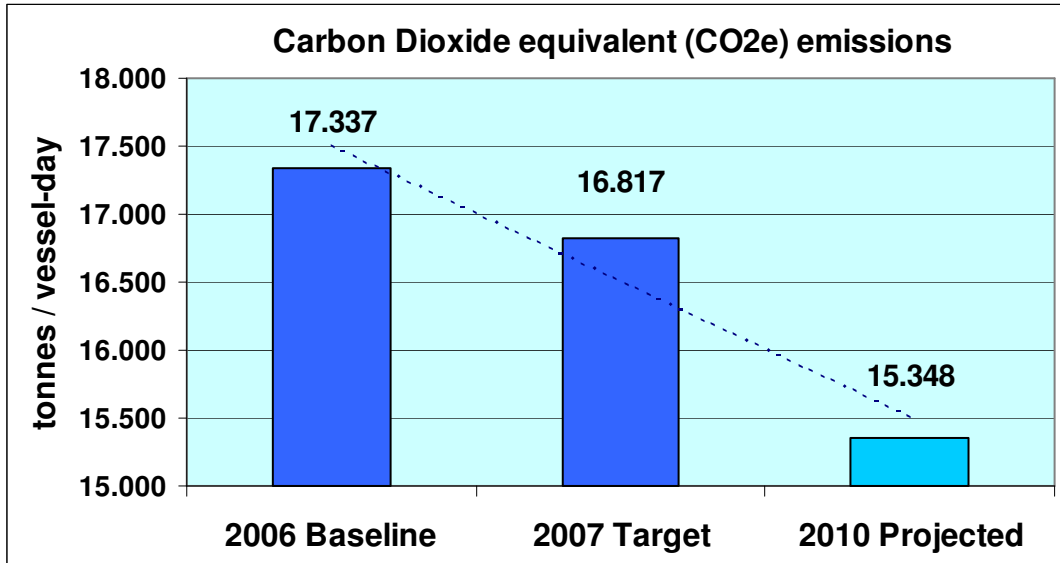
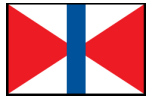
#### 5. Emissions to Air – Emissions from Combustion:

Sub-Category	2006 Baseline	2007 Target	Unit
Sulphur Dioxide (Sox) emissions	25.585	24.817	kg / vessel-day
Carbon Dioxide equivalent (CO <sub>2</sub> e) emissions	17.337	16.817	tonnes / vessel-day



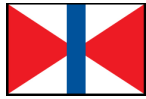
These statistics for Sox emissions were calculated from the 2006 consumption figures for diesel fuel on SPO vessels. The assumption made in these calculations is that 1 tonne of Sulphur (S) in fuel oil produces 1.9968 tonnes of Sox emissions (based on Sulphur Dioxide – SO<sub>2</sub>, which has an atomic mass of 64.1 as against the atomic mass of Sulphur, which is 32.1).

It should be noted that the sulphur content of fuel used on SPO vessels is not directly captured, but the calculations presented here are based on the guidelines issued through operational circulars. These guidelines specify a typical sulphur content of 0.2%, which is the value used here as an average for estimation.



These statistics for CO<sub>2</sub>e emissions were calculated from the 2006 consumption figures for diesel fuel and lube oil on SPO vessels. The assumption made in these calculations is that 1 litre of diesel fuel produces 0.00269304 tonnes (using 2.69304 kg/litre) of CO<sub>2</sub>e emissions, and 1 litre of lube oil disposed of contributed 0.003192 tonnes (using 3.192 kg/litre) of CO<sub>2</sub>e emissions to the atmosphere.

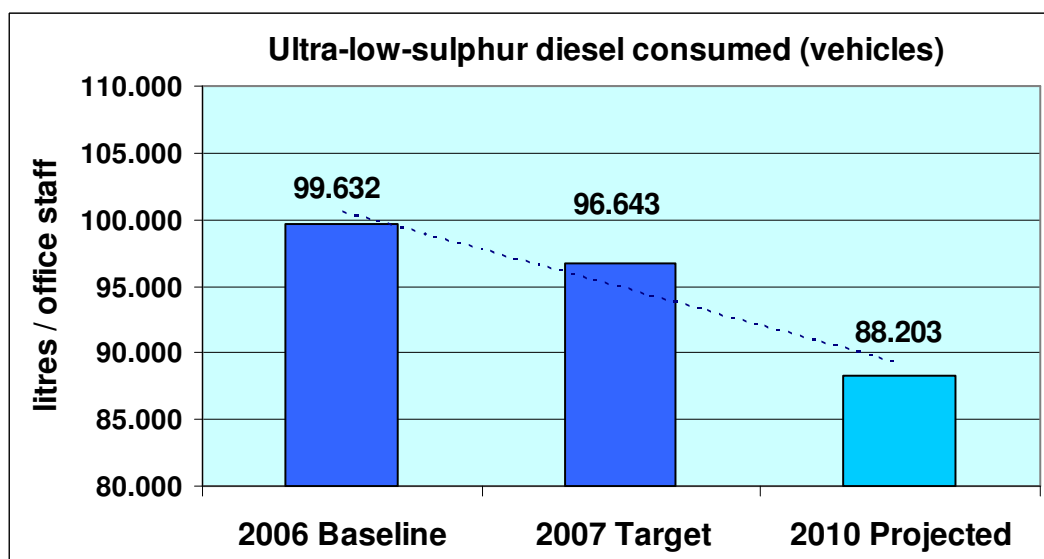
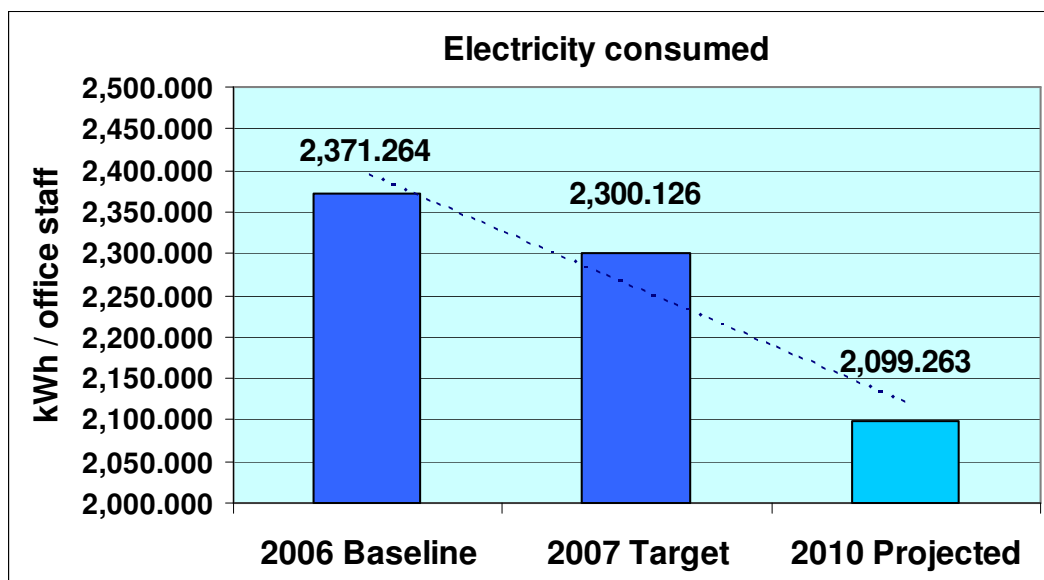
It should be noted that the CO<sub>2</sub>e emissions from SPO vessels are not directly captured, but the calculations presented here are based on a greenhouse gas emissions index which stipulates the average amounts of CO<sub>2</sub>e emissions produced from fuel oil and lube oil.



Aspects 6 and 7, referring to consumption statistics are outlined in the following pages.

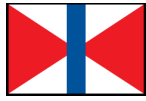
## 6. Energy – Domestic Consumption:

Sub-Category	2006 Baseline	2007 Target	Unit
Electricity consumed	2,371.26	2,300.13	kWh / office staff
Ultra-low sulphur diesel consumed (vehicles)	99.63	96.64	litres / office staff



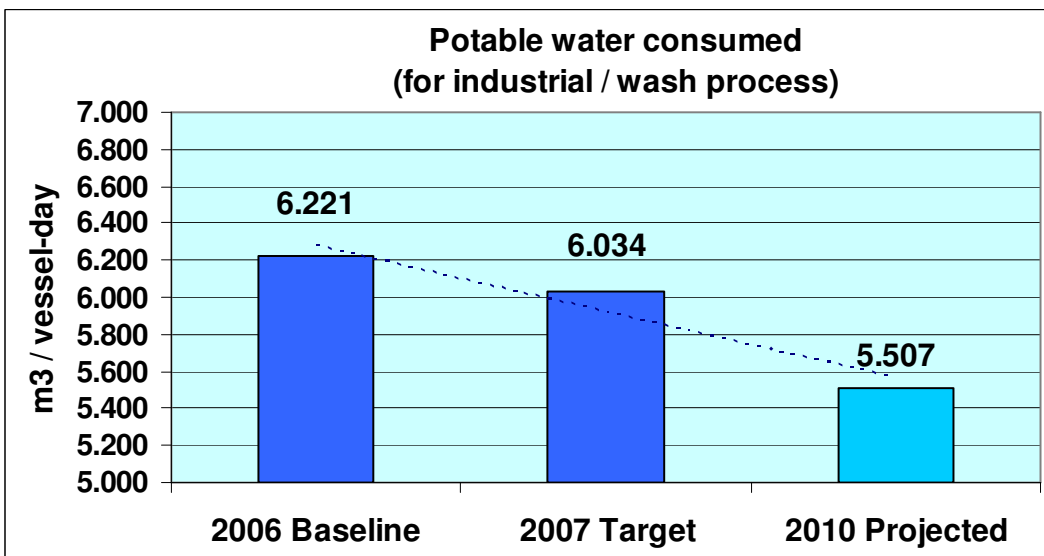
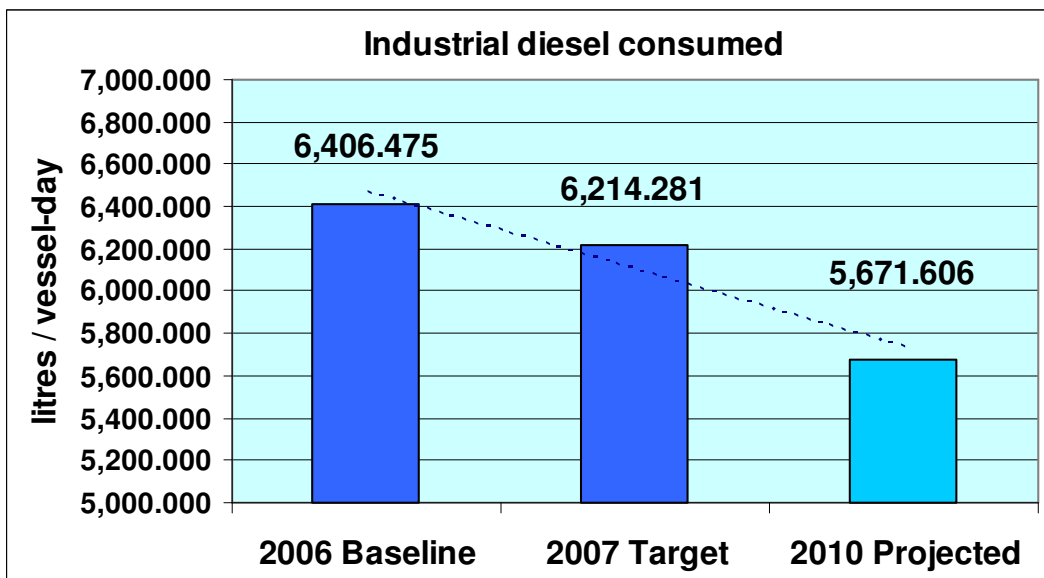
**Note:** For this aspect, the statistics are measured per office staff for comparison.

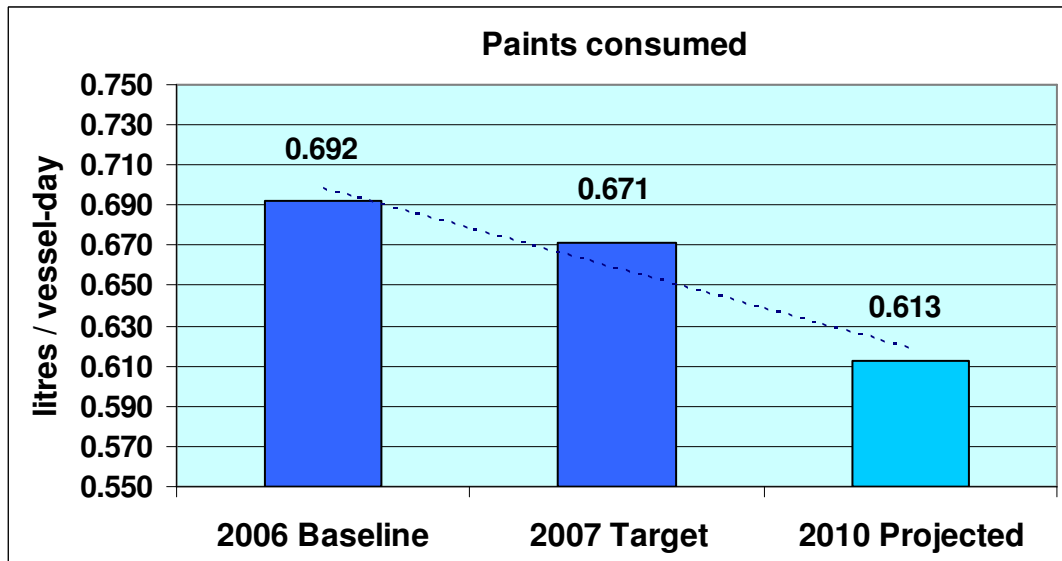
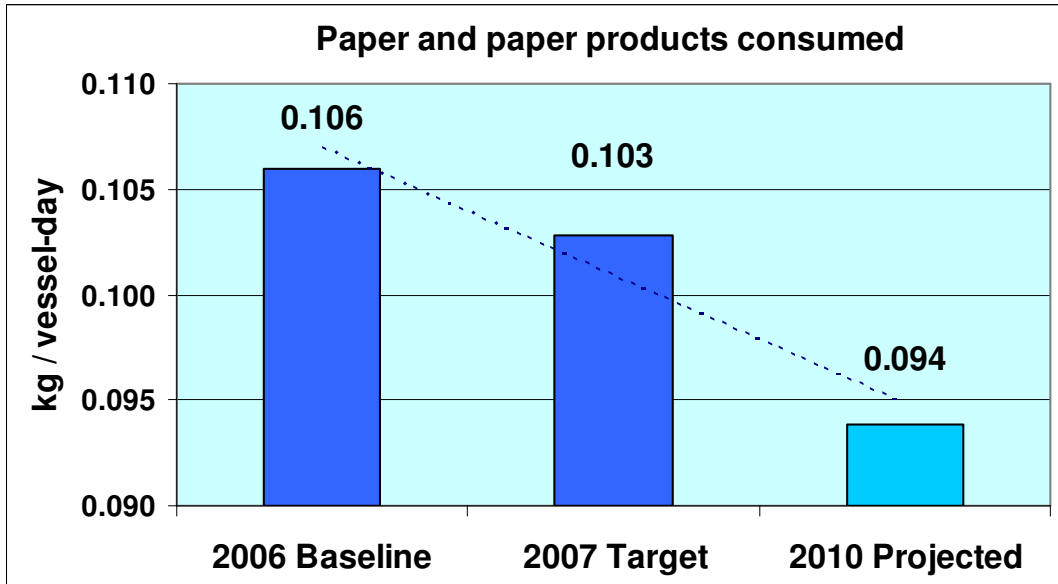


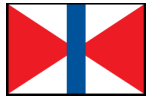


## 7. Energy – Industrial Consumption:

Sub-Category	2006 Baseline	2007 Target	Unit
Industrial diesel consumed	6,406.475	6,214.281	litres / vessel-day
Potable water consumed (for industrial / wash process)	6.221	6.034	m3 / vessel-day
Paper and paper products consumed	0.106	0.103	kg / vessel-day
Paints consumed	0.692	0.671	litres / vessel-day







## Appendix A1: Environmental Impact Assessment

In order to establish the environmental impact of Swire Pacific Offshore's business activities, a broad range of aspects were identified for assessment. These aspects are categorised as follows:

- (i) Office / Warehouse Aspects
- (ii) Travel Aspects
- (iii) Vessel Aspects
- (iv) Maintenance-Dry Docking Aspects
- (v) Charterer Aspects

An impact assessment was then carried out to determine the key aspects that merit specific attention. The methodology used in this assessment is outlined in the next section.

### A1.1 Aspect Significance Assessment Methodology

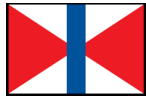
SPO uses a systematic approach to assess the impact of our operations on the environment. This approach is outlined in the Company's Environmental Management System (EMS), through incorporation into the Environment Management Manual (EMM).

The methodology revolves around identifying the aspects of our operations that directly affect the environment, the possible *consequences* of these operations and the *frequency* with which they have an impact on the environment. This is then compared against any mitigating measures that are in place, such as *operational control* (e.g.: documented procedures, relevant training, suitable equipment, etc). All of these factors are then taken into account to establish the *aspect significance*, a quantitative measure that serves as a guide to identify the aspects that merit a higher level of monitoring and improved performance.

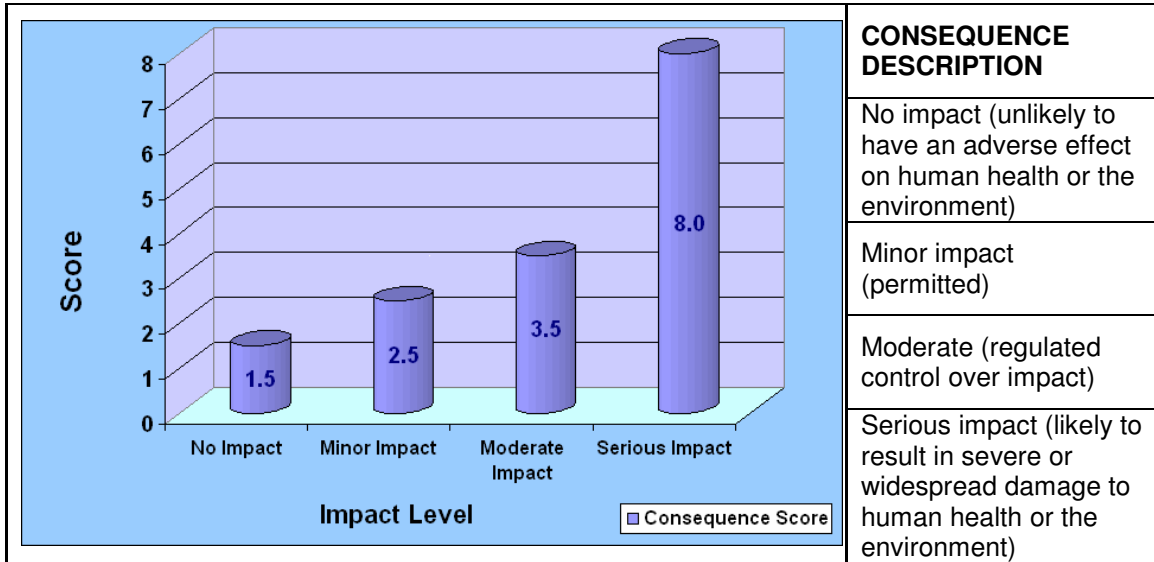
The calculation of the aspect significance is carried out based on the formula:

$$\text{Aspect Significance} = \text{Consequence (D)} \times \text{Frequency (F)} / \text{Operational Control}$$

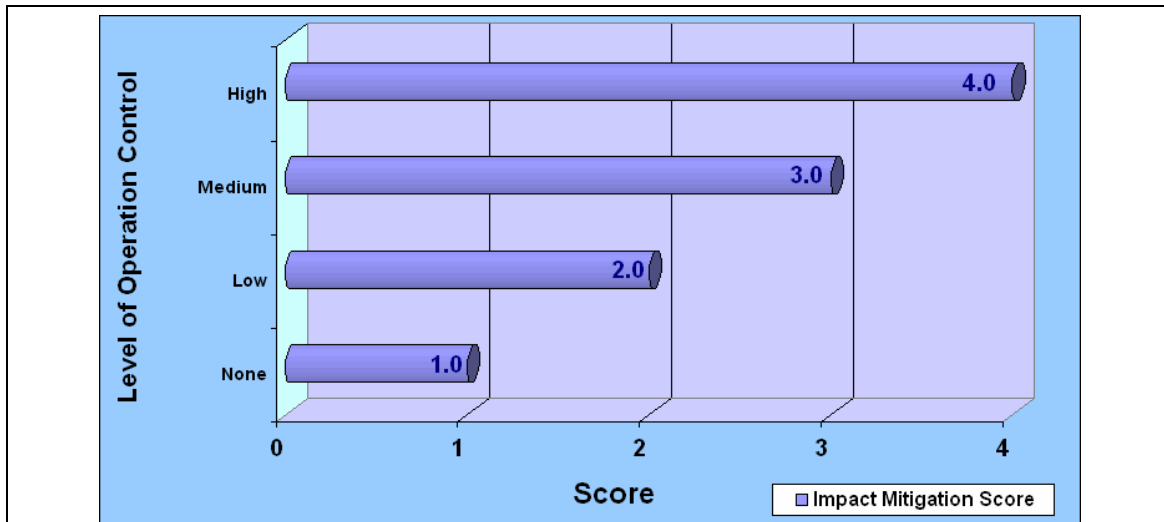
This formula is applied based on the scores assigned to each of the components, namely, *consequence*, *frequency* and *operational control*. These scores and their associated definitions are outlined in the following pages, along with graphical representations for simplicity.



**Consequence:**



**Operational Control:**



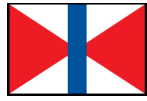
**OPERATIONAL CONTROL DESCRIPTION**

None: There is no control equipment, training or procedures

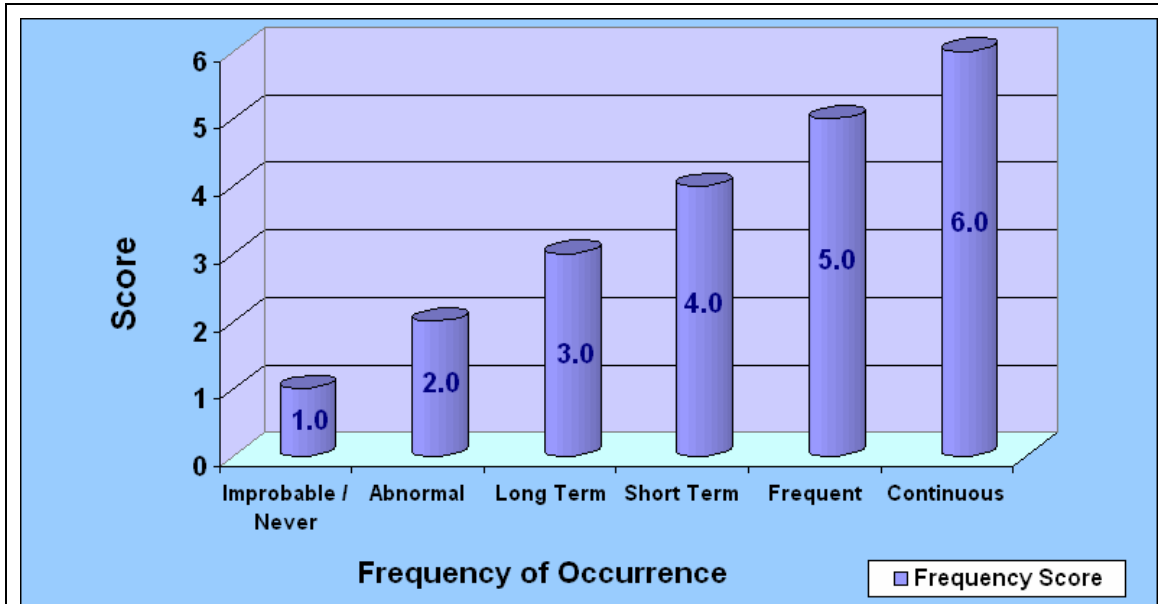
Low: There are only operational practices which are not documented

Medium: There are documented procedures or practices

High: There are controls in place and procedures where human intervention is necessary



## Frequency:



### FREQUENCY DESCRIPTION

Improbable / never. Impact has never occurred or is highly unlikely, happens once in 50 years

Abnormal: occurs in abnormal situations  
Accident, sabotage or incompetence  
Happens once every 3-5 years

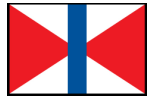
Long term: occurs once every 6 months to 3 years

Short term: Happens every 1 to 6 months

Frequent: Happens every 15 days to 1 month

Continuous: Happens on a continuous basis

Based on the tables above, the *aspect significance* is calculated and recorded for each aspect. Any aspect which records an aspect significance of **over 15.0** is considered significant.



## A1.2 Aspect Assessment Table

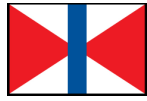
Based on the methodology outlined above, the aspects that were identified have been evaluated for their significance and impact on the environment. The aspects which returned an *aspect significance* of more than 15.0 have been highlighted in the tables below.

### A1.2.1 Office / Warehouse Aspects:

ITEM / ACTIVITY	ASPECT	CONSEQUENCE	FREQUENCY	OPERATIONAL CONTROL	ASPECT SIGNIFICANCE
Heating	Energy Consumption	3.5	6	1.25	17
Cooling	Energy Consumption	3.5	6	1.25	17
Lighting	Energy Consumption	3.5	6	1.25	17
Paper Use	Resource Depletion	2.5	6	1.25	12
Printer Cartridges	Resource Depletion	3.5	5	1.25	14
Batteries	Waste Disposal	3.5	4	1.25	11
Garbage	Waste Disposal	3.5	6	1.5	14
Office Design	Energy Consumption	3.5	2	1.5	5
Office Location	Travel	3.5	2	1.5	5
Office Location	Energy Consumption	3.5	2	1.5	5
Impact on Environment	Reduction of Natural Resource	3.5	2	1.5	5
Fresh Water Consumption	Reduction of Natural Resource	3.5	2	1.5	5
Chemical Handling / Control	Potential Pollution Hazards	8	5	1.5	27

### A1.2.2 Travel Aspects:

ITEM / ACTIVITY	ASPECT	CONSEQUENCE	FREQUENCY	OPERATIONAL CONTROL	ASPECT SIGNIFICANCE
Commuting to Work	Energy Consumption	2.5	6	1.25	12
Travel for Work	Energy Consumption	2.5	5	1.25	10
Company Cars (Fuel Efficient – Clean Fuel)	Energy Consumption	2.5	6	1.25	12
Duplication	Energy Consumption	2.5	6	1.25	12

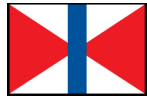


### A1.2.3 Vessel Aspects:

ITEM / ACTIVITY	ASPECT	CONSEQUENCE	FREQUENCY	OPERATIONAL CONTROL	ASPECT SIGNIFICANCE
Fuel Consumed	Energy Consumption	8	6	1.5	32
Fuel Emissions (Nox and Sox)	Air Quality – Acid Rain	8	6	1.75	27
Product Contamination	Waste of Resource	2.5	4	1.5	7
Chemical Handling / Control	Potential Pollution Hazards	8	5	1.5	27
Fuel Oil Discharge	Pollution Hazard	8	6	1.75	27
Waste Oil Disposal	Pollution Hazard	8	5	1.75	23
Waste Disposal	Pollution Hazard	2.5	6	1.75	9
Anti Fouling Toxins	Contamination of Marine Environment	3.5	6	1.5	14
Sewage Discharge	Contamination of Marine environment	3.5	6	1.75	12
Emissions – Fugitive Refrigerant	Ozone Depletion	8	4	1.75	18
Emissions from Combustion of Fuel	CO2 “Greenhouse Gas”	8	6	1.75	27
Fresh Water Consumption	Reduction of Natural Resource	2.5	6	1.25	12

### A1.2.4 Maintenance-Dry Docking Aspects:

ITEM / ACTIVITY	ASPECT	CONSEQUENCE	FREQUENCY	OPERATIONAL CONTROL	ASPECT SIGNIFICANCE
E Friendly Shipyards	Reduction of Impact	3.5	3	1.5	7
Comply with E Standards	Reduction of Impact	3.5	3	1.5	7
Use E friendly Products	Reduction of Impact	3.5	3	1.5	7
Use Recycled Products	Reduction of Impact	3.5	3	1.5	7
Clean Class Design for New Builds	Reduction of Impact	8	3	1.75	14
Replace Chemical Products with other methods	Reduction of Impact	3.5	3	1.5	7



## A1.2.5 Charterer Aspects:

ITEM / ACTIVITY	ASPECT	CONSEQUENCE	FREQUENCY	OPERATIONAL CONTROL	ASPECT SIGNIFICANCE
Establish Environmental Goals & Philosophy	Reduction of Impact	3.5	3	1.5	7
<b>Fuel Consumed</b>	<b>CO2 "Greenhouse Gas"</b>	<b>8</b>	<b>3</b>	<b>1.5</b>	<b>16</b>
Reporting	Reduction of Impact	3.5	3	1.5	7

Based on the aspect significance scores arrived at from the assessment, 7 major aspects (with an aspect significance of greater than 15.0) were identified for further action. They are as follows:

1. **Hydrocarbons – Fuel Handling**
2. **Waste Oil / Sludge Disposal**
3. **Chemical and Material Handling**
4. **Emissions to Air – Fugitive Emissions**
5. **Emissions to Air – Emissions from Combustion**
6. **Energy – Domestic Consumption**
7. **Energy – Industrial Consumption**

These aspects will form the focus of specific targeted initiatives and continuous monitoring. Each aspect is covered in detail along with plans for mitigation measures in the Environmental Aspect Register, defined in the Environment Management Manual (EMM).