

PROJECT CLEAN AIR

Certification Scheme for Clean Air Charter

Final Report

For

The China Navigation Co. Ltd. (CNCo)



Prepared by



Nov 2009

1. INTRODUCTION

Founded in 1872, the China Navigation Company Limited (CNCo) is the deep sea ship owning and operating arm of the Swire group of companies, and is wholly owned by the group's parent company, John Swire and Sons Limited. The liner shipping services are operated by CNCo's wholly-owned subsidiary, Swire Shipping Limited (SSL) serving over 130 ports worldwide, employing a mix of specialist owned and chartered vessels carrying container, bulk, break-bulk and project cargoes.

With a workforce of around 45 employees at Hong Kong office and, CNCo operates 48 vessels (45 multipurpose liners & 3 bulk carriers) and owns 19 ships 17 of which are multi purpose and 2 are Bulk carriers . Cargo volume carried by CNCo in 2007 are 216,179 TEUs that is equivalent to a total of 8,671,136 revenue tonnes.

This report outlines the findings of Business Environment Council (BEC) from a walk through audit and interview with Captain Dave Watkins, Fleet Safety, Security and Environmental Manager of CNCo.

From the pre-audit questionnaire completed by CNCo, it was determined that CNCo fits into Group C category of the certification scheme, showing that the organization has comprehensive management systems and means in place to identify and verify the implementation of energy efficiency / emission reduction programmes that are in compliance with the Clean Air Charter.

The site visit was conducted at CNCo's premises located at 9/F East Wing, Warwick House, in Quarry Bay and led by Mr Benny Au and Ms Dorothy Lam on 3rd December 2008. The purpose of this audit was to verify CNCo's commitments to the Clean Air Charter.

2. OBSERVATIONS AND COMPLIANCE

Based on the site meeting, CNCo's programmes and practices on reducing air emission were reviewed. In general, a systematic approach on addressing the Clean Air Charter's commitments has been implemented as follows:

- CNCo has Environmental Policy in place clearly describes the responsibilities of CNCo employees towards the environment and lays out CNCo's commitment to best practice environmental standards, training on environmental matters and ensuring that our ships employ the latest, most efficient technology.
- CNCo has set up Environment Committee (EC), sets policy and ensures aspirations are met, which meets quarterly, is chaired by the Managing Director and bound by the environmental policy published online. The EC comprising the Managing Director, General Manager of fleet, environmental manager, commercial manager and office manager, meets quarterly and is responsible to review the annual performance and setting up new environmental objectives and targets.
- The General Manager of the fleet, also a member of the Environment Committee, is responsible for implementing fuel saving initiatives across CNCo ships. Whereas, the 2nd officers are responsible for collecting EHS data on vessels and report back to CNCo on a monthly basis.
- On board ships, emissions are calculated by measuring the quantity of the fuel burnt in accordance with the IMO standard.
- The 33 Trade and Agency offices worldwide have designated managers who are responsible for reporting the consumption of electricity, paper usage and air-miles traveled by staff and ships crew back to CNCo head office on monthly basis.
- Both Ship management and Trade operations managers cooperate closely to ensure that the ships are operate efficiently in terms of consumption and speed.

Regarding the six commitments of the Clean Air Charter, the table below summarizes the achievements of CNCo:

Commitment	Action done
1) Operate to a recognized world class standard, or the standards established by the Hong Kong / Guangdong governments on emissions of air pollutants, even if it is not a requirement to do so here. (Relevant to industrial operations, power plants and business with direct emissions)	<ul style="list-style-type: none"> ◆ CNCo follows the standard outlined in International Maritime Organisation (IMO) MARPOL Annex VI regulation which governs emissions particularly SO_x for shipping industry. ◆ CNCo would also comply with the rules applying to Sulphur Emission Control Areas (SECAs), within which the sulphur cap will be reduced to 1% effective from 1st March 2010 and then further reduced to 0.1% effective from 1st January 2015.
2) Use continuous emissions monitors (CEMs) at significant	<ul style="list-style-type: none"> ◆ The main emission sources are from fuel burnt at ship main engines for propulsion and from the auxiliary

Commitment	Action done																								
sources, e.g. large and medium plants. (Relevant to large / medium industrial operations and power plants)	<p>engines for electricity generation.</p> <ul style="list-style-type: none"> ◆ The major air pollutant generated is CO₂, SO_x, NO_x and particulate matter. ◆ This commitment is aimed at industrial operations or power plants, hence not applicable to CNCo, given consideration that it has only office-based operation in Hong Kong, while vessel emission is governed by IMO and Marpol 																								
3) Publish information on energy and fuel use, as well as total emissions of air pollutants annually and timely, if emissions are significant.	<ul style="list-style-type: none"> ◆ CNCo publishes fuel consumption data including heavy fuel oil and marine diesel oil, along with total tonnes of CO₂, and SO_x emission in its annual Environmental Report. ◆ Energy and fuel consumption data are also recorded and discussed at the Swire Group Environmental Committee. ◆ Data comparison on various environmental performance indicators are summarized in the table below for the entire fl CNCo owned and Chartered-in <table border="1"> <thead> <tr> <th>Indicator</th> <th>2007</th> <th>2008</th> <th>Change</th> </tr> </thead> <tbody> <tr> <td>HFO Heavy Fuel Oil (tonnes)</td> <td>348,970.87</td> <td>344,122.34</td> <td>-1.39%</td> </tr> <tr> <td>MDO Marine Diesel oil</td> <td>12,205.83</td> <td>10,865.99</td> <td>-10.98%</td> </tr> <tr> <td>CO₂ Index (Intertanko Index Scale)</td> <td>18.69</td> <td>24.48</td> <td>+30.9%</td> </tr> <tr> <td>GHG Index (Intertanko Index Scale)</td> <td>/</td> <td>24.94</td> <td>/</td> </tr> <tr> <td>Total SO₂ Emission (MT)</td> <td>24,804.13</td> <td>21,812.92</td> <td>-12.1</td> </tr> </tbody> </table>	Indicator	2007	2008	Change	HFO Heavy Fuel Oil (tonnes)	348,970.87	344,122.34	-1.39%	MDO Marine Diesel oil	12,205.83	10,865.99	-10.98%	CO ₂ Index (Intertanko Index Scale)	18.69	24.48	+30.9%	GHG Index (Intertanko Index Scale)	/	24.94	/	Total SO ₂ Emission (MT)	24,804.13	21,812.92	-12.1
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4) Undertake to adopt energy-efficient measures in their operations.	<p>CNCo has implemented a number of energy-efficient measures in their operations to reduce emissions, including:</p> <ul style="list-style-type: none"> ◆ In 2007, a new lubrication system has been fitted to the “Pacific Voyager” that it created a 30% saving on lube oil consumed for the ship and subsequently reduced CO₂ emission by 816 tonnes annually. The system will be installed across CNCo’s Challenger types as they service dry docking. 																								

Commitment	Action done
	<ul style="list-style-type: none"> ◆ CNCo has been adopting anti-fouling paint system since 2007, which has produced 3.5% fuel saving and an increase in speed of 0.5 knots at an equivalent engine load. Approximate 1,500 tonnes of CO₂ saving annually was estimated.  <ul style="list-style-type: none"> ◆ Box Cap Fin is modified propeller cones with some propeller blades which use propeller wakes to impart energy adding to the propeller thrust. The efficiency improvement is about 4% which reduces CO₂ emission by 870 tonnes per ship per year. 

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	<ul style="list-style-type: none"> ◆ In 2008, CNCo installed wake ducts, which improve the water flow across the propeller thereby reducing the difference in pressure across the blades as they pass the stern frame, to four D-class vessels following their dockings and estimated to have saved 2,534 tonnes of fuel per year that equivalent to a CO₂ emission reduction of about 7,890 tonnes.  <ul style="list-style-type: none"> ◆ In 2007, a fuel efficiency monitoring system has been fitted to two ships, the "Pacific Vogager" and the "Pacific Java". This system combining extremely accurate fuel flow meters with other readings, can measure the effect of few factors on fuel consumption and thereby enable the master to make judgment on optimal speed. 

Commitment	Action done
5) Identify and encourage business-relevant measures to be taken on days when air pollution index is high.	CNCo will consider sending notice through email and intranet to encourage staff to take public transport and to use less electricity at home and at work when the outdoor air pollution is high.
6) Share air quality expertise in business with others.	<ul style="list-style-type: none"> ◆ CNCo was awarded the Green Flag Award by the Port of Long Beach, California. ◆ CNCo won a commendation for Addressing Sectoral Issues' in 2008 ACCA Hong Kong Awards for Sustainable reporting. ◆ CNCo was one of five finalists (one of only two shipping companies) in the 2008 Lloyds List Asia awards for Achievement in Safety and Environmental Protection ◆ CNCo was nominated an Earth Champion in the 2008 Hong Kong Earth Champions Quest. ◆ CNCo was awarded a certificate of Merit- Transport and Logistics in the 2008 HK Awards for Environmental Excellence (HKAEE) ◆ CNCo communicates its environmental achievement through Swire Marine News which publishes 2-3 times a year. ◆ CNCo also actively engages with stakeholders through speaking at public forums arranged by industry associated NGOs, as well as at seminars and industry events. ◆ CNCo are participating in the Hong Kong University of Science and Technology's Marine Vessels Emissions Inventory to gauge the emissions given of in HK waters and adjacent shorelines.

3. CONCLUSION

The China Navigation Co. Ltd. has demonstrated their commitments towards the Clean Air Charter's commitments and is recommended to be certified under the Clean Air Charter.