MONITORING REPORT FOR GOLD STANDARD VPA UNDER PROGRAMME OF ACTIVITIES	
Title of the PoA to which the VPA is included	**P**rogramme for the application of **a**dvanced **h**ull coatings to reduce **s**hipping **f**uel consumption (PAHSF) GS 3492
Title of the VPA	PAHSF Project 1 GS 2767
Version number of the VPA-Monitoring Report	6
Registration date	14/08/2015
Retroactive crediting start date	14/08/2013
Monitoring period covered	From 14/08/2013 up to 30/6/2015
Completion date of the VPA- Monitoring Report	21/01/2016
Estimated amount of GHG emission reductions for first monitoring period	126785 tCO_2

With respect to the Monitoring Report, the Gold Standard Toolkit, p. 72 states:

"There is no specified format, but should include the following:"

- Monitoring table from your PDD and Passport;
- Data entry sheets of self-monitored parameters;
- Remarks on the monitoring process used;
- Current status of your parameters in the table;
- Other data sources to substantiate your claims;

With respect to the first two items listed above, we consider the monitoring for emissions reduction and sustainability separately, as detailed below.

Monitoring emissions reduction as indicated in VPA DD

Crediting period start and end dates

VPA DD, Section D.7.2 stated:

"Data in the project period should cover the entire docking cycle following the application of the advanced hull coating. Data for each monitoring and reporting period (for the purpose of claiming carbon credits) could be a fixed period for all ships, e.g. a calendar year, and would cover project data as noted above. However, the monitoring and reporting period for each ship for carbon credit purposes ends at the end of the docking cycle, when the hull of that ship is recoated.

"Data should be recorded for the entire docking cycle following the application of the advanced hull coating. Data should be stored for at least two years following the end of the crediting period or last issuance of VERs."

The project is in a retroactive project cycle, starting two years before the registration date[1]. The monitoring period covered in this Monitoring Report ends on 30/06/2015. The monitoring period is inclusive of both the start (14/08/2013) and end (30/06/2015) dates. For the 16 ships in VPA-1, the following table lists one ([redacted]) which caught fire in May 2015 and another (Argenta) whose docking cycle ended in February 2015, so that the monitoring period for these ships ends earlier. Lastly, one vessel ([redacted]) has been removed from VPA 1 for reasons explained in more detail in the corresponding footnote below the table.

Table 1. Ship Identification (IMO numbers), ship name and if docking cycle ended before end of monitoring period

	Ship Id: IMO number/ classification number	**Ship name**	**End of docking cycle before 30/06/2015**
Shipping company: [redacted][2]			
1	9xxxx14/ 86366	[redacted]	Not included in VPA
2	9xxxx52 86375		No
3	9xxxx40 86374		No
4	9xxxx68 86377		No
5	9xxxx56 86376		No
6	9xxxx70 86378		No
7	9xxxx76 82973		No

[1] As per GS v2.2 Toolkit, sec 1.2.6 "Project Timeframe"

[2] Including [redacted]

[3] The initial list in VPA DD version 1 included this ship. Data for this ship does not meet the requirements for the revised Gold Standard methodology, as approved by e-mail by Gold Standard on 9 Sep. 2014. Hence this ship is not included in this version. However, in order not to change the serial numbers, the row is not deleted.

8	9 xxxx 88 82974	[redacted]	Not included in VPA
9	9 xxxx 90 83199		No
10	9 xxxx 54 79707		No
11	9 xxxx 12 79832		Ship burnt in May 2015
12	9 xxxx 64 71590		No
13	9 xxxx 52 71589		No
14	9 xxxx 02 74845		No
15	9 xxxx 93 74599		No
16	9 xxxx 68 88032		No
17	9 xxxx 63 88027		No
Shipping company: Lykiardopoulo & Co[5]			
18	9289726	Argenta	08/02/2015

Emissions Reduction

As noted in VPA DD, Sec. D.6.1:

The fuel savings for each day of ship operation following the application of the advanced hull coating are determined as specified in the methodology:

> *"Note that project fuel consumption together with average speed is measured and recorded on a daily basis for "Noonday" data or per-voyage (or a combination of the two). The relationship between baseline power and average speed (or adjusted speed) is determined using regression analysis of baseline data of daily power (or voyage power) and average speed (or adjusted speed), except for days (voyages) in which the measured ship speed is outside the range of validity, as explained above. This relationship, combined with measured daily (or voyage) average speed in the project scenario, i.e. with the advanced hull coating, is used to estimate baseline fuel consumption for each day (or voyage) in the project scenario."*

[4] Although the initial list in VPA DD version 5 included this ship, at this time [redacted] will be removed from VPA #1. The original ER analysis and calculations were carried out in line with the methodology (using the 'd' variable) and the results were reasonable in our opinion, with the energy savings being in line with the levels shown in public literature. However, in carrying out the reanalysis in line with the latest GS guidance received in Dec., 2015 and detailed below, we have struggled to be able to fully understand or interpret the results for the vessel datasets at this time. Based on AkzoNobel's desire to maintain a high overall level of integrity for this first project, and to avoid any errors or further delays in the submission, we have elected to remove this vessel from VPA #1.

[5] "**Lykiardopoulo** is a shipping company founded in Kefalonia… The company still operates from UK and from Greece as *Neda Maritime Agency Co. Ltd."* (http://en.wikipedia.org/wiki/Lykiardopoulo)

"Fuel savings are determined as the difference between estimated baseline fuel use and actual project fuel use for each valid day/voyage of project voyages. Valid data may exclude stormy and incomplete days/voyages, as well as days/voyages with anomalous data, following the same rules as were used to filter data in the baseline period. The process is illustrated in the table below. The data columns shown in italics are determined by calculation. The shaded row indicates a day excluded by the filters (i.e. stormy, incomplete or with anomalous data)."

Date/Voyage	Project power of all ship engines, measured	Average speed over ground, V (or average adjusted speed, AV)	Vessel condition, L, = 0 for ballast, 1 for loaded	*Baseline power, from regression*	*Fuel savings, (Baseline power less Project power) X 24 hours (for daily data), or X voyage duration (voyage data)*
1					
2					
3					

For each ship, data such as that shown in the table above should be recorded. Once fuel savings have been estimated for each day, total savings may be determined by summing over the days in each year.

As per VPA DD, Section D.7.1, the following data parameters should be monitored and recorded, for ships that record "Noonday" data:

Calendar date
Daily distance (nautical miles)
Daily steaming time (hours)
Average daily speed through water since last daily record
Sea state (Beaufort scale)
Vessel condition (Loading condition of ship at the time of data recording - Ballast/Loaded, or displacement)
Fuel consumption of the main engine since last daily record
Daily fuel consumption of the auxiliary engine(s) since last daily record

For ships that record "Voyage" data, the following parameters should be monitored and recorded:

Date of voyage start and end

Distance between departure port and arrival port (nautical miles)
Voyage time (Hours of navigation between departure and arrival ports)
Average navigation speed during voyage
Sea state (Beaufort scale)
Vessel condition (Loading condition of ship at the time of data recording - Ballast/Loaded, or displacement)
Fuel consumption of the auxiliary engine(s) for navigation part of voyage (tonnes)
Fuel consumption of the main engine for navigation part of voyage (tonnes)

Further, as noted in VPA DD, Section D.7.2:

> *"Monitoring data, shown in tables in previous pages, covering both baseline and project periods, are best recorded and analyzed in Excel workbooks."*

An example was given in the file "[redacted] analysis_19oct14.xlsx", attached to the VPA-DD. For this Monitoring Report, the spreadsheet was updated with more recent data in "[redacted] analysis_31aug15final.xlsx"[6]. A selection of monitored data is shown in the table below.

Data recorded include:

Table 2. Relevant monitoring parameters, as recorded in the data logs of the ship "[redacted]"
Source: "[redacted] analysis_31aug15final.xlsx", sheet "[redacted] voy 01-13 (2)"

Data parameter (as per VPA DD, Section D.7.1, for Voyage data)	**Column heading as recorded**	**Data used in calculation?**
Voyage number	Nr. Viaggio	No
Departure date	DATE DEP.	Yes
Departure port	Porto DEP.	No
Time leaving port	STBY	No
Time start navigation	FWE	Yes
Arrival date	DATE ARR'L.	Yes
Arrival port	Port ARR'L.	No
Time end navigation	EOSP	Yes
Time ship arrives at port	FWE	No
Fuel consumption in navigation	Cons. Nav.M/E (HFO)	Yes
Fuel consumption at port and for manoeuvres	Cons. Port. & Maneuvr. (M/E-D/G-BLR)	No
Navigation time	NAV. Hour	No (determined from departure and arrival times)
Average speed	SPEED (KNOTS)	No (determined from distance and navigation time)
Voyage distance	DIST. (MILES)	Yes
Weather condition[7]	WEATHER CONDITION	Yes

[6] Note that the file names cited in the two tables below correspond to the version of the Excel file submitted with the initial version of the Monitoring Report. The content of the two tables however does not change.

[7] This parameter is not shown in table below, for question of space. For the same reason, a number of columns with data not needed have been hidden in table below.

Note that this ship records Voyage data. The methodology allows for data to be “Noonday” or “Voyage”.

Table 3. Screenshot of monitoring data sheet for a number of voyages for the ship "[redacted]"
(Source: "[redacted] analysis_31aug15final.xlsx", sheet "[redacted] voy 01-13 (2)")

	A	B	C	D	E	F	G	H	I	J	M	N	O	P	Q	AD	AE	AF
13	Nr. Viaggio	DATE DEP.	Porto DEP.	STBY	FWE	DATE ARR'L.	Port ARR'L.	EOSP	FWE	Cons. Nav.M /E	Cons. Port. & Maneuvr. (M/E-D/G-BLR)					NAV. Hour	SPEED (KNOTS)	DIST. (MILES)
14											PORT G.O. 0,1%		MANEUVR.					
15										HFO	D/G	BLR	M/E F.O.	D/G F.O.	BLR. G.O.			
1045	VOY.51/13	16/12/2013	MALTA	21:36	21:54	17/12/2013	CATANIA	3:30	04:18	12.9	0.9	0.6	0.6	0.6		4.90	22.2	109
1046	VOY.51/13	17/12/2013	CATANIA	11:24	11:42	18/12/2013	GENOA	15:06	15:54	60.5	4.3	0.6	0.6	0.6		27.40	19.6	538
1047	VOY.51/13	18/12/2013	GENOA	0:00	0:36	19/12/2013	LIVORNO	5:42	06:42	8.4	0.8	0.6	0.6	0.6		5.10	15.9	81
1048	VOY.51/13	19/12/2013	LIVORNO	12:42	13:24	20/12/2013	CATANIA	14:42	15:18	60.3	3.9	0.6	0.6	0.6		25.30	18.5	467
1049	VOY.51/13	20/12/2013	CATANIA	22:18	22:36	21/12/2013	MALTA	5:00	05:36	9.6	1	0.6	0.6	0.6		6.40	17.0	109
1050	VOY.51/13	21/12/2013	MALTA	11:54	12:12	21/12/2013	CATANIA	17:42	18:24	12.5	1	0.6	0.6	0.6		5.50	19.8	109
1051	VOY.51/13	22/12/2013	CATANIA	0:30	0:48	23/12/2013	LIVORNO	4:12	05:12	41.3	4.6	0.6	0.6	0.6		27.40	17.0	467
1052	VOY.51/13	23/12/2013	LIVORNO	10:12	11:00	23/12/2013	GENOA	15:00	15:48	8.4	0.6	0.6	0.6	0.6		4.00	20.3	81
1053	VOY.50/13	09/12/2013	GENOA	23:30	0:06	10/12/2013	LIVORNO	5:00	06:30	8.3	0.6	0.6	0.6	0.6		4.90	16.5	81
1054	VOY.50/13	10/12/2013	LIVORNO	12:06	12:54	11/12/2013	CATANIA	13:48	14:24	49.9	3.8	0.6	0.6	0.6		24.90	18.8	467
1055	VOY.50/13	11/12/2013	CATANIA	21:12	21:30	12/12/2013	MALTA	3:54	04:30	10.5	1	0.6	0.6	0.6		6.40	17.0	109
1056	VOY.50/13	12/12/2013	MALTA	12:48	13:12	12/12/2013	CATANIA	19:30	21:18	10.6	1	0.6	0.6	0.6		7.30	14.9	109
1057	VOY.50/13	13/12/2013	CATANIA	5:00	5:24	14/12/2013	GENOA	9:00	09:48	63.1	4.1	0.6	0.6	0.6		27.60	19.5	538
1058	VOY.50/13	14/12/2013	GENOA	22:18	22:54	16/12/2013	CATANIA	3:18	04:12	64.4	4.9	0.6	0.6	0.6		28.40	18.9	538
1059	VOY.50/13	16/12/2013	CATANIA	6:36	7:00	16/12/2013	MALTA	12:30	13:06	14.2	1	0.6	0.6	0.6		6.10	17.9	109
1060	VOY.52/14	11/01/2014	GENOA	18:30	19:00	13/01/2014	CATANIA	0:00	00:42	68.7	1.2	0.4	0.6	0.6		28.00	19.1	536
1061	VOY.52/14	13/01/2014	CATANIA	3:18	3:36	13/01/2014	MALTA	9:06	09:48	12.2	0.7	0.3	0.6	0.6		5.50	19.8	109
1062	VOY.02/14	13/01/2014	MALTA	19:06	19:24	14/01/2014	CATANIA	1:00	01:36	12.5	1.5	0.9	0.6	0.6		5.60	19.5	109
1063	VOY.02/14	14/01/2014	CATANIA	10:24	10:48	15/01/2014	GENOA	14:12	15:06	63.4	0.7	0.3	0.6	0.6		27.40	19.7	540
1064	VOY.02/14	16/01/2014	GENOA	0:42	1:18	16/01/2014	LIVORNO	5:30	07:00	9.8	1.1	0.4	0.6	0.6		4.20	19.3	81
1065	VOY.02/14	16/01/2014	LIVORNO	13:36	14:36	17/01/2014	CATANIA	15:24	15:54	57.9	0.7	0.3	0.6	0.6		24.80	18.8	466
1066	VOY.02/14	17/01/2014	CATANIA	22:18	22:42	18/01/2014	MALTA	5:00	05:42	11.1	0.7	0.3	0.6	0.6		6.30	17.3	109
1067	VOY.02/14	18/01/2014	MALTA	13:06	13:30	18/01/2014	CATANIA	19:06	19:36	12.3	0.9	0.7	0.6	0.6		5.40	20.2	109
1068	VOY.02/14	19/01/2014	CATANIA	2:54	3:12	20/01/2014	GENOA	10:00	10:48	56.4	0.9	0.5	0.6	0.6		30.80	17.4	536
1069	VOY.04/14	27/01/2014	MALTA	20:06	20:30	28/01/2014	CATANIA	2:06	02:36	12.2	1.4	0.7	0.6	0.6		5.60	19.5	109
1070	VOY.04/14	28/01/2014	CATANIA	9:42	10:00	29/01/2014	GENOA	13:54	15:36	66.7	1.2	0.5	0.6	0.6		27.90	19.2	536
1071	VOY.04/14	29/01/2014	GENOA	23:30	0:12	30/01/2014	LIVORNO	5:06	06:06	10.4	1.4	0.8	0.6	0.6		4.90	16.5	81

For each voyage during the *project* period (each row of data recorded above), the following parameters were calculated:

- Days from project coating (D)
- Voyage time (hours)
- Average speed (V, knots), calculated as "Voyage distance/Voyage time"
- Total energy use (GJ), calculated from fuel consumption (tonnes of HFO) and lower heating value of fuel.
- Average power (P, GJ/h), calculated as "Total energy use/Voyage time"

The *baseline* power consumption for each voyage recorded above is determined using the regression analysis relating ship power consumption ($P_{Baseline}$, GJ/h) and two determining parameters: D (days from application of *baseline* coating) and V (average speed, knots).

From the baseline data for this ship, the regression coefficients determined initially are shown in Table 4. Note that, following Gold Standard Issuance Review, the values for this ship changed, as well as the file name, as noted above. However, Tables 4 and 5, and associated text remain illustrative of the procedures where there are two explanatory variables, D and ln V.

Table 4. Regression coefficients obtained from baseline data of [redacted].
Source: Sheet "Reg_18oct14" of "[redacted] analysis_19oct14.xlsx" and "[redacted] analysis_31aug15final.xlsx"

Intercept	-1.56118
D	0.000645
ln V	2.044858

This means that, for the baseline period, ship power ($P_{Baseline}$, GJ/h) is best determined in terms of the days since baseline coating application (D) and the average ship speed (V) by the following

$$\ln P_{Baseline} = -1.56118 + 0.000645\ (D) + 2.044858\ (\ln V)$$

For each Voyage in the Project period, the Baseline power corresponding to the D and V for the voyage is determined using the equation above. Voyages for which the ship speed is outside the range of values used for the baseline data analysis are excluded[8]. For valid Voyages, baseline and project power are compared to determine energy savings. Multiplying the savings by the emissions factor for the fuel in question allows a determination of emissions reduction. The calculation procedure is illustrated in the table below for the same voyages of this ship as recorded in Table 3, above. Note that only one voyage in this set was excluded since ship speed was out of range (shown as "FALSE" below).

The energy savings and emissions reduction per voyage can be summed over the dates covered by the monitoring period to get the totals.

[8] A logical test is undertaken, with result TRUE if the ship speed is above the lower limit (or below the upper limit) and FALSE otherwise.

Table 5. Calculation procedure for determining energy savings and emissions reduction illustrated for a number of voyages in the ship "[redacted]"

(Source: "[redacted] analysis_31aug15final.xlsx", sheet "Project (2)")

Year	Month	Date	Voyage	Days from advanced coating	Voyage time	Average speed 2: dist/time	Total energy, LCV	Speed out of range		Ln V	ln P (baseline)	P (baseline)	Energy (baseline)	Energy saving	Emissions reduction
					hours	Knots	GJ	Low	High		GJ/h	GJ	GJ	GJ	tCO_2
2013	12	16	VOY.51/13	478	5.6	19.5	521.2	TRUE	TRUE	2.968581	4.82	123.7	692.6	171.4	13.3
2013	12	17	VOY.51/13	479	27.4	19.6	2444.2	TRUE	TRUE	2.977316	4.84	126.0	3451.9	1007.7	78.0
2013	12	18	VOY.51/13	480	5.1	15.9	339.4	TRUE	TRUE	2.765209	4.40	81.7	416.7	77.3	6.0
2013	12	19	VOY.51/13	481	25.3	18.5	2436.1	TRUE	TRUE	2.915525	4.71	111.2	2812.7	376.5	29.1
2013	12	20	VOY.51/13	482	6.4	17.0	387.8	TRUE	TRUE	2.83505	4.55	94.4	603.9	216.1	16.7
2013	12	21	VOY.51/13	483	5.5	19.8	505.0	TRUE	TRUE	2.9866	4.86	128.7	708.0	203.0	15.7
2013	12	22	VOY.51/13	484	27.4	17.0	1668.5	TRUE	TRUE	2.835786	4.55	94.6	2592.8	924.3	71.5
2013	12	23	VOY.51/13	485	4.0	20.3	339.4	TRUE	TRUE	3.008155	4.90	134.7	538.8	199.5	15.4
2013	12	9	VOY.50/13	471	4.9	16.5	335.3	TRUE	TRUE	2.805214	4.48	88.2	431.9	96.6	7.5
2013	12	10	VOY.50/13	472	24.9	18.8	2016.0	TRUE	TRUE	2.931461	4.74	114.2	2843.3	827.4	64.0
2013	12	11	VOY.50/13	473	6.4	17.0	424.2	TRUE	TRUE	2.83505	4.54	93.8	600.4	176.2	13.6
2013	12	12	VOY.50/13	474	6.3	17.3	428.2	TRUE	TRUE	2.850798	4.57	97.0	610.8	182.6	14.1
2013	12	13	VOY.50/13	475	27.6	19.5	2549.2	TRUE	TRUE	2.970043	4.82	123.8	3417.0	867.7	67.2
2013	12	14	VOY.50/13	476	28.4	18.9	2601.8	TRUE	TRUE	2.941469	4.76	116.9	3318.6	716.8	55.5
2013	12	16	VOY.50/13	478	5.5	19.8	573.7	TRUE	TRUE	2.9866	4.85	128.3	705.7	132.1	10.2
2014	1	11	VOY.52/14	504	53.0	10.1	2775.5	FALSE	TRUE	2.313842	3.50				
2014	1	13	VOY.52/14	506	5.5	19.8	492.9	TRUE	TRUE	2.9866	4.87	130.7	718.6	225.7	17.5
2014	1	13	VOY.02/14	506	5.6	19.5	505.0	TRUE	TRUE	2.968581	4.84	125.9	705.2	200.2	15.5
2014	1	14	VOY.02/14	507	27.4	19.7	2561.4	TRUE	TRUE	2.981026	4.86	129.3	3541.6	980.3	75.9
2014	1	16	VOY.02/14	509	4.2	19.3	395.9	TRUE	TRUE	2.959365	4.82	123.8	520.0	124.1	9.6
2014	1	16	VOY.02/14	509	24.8	18.8	2339.2	TRUE	TRUE	2.933342	4.77	117.4	2911.5	572.4	44.3
2014	1	17	VOY.02/14	510	6.3	17.3	448.4	TRUE	TRUE	2.850798	4.60	99.2	625.2	176.7	13.7
2014	1	18	VOY.02/14	511	5.6	19.5	496.9	TRUE	TRUE	2.968581	4.84	126.3	707.5	210.6	16.3
2014	1	19	VOY.02/14	512	30.8	17.4	2278.6	TRUE	TRUE	2.856619	4.61	100.5	3096.9	818.3	63.3
2014	1	27	VOY.04/14	520	5.6	19.5	492.9	TRUE	TRUE	2.968581	4.84	127.1	711.6	218.7	16.9
2014	1	28	VOY.04/14	521	27.9	19.2	2694.7	TRUE	TRUE	2.955507	4.82	123.8	3454.0	759.3	58.8
2014	1	29	VOY.04/14	522	4.9	16.5	420.2	TRUE	TRUE	2.805214	4.51	91.1	446.4	26.2	2.0

Table 3 and Table 5 illustrate the data analysis procedure for a *few voyages* for this ship. In each case, the complete analysis involves an entire sheet of the Excel workbook, of several hundred rows: over 1500 rows for the sheet ([redacted] voy 01-13 (2)) corresponding to Table 3 and almost 1000 rows for the sheet (Project (2)) corresponding to Table 5. It is not practical to copy the entire sheets for each ship.

One of the ships (Argenta) uses noonday data rather than voyage data. For this the monitoring parameters are somewhat different and shown in Table 6.

Table 6. Relevant monitoring parameters, as recorded in the data logs of the ship "Argenta"
Source: "Argenta analysis 20jan16.xls", sheet "Post Data (2)"

Data parameter (as per VPA DD, Section D.7.1, for "Noonday data"	**Column heading as recorded**	**Data used in calculation?**
Calendar date	Date	No
Daily distance (nautical miles)	Miles since last noon report	No
Daily steaming time (hours)	Voyage hours	Yes, to filter values below 23
Average daily speed through water since last daily record	Speed avg last 24h	Yes
Sea state (Beaufort scale)	Sea state	Yes, to filter values above 6
Vessel condition (Loading condition of ship at the time of data recording - Ballast/Loaded, or displacement)	(not recorded)	No
Fuel consumption of the main engine since last daily record	Actual daily FOC	Yes
Daily fuel consumption of the auxiliary engine(s) since last daily record	No record	No

The monitoring of emissions reductions requires one Excel workbook of this type for each ship included in the VPA.

Basic data including IMO no, hull coating in previous docking cycle, advanced hull coating applied, key dates, ship log data, and all data cleaning and processing *for each ship* is provided as an Excel book. The table below lists the Excel file names as submitted with the VPA DD for validation, as well as file names with updated information for the monitoring report prior to Gold Standard Issuance Review.

At the time of issuance review, Gold Standard questioned some of the results on energy savings and emissions reduction, in particular for ships where the D coefficient was used in the regression. For the five ships this coefficient does not appear in the regression: [redacted], Argenta, [redacted]. See Table 8, column "D coeff positive and well determined?": these ships are highlighted with the answer "No".

Table 7. Excel file names for data recording and analysis, for each ship in VPA, prior to GS Issuance Review in Dec. 2015.

	Ship Id: IMO no.	Ship name	Excel file name as submitted with validation (all are .xlsx)	Excel file name with updated information (Nov. 2015) (all are .xlsx or xls)
	Shipping co.	[redacted]		
1	9xxxx14/ 86366		[Eliminated from list[10]]	[redacted]
2	9xxxx52 86375			
3	9xxxx40 86374			
4	9xxxx68 86377			
5	9xxxx56 86376			
6	9xxxx70 86378			
7	9xxxx76 82973			
8	9 xxxx 88 82974			
9	9 xxxx 90 83199			
10	9 xxxx 54 79707			
11	9 xxxx 12 79832			
12	9 xxxx 64 71590			
13	9 xxxx 52 71589			

[9] [redacted]

[10] The initial list in VPA DD version 1 included this ship. Excluded in later versions, and from the project.

[11] This vessel has been removed from VPA 1, as noted earlier.

14	9 xxxx 02 74845	[redacted]		
15	9 xxxx 93 74599			
16	9 xxxx 68 88032			
17	9 xxxx 63 88027			
	Shipping co.	**Lykiardopoulo & Co**[12]		
18	9289726	Argenta	Argenta analysis 19oct14	Argenta analysis 29sep15.xls

[12] **"Lykiardopoulo** is a shipping company founded in Kefalonia… The company still operates from UK and from Greece as *Neda Maritime Agency Co. Ltd."* (http://en.wikipedia.org/wiki/Lykiardopoulo)

As noted in the VPA DD,

> "*For 11 ships in the VPA ([redacted], and Argenta) navigation fuel consumption was separately recorded. For six ships ([redacted], and [redacted]) only total fuel consumption data were available. The type of data available is summarised in sheet "Reg results" of file "VPA_1 Reg results and ER 25aug15.xlsx"*,"

The regression results for the ships are summarised in the table below, separating the 11 ships where navigation fuel consumption was recorded separately from the 6 where it was not. The table below is based on the sheet *"Reg results" of file "VPA_1 Reg results and ER 25aug15.xlsx"*. As given by Eq. 5(b) of the VPA DD, ship power (P) is given by a function of ship speed (V) and days since coating application (D):

$$\ln (P) = \ln (a) + n \ln (V) + k D \qquad \text{Eq. (5a) of VPA DD}$$

This equation is the basis for the regression analysis

The values of ln(a), n, and k are determined by regression analysis of baseline voyage or daily data, as illustrated above for the case of [redacted].

The first step in this determination is to see if the D coefficient is positive. A negative D coefficient suggests that (once adjusted for ship speed) fuel consumption decreases over time, which is not reasonable, since hull coating is expected to degrade. In several cases highlighted below, D coefficient was negative. In these cases, Eq (5) of the VPA DD was used as the basis for regression analysis:

$$\ln (P) = \ln (a) + n \ln (V) \qquad \text{Eq. (5) of VPA DD}$$

In this case, there are only two regression coefficients (ln (a) and n).

Table 8. Key regression results from baseline data

(Source: sheet "Reg results" of file "VPA_1 Reg results and ER 22nov15.xlsx".)

Ships where navigation fuel consumption was recorded separately								
	Initial regression				**Further regression (where applied)**			
Ship name	D coeff positive and well determined?	Adjusted R^2	Std error	Comments	D coeff positive and well determined?	Adjusted R^2	Std error	Comments
[redacted]	Yes	0.723	0.074	Slightly higher R2 and lower standard error, few stormy days				
	No	0.893	0.061	Higher R2 and lower standard error				
	Yes	0.895	0.055	Higher R2 and lower standard error				
	Yes	0.738	0.135	Higher R2 and lower standard error				
	Yes	0.746	0.094	Higher R2 and lower standard error				
	Yes	0.614	0.106	Higher R2 and lower standard error				
	Yes	0.617	0.136	Higher R2 and lower standard error				
	Yes	0.732	0.119	Higher R2 and lower standard error				
	Yes	0.223	0.080	Low R2 but low standard error.	Yes	0.587	0.086	Wider speed and power

	No	0.373	0.067	Low R2 but low standard error.	No	0.617	0.072	Wider power only
Argenta	No	0.307	0.095	Low R2 but low standard error				
Ships where navigation fuel consumption was not recorded separately								
	Yes	0.380	0.079	Lower R2 but standard error about the same	Yes	0.537	0.088	Wider power only
	Yes	0.442	0.062	Lower R2 but also lower standard error				
	No	0.616	0.115	Higher R2 and lower standard error				
	No	0.592	0.118	Higher R2 and lower standard error				
	Yes	0.607	0.107	Higher R2 and lower standard error				
	Yes	0.533	0.138	Higher R2 and lower standard error				

The process followed when the D coefficient is negative is illustrated below for the first ship in Table 8 where this is the case: [redacted]. As highlighted in Table 9, the D coefficient is negative, i.e. physically unreasonable. Also, the corresponding t-Stat is relatively low. Looking further one notes that the t-Stat of ln V is high, so that the coefficient is very well determined, suggesting ln V is the dominant explanatory variable for this ship, and the remaining variations are not explained by D.

Table 9 Regression results for [redacted], considering both ln V and D as explanatory variables.
(Source: Sheet "Reg_DV_19sep14" of [redacted] analysis 29sep15.xlsx)

Regression Statistics				
Multiple R	0.945366			
R Square	0.893716			
Adjusted R Square	0.893434			
Standard Error	0.060516			
Observations	756			
ANOVA				
	df	*SS*	*MS*	*F*
Regression	2	23.18826	11.59413	3165.898
Residual	753	2.757631	0.003662	
Total	755	25.94589		
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-2.13772	0.099873	-21.4044	9.18E-80
D	-2.1E-05	1E-05	-2.1107	0.035127
ln V	2.430906	0.030643	79.33029	0

Since the D coefficient is negative, which is not reasonable, another regression was undertaken with only ln V as the explanatory variable. The results are shown in Table 10. One notes, again that the t-Stat of the ln V coefficient is very high, and that Adjusted R Square of the overall regression is high, while the standard error is very low. All these aspects are highlighted below.

Table 10. Regression results for [redacted], considering only ln V as explanatory variable
(Source: Sheet "Reg_V_19sep14" of [redacted] analysis 29sep15.xlsx)

Regression Statistics				
Multiple R	0.945033			
R Square	0.893087			
Adjusted R Square	0.892945			
Standard Error	0.060655			
Observations	756			
ANOVA				
	df	*SS*	*MS*	*F*

Regression	1	23.17194	23.17194	6298.479
Residual	754	2.773947	0.003679	
Total	755	25.94589		
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-2.16235	0.099415	-21.7507	8.54E-82
ln V	2.434237	0.030672	79.36296	0

For three ships ([redacted]) additional regressions were necessary.

[redacted]. Initial regression (sheet "Reg_D_lnV_21sep14") yielded low R^2: 0.223. (Note that this was incorrectly reported in the sheet "Reg results" of file "VPA_1 Reg results and ER 25aug15.xlsx". The error has been corrected in the revised file: VPA_1 Reg results and ER 22nov15.xlsx.) The low R^2 appeared to be the result of the following: In the "BSLN" data set, the standard deviation of speed and power were small, and many voyages were excluded, using average +/-3 s.d. for speed and average +/-2 s.d. for power filters, as required by the methodology. The allowable range was expanded to +/-5 and +/-4 respectively. The expanded baseline data is listed in sheet "BSLN (2)". The regression results for this expanded baseline are shown in sheet "Reg_D_lnV_21sep14(2)".

Table 11. Revised regression results for [redacted], with expanded filters for speed and power.
(Source: sheet "Reg_D_lnV_21sep14(2)" of [redacted] analysis 22nov15.xls)

Regression Statistics			Regression against D and ln V	
Multiple R	0.767048			
R Square	0.588363			
Adjusted R Square	0.586839		Considerably improved R2, compared to regression using BSLN	
Standard Error	0.086151		Slightly higher standard error	
Observations	543			
ANOVA				
	df	*SS*	*MS*	*F*
Regression	2	5.7285	2.86425	385.9179
Residual	540	4.007834	0.007422	
Total	542	9.736334		
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.472247	0.18833	2.50755	0.012449
D	0.000147	2.17E-05	6.779753	3.16E-11
ln V	1.560327	0.06253	24.95317	5.55E-92

[redacted]. The D coefficient was negative, so the initial regression was based on ln V only. A revised regression was undertaken for reasons similar to those for [redacted]. For original data "BSLN", many voyages were excluded since Power was outside +/- 2 s.d. range, and regression results were poor: R^2 = 0.373, as reported in Table 8. Here, the valid power range was extended to +/- 2.5 s.d. For the revised baseline data

(sheet “BSLN (2)”), again the D coefficient was negative. However, using only ln V, the regression results improved considerably, as shown below.

Table 12. Revised regression results for [redacted], with expanded filter for power only
(Source: sheet “Reg_LnV_23sep14(2)” of [redacted] analysis 29sep15.xlsx)

Regression Statistics			Regression against ln V only	
Multiple R	0.785742			
R Square	0.61739			
Adjusted R Square	0.616762		Considerably improved R^2, compared to regression of BSLN	
Standard Error	0.072248		Slightly higher standard error	
Observations	611			
ANOVA				
	df	*SS*	*MS*	*F*
Regression	1	5.129465	5.129465	982.6983
Residual	609	3.178844	0.00522	
Total	610	8.308309		
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.582824	0.150058	3.883998	0.000114
ln V	1.55129	0.049486	31.34802	3.7E-129

[redacted]. Initial regression yielded relatively low R^2: 0.380, as listed in Table 8. Regression results were improved using an expanded power range: first with +/- 2.5 s.d. (R^2 = 0.456) and then with +/- 3 s.d. (R^2 = 0.537). The revised regression results, shown below were used for determining energy savings and emissions reduction.

Table 13. Revised regression results for [redacted]
(Source: sheet “Reg(3)16oct14” of [redacted] analysis 29sep15.xlsx)

Regression Statistics			Regression of BSLN(2)	
Multiple R	0.733645		Comments below compared with results of "BSLN(2)"	
R Square	0.538235			
Adjusted R Square	0.536893		Further increase in R^2, but	
Standard Error	0.087685		slight increase in standard error	
Observations	691			
ANOVA				
	df	*SS*	*MS*	*F*
Regression	2	6.165771	3.082885	400.9684
Residual	688	5.289756	0.007689	
Total	690	11.45553		
	Coefficients	*Standard*	*t Stat*	*P-value*

		Error		
Intercept	1.076107	0.133353	8.069606	3.14E-15
D	0.000111	1.76E-05	6.312167	4.93E-10
ln V	1.244364	0.044196	28.15547	1.3E-116

Following issuance review, further analysis was undertaken using a revised procedure suggested by Gold Standard.

This section shall discuss the guidance and revised procedural outline for the ER calculations as received from the Gold Standard via email on Dec. 23, 2015, which explains the re-assessment followed for each remaining ship, other than the 5 indicated above that were included in the partial issuance:

Firstly, the text that follows immediately below in blue font is as received from the Gold Standard:

We do agree with the conclusion that there is no perfect solution, which will fit with all ships. We are of the opinion that following approach shall be followed for assessment for each ship.

Step -1 Regression Analysis without variable D
You shall first apply the Basic Model (without variable D) to the data set corresponding to the docking cycle prior to the application of the advanced hull coating.

Step -2 Regression Analysis with variable D
You shall apply the basic model (with variable D) to assess if it affects the regression analysis outcome of step -1 significantly.

- If the improvement is not significant for example minor change in the R2 value, the outcome of step one shall be applied for estimation of baseline fuel consumption values.
- If the improvement is significant, for example a significant change in R2 value, the variable D can be applied.
- In both the scenarios the efficiency savings shall not be above the reported values. If the changes lead to too high savings, the outcome of step-1 shall be used for estimation of fuel consumption values.

You can submit the summary table with justification of choice for Gold Standard review.

Regarding the application of “d” value:

We are of the opinion that the d value shall not be assumed as flattened after the end of the baseline docking cycle. It shall be reset to 1 after the end of the baseline docking cycle as the ship would have opted for recoating.

This guidance above was then followed, and re-assessments carried out for each ship with one very minor amendment. This amendment relates to those instances where the ‘d’ variable has been applied, and based on the suggestion about treatment of a vessel at the

end of a given baseline docking cycle. As has been documented in several third party studies and is practiced as the industry norm, every type of vessel is on a scheduled and pre-determined docking cycle, which is very much dependent on the use and function of the vessel, and hence the vessel type. For example, some cargo ships and tankers are typically set up on quite long docking cycles (5 years or potentially even longer), whereas some ferries and cruise ships are on shorter docking cycles (typically between 2 to 4 years.) Except in extreme situations, vessel owners abide by these pre-determined docking cycles regardless of their performance for reasons such as cost, availability of dry dock spaces, and consideration of lost revenue when a vessel is out of service. Therefore, to bring some consistency to this part of the calculations for the vessels included in this VPA #1, the "d" value has in fact been re-set at the end of that baseline docking cycle as proposed by the GS, however we have used the most conservative position of the typical baseline docking cycle (i.e. the lowest number of days) according to vessel type. This is to reflect the important point that the ER calculation in the project period is reflecting the use of the baseline docking cycle as it would have been in reality, i.e. in the absence of the project activity. So for a vessel that was on a typical 24-48 month baseline docking cycle (e.g. all of the [redacted] vessels), we have used a baseline period of 730 days as the point to "re-set" the d value within the project period. This most accurately reflects when the vessel owner would have recoated this vessel in the absence of the project activity.

The diagram below is a rough sketch of this so-called 're-setting' of d, or what we have called "ratcheting" of the analysis as explained in the tables.

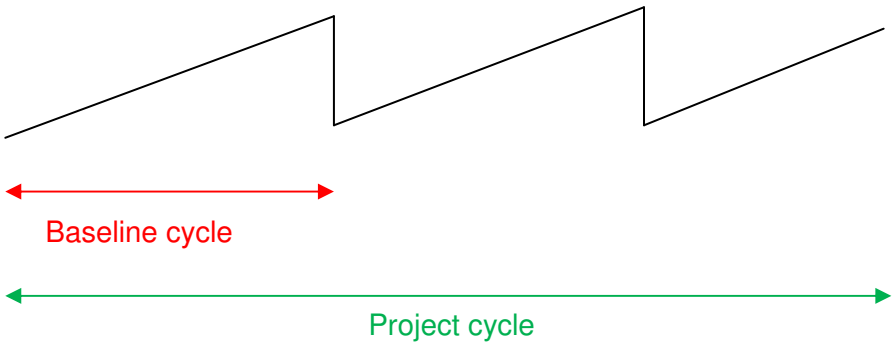

Figure 1

The table below lists the Excel file names as listed in the last column of Table 7, as "Original file" with file names for more recent versions, following discussions with Gold Standard in Dec. 2015. Since fuel savings and emissions reductions are based on specific tabs in the analysis, the applicable tab names for the Excel sheets are also listed in Table 14 below.

Table 14. New Excel file names and tabs with revised ERs

	Ship Id: IMO no.	Ship name	New Excel file name	Tab name with revised ER
	Shipping co.	[redacted]		
1	9xxxx14/ 86366		[Eliminated from list[14]]	
2	9xxxx52 86375			Project no D
3	9xxxx40 86374			Project ratchet D
4	9xxxx68 86377			Project (2)
5	9xxxx56 86376			Project no D
6	9xxxx70 86378			Project (2)
7	9xxxx76 82973			Project (2)
8	9 xxxx 88 82974		[Eliminated from list]	
9	9 xxxx 90 83199			Project no D
10	9 xxxx 54 79707			Project no D
11	9 xxxx 12 79832			Project no D
12	9 xxxx 64 71590			Project no D
13	9 xxxx 52 71589			Project no D
14	9 xxxx 02 74845			Project (2)

[13] [redacted]

[14] The initial list in VPA DD version 1 included this ship. Excluded in later versions, and from the project.

[15] This vessel has been removed from VPA 1, as noted earlier.

15	9 xxxx 93 74599	[redacted]		Project (2)
16	9 xxxx 68 88032			Project no D
17	9 xxxx 63 88027			Project (3)
	Shipping co.	**Lykiardopoulo & Co**[16]		
18	9289726	Argenta	Argenta analysis 20jan16.xls	Project (2)

Energy savings and emissions reduction for the three calendar years included in this Monitoring Report are shown in the table below. Emission reductions during the Monitoring period (from 14/8/2013 to 30/6/2015) are listed in the last column of the table. The total is 126,785 tCO_2, and these are the carbon credits claimed for the first crediting period.

Table 15. Revised Energy savings and emissions for three calendar years within the crediting period covered by the first monitoring report, and total emission reductions for the period[17]

(Source: based on Excel tables for individual ships as listed in Table 14)

			Energy savings, GJ			Emissions reduction, tCO_2			
	Ship Id: IMO no.	**Ship name**	**2013 (from 14/08, inclusive)**	**2014**	**2015 (up to 30/06 inclusive)**	**2013 (from 14/08, inclusive)**	**2014**	**2015 (up to 30/06 inclusive)**	**Total emissions reduction, tCO_2**
Shipping co.		[redacted]							
1	9xxxx14/ 86366								
2	9xxxx52 86375		46266	58229	20737	3581	4507	1605	**9693**
3	9xxxx40 86374		26753	82039	-10871	2071	6350	-841	**7579**

[16] **"Lykiardopoulo** is a shipping company founded in Kefalonia… The company still operates from UK and from Greece as *Neda Maritime Agency Co. Ltd."* (http://en.wikipedia.org/wiki/Lykiardopoulo)

[17] All emission reduction figures in the table are accurately determined before rounding to integers, and detailed in the individual ship Excel tables. Hence, whole number totals may not add up correctly. However, we have revised the overall total (bottom right cell) to match the annual totals *after rounding*, so that the sum of annual totals matches the overall total.

4	9xxxx68 86377	[redacted]	1579	11799	43237	122	913	3347	**4382**
5	9xxxx56 86376		24769	55191	17385	1917	4272	1346	**7535**
6	9xxxx70 86378		-3999	67865	86820	-310	5253	6720	**11663**
7	9xxxx76 82973		8673	-566	-52423	671	-44	-4058	**-3430**
8	9 xxxx 88 82974								
9	9 xxxx 90 83199		64675	153601	77672	5006	11889	6012	**22906**
10	9 xxxx 54 79707		8663	21059	15522	671	1630	1201	**3502**
11	9 xxxx 12 79832		20055	52444	0	1552	4059	0	**5611**
12	9 xxxx 64 71590		4053	28246	10492	314	2186	812	**3312**
13	9 xxxx 52 71589		1345	10710	9938	104	829	556	**1489**
14	9 xxxx 02 74845		3885	11187	890	301	866	69	**1235**
15	9 xxxx 93 74599		4560	23971	762	353	1855	59	**2267**
16	9 xxxx 68		44162	86142	46873	3418	6667	3628	**13714**

	88032	[redacted]							
17	9 xxxx 63 88027		58652	120780	55162	4540	9348	4270	**18158**
Shipping co.		Lykiardopoulo & Co							
18	9289726	Argenta	43741	155827	22237	3386	12061	1721	**17168**
ANNUAL TOTALS			**357832**	**938524**	**344433**	**27697**	**72641**	**26447**	**126785**

Sustainable development monitoring

In the Sustainable Development matrix listed in the VPA Passport, the following items were given a positive score:

1) Air Quality
2) Water Quality and Quantity
3) Soil Condition
4) Other Pollutants
5) Biodiversity
6) Quality of Employment
7) Human and Institutional Capacity
8) Technology Transfer and Technological Self-reliance.

In some items there are sub-parameters. The monitoring procedures in each case are summarised in the table below.

Parameter	**Sub-parameter**	**Monitoring procedure. For details, see VPA Passport**
1. Air Quality	1a. VOCs (kg)	Determined from data recorded in the "Dataplan report" corresponding to the application of advanced coating on each vessel, and assumptions in the report *Eco Efficiency Assessment*
	1b. NOx	Not quantified
	1c. SOx	Not quantified
2. Water Quality and Quantity	Biocide content (kg)	Calculation procedure which forms the basis of the Eco-Efficiency report on each vessel
3. Soil Condition	3a. Paint volume (litres)	Calculation procedure which forms the basis of the Eco-Efficiency report on each vessel
	3b. Waste tins (kg)	Calculation procedure which forms the basis of the Eco-Efficiency report on each vessel
4. Other Pollutants	Acidification potential	Not quantified
5. Biodiversity	Biocide content	Calculation procedure which forms the basis of the Eco-Efficiency report on each vessel
6. Quality of Employment	Labour conditions (job related health and safety)	Project Proponent has software that determinates a number of sustainability parameters. The output of the software appears as an Eco-Efficiency Report. Such reports would be generated for each ship and provide information related to VOCs avoided through the use of the advanced hull coatings.
7. Human and Institutional	Training and education	Project Proponent will track and

Capacity		monitor the sessions offered, number/type of attendees, other training materials provided (see below).
8. Technology Transfer and Technological Self-reliance	Number and types of events attended and/or press releases published	Project Proponent will track and monitor the sessions attended together with attendee type. In addition, any press releases or other publications made available in a given period for each VPA shall be monitored (see below).

Three of the (sub-) parameters (NOx, SOx, Acidification potential) are not measured (identified above in dark red).

The last two items in the list above require detailed data, and are considered later in this report.

For six of the parameters/sub-parameters listed above (in blue), the monitoring procedure is the Eco Efficiency Assessment. The parameters are the same for two pairs of parameters:

1. For both "Water Quality and Quantity" and "Biodiversity" the sub-parameter is "Biocide content"

2. Similarly "VOC emissions" is an indicator of both "Air quality" as well as "Quality of Employment"

Thus there are four parameters to be monitored using the Eco-Efficiency Assessment procedure: VOC (kg), Biocide content (kg), Paint volume (litres), and Waste tins (kg).

Section G "Sustainability Monitoring Plan" of the document "International Paint First VPA Gold Standard Passport v6 3sep15.doc" stated[18] (in blue):

Note: International Paint has software for the determination of a number of sustainability parameters. The output of the software appears as an Eco-Efficiency Report. Such reports would be generated for each ship and provide information such as those listed below.

[18] The text is identical in Passport, version 7, "Hull_coating_VPA_PDD_Proj_1_ver. 6 22Sep15 redacted.pdf", where one shipping company and the ship names and IMO numbers were redacted, for reasons of confidentiality.

The Eco-Efficiency reports for each ship are attached. The file names are listed in the table below.

	Ship Id: IMO no.	Ship name	File name (all are PDF)
	Shipping co.	[redacted][19]	
1	9xxxx14/ 86366	[redacted]	[Eliminated from list[20]]
2	9xxxx52 86375		
3	9xxxx40 86374		
4	9xxxx68 86377		
5	9xxxx56 86376		
6	9xxxx70 86378		
7	9xxxx76 82973		
8	9 xxxx 88 82974		
9	9 xxxx 90 83199		
10	9 xxxx 54 79707		
11	9 xxxx 12 79832		
12	9 xxxx 64 71590		
13	9 xxxx 52 71589		
14	9 xxxx 02 74845		
15	9 xxxx 93 74599		
16	9 xxxx 68 88032		
17	9 xxxx 63 88027		
	Shipping co.	**Lykiardopoulo & Co[22]**	
18	9289726	Argenta	20150710-Lykiardopolou Argenta Summary

The Eco-Efficiency Reports listed above generate life-cycle analyses involving a number of docking cycles over a 15-year period. Since the GS methodology allows a single docking cycle following the application of the advanced coating and, moreover, the monitoring

[19] [redacted]

[20] The initial list in VPA DD version 1 included this ship. Excluded in later versions.

[21] This vessel has since been removed from VPA 1, as noted earlier

[22] **"Lykiardopoulo** is a shipping company founded in Kefalonia… The company still operates from UK and from Greece as *Neda Maritime Agency Co. Ltd."* (http://en.wikipedia.org/wiki/Lykiardopoulo)

period covers a part of the docking cycle with the advanced hull coating, the Eco-Efficiency analysis was revised to take this into consideration.

The key monitored parameters for the determination of the key environmental parameters in the Eco-Efficiency Analysis are the Underwater hull area (m^2), and the volume of tiecoat (litres), volume of finish (advanced hull coating, litres) used. From the latter two parameters, the total paint volume (litres) and the weight of waste tins (kg) can be determined. The VOC content of the different paints are known. Therefore the VOC emissions can be determined from the paint volumes. Since the advanced hull coating contains no biocides, the biocide content is zero. The monitored parameters and the derived environmental parameters are summarized in the table below for each ship in VPA-1. *This corresponds to the project scenario*.

Table 16. Key monitoring parameters for the determination of the four key environmental parameters: VOC (kg), Biocide content (kg), Paint volume (litres), and Waste tins (kg). Project scenario.

Ship IMO no.	Ship name	Underwater Area, m^2	Volume of Tiecoat, litres	Volume of Finish, litres	Total paint volume, litres	Weight of waste tins, kg	Weight of biocide (kg)	VOC emitted (kg)
Shipping co.	[redacted]							
9xxxx14/ 86366								
9xxxx52 86375		5832	1360	1620	2980	327.8	0	769.6
9xxxx40 86374		5892	1340	1520	2860	314.6	0	740.0
9xxxx68 86377		5883	1340	1660	3000	330.0	0	773.6
9xxxx56 86376		5883	1400	1640	3040	334.4	0	785.6
9xxxx70 86378		5892	1330	1550	2880	316.8	0	744.4
9xxxx76 82973		6728	1670	2010	3680	404.8	0	950.0
9 xxxx 88 82974								
9 xxxx 90 83199		6728	1460	1830	3290	361.9	0	848.0
9 xxxx 54 79707		5500	1280	1460	2740	301.4	0	708.8
9 xxxx 12 79832		5500	1180	1420	2600	286.0	0	671.2
9 xxxx 64 71590		5900	1380	1500	2880	316.8	0	746.4
9 xxxx 52 71589		5900	1280	1500	2780	305.8	0	718.4
9 xxxx 02 74845		7384	2025	2210	4235	465.9	0	1,097.4
9 xxxx 93 74599		7400	1760	2080	3840	422.4	0	992.0
9 xxxx		6762	1700	1960	3660	402.6	0	946.4

[23] This vessel has been removed from VPA 1, as noted earlier.

68 88032	[redacted]							
9 xxxx 63 88027		6762	1600	1960	3560	391.6	0	918.4
Shipping co.	**Lykiardopoulo & Co.**							
9289726	Argenta	8674	1840	2490	4330	476.3	0	1,112.8

Since information on the baseline situation is not available in all cases to the project proponent (International Paint), which manufactures the advanced hull coating, the corresponding values for the baseline situation needs to be calculated from experience and assumptions, documented in the sheet “Environmental parameters” of the workbook “VPA 1 Monitoring environmental data parameters rev 19jan16.xlsx”

The following four tables lists the baseline situation, the project case (from Table 16) and the reduction, for the key environmental parameters.

Parameter 1. Air quality. Sub-parameter 1a. VOCs.
(Also for Parameter 6. Quality of Employment. Sub-parameter: Labour conditions (job related health and safety))

Table 17. VOCs emitted (kg): Baseline, Project, and Reduction through project activity

Ship IMO no.	Ship name	Baseline	Project	Reduction
Shipping co.	[redacted]			
9xxxx14/ 86366				
9xxxx52 86375		1,749.6	769.6	980.0
9xxxx40 86374		1,767.6	740.0	1,027.6
9xxxx68 86377		1,764.9	773.6	991.3
9xxxx56 86376		1,764.9	785.6	979.3
9xxxx70 86378		1,767.6	744.4	1,023.2
9xxxx76 82973		2,018.4	950.0	1,068.4
9 xxxx 88 82974				
9 xxxx 90 83199		2,018.4	848.0	1,170.4
9 xxxx 54 79707		1,650.0	708.8	941.2
9 xxxx 12 79832		1,650.0	671.2	978.8
9 xxxx 64 71590		1,770.0	746.4	1,023.6
9 xxxx 52 71589		1,770.0	718.4	1,051.6
9 xxxx 02 74845		2,215.2	1,097.4	1,117.8
9 xxxx 93 74599		2,220.0	992.0	1,228.0
9 xxxx 68 88032		2,028.6	946.4	1,082.2
9 xxxx 63 88027		2,028.6	918.4	1,110.2
Shipping co.	Lykiardopoulo & Co			
9289726	Argenta	2,602.2	1,112.8	1,489.4

[24] This vessel has been removed from VPA 1, as noted earlier.

Parameter 2. Water Quality and Quantity. Sub-parameter: Biocide content (kg)
(Also for Parameter 5. Biodiversity. Sub-parameter: Biocide content)

Table 18. Biocide content (kg): Baseline, Project, and Reduction through project activity

Ship IMO no.	Ship name	Baseline	Project	Reduction
Shipping co.	[redacted]			
9xxxx14/ 86366				
9xxxx52 86375		3,165.9	0	3,165.9
9xxxx40 86374		3,198.5	0	3,198.5
9xxxx68 86377		3,193.6	0	3,193.6
9xxxx56 86376		3,193.6	0	3,193.6
9xxxx70 86378		3,198.5	0	3,198.5
9xxxx76 82973		3,652.3	0	3,652.3
9 xxxx 88 82974				
9 xxxx 90 83199		3,652.3	0	3,652.3
9 xxxx 54 79707		2,985.7	0	2,985.7
9 xxxx 12 79832		2,985.7	0	2,985.7
9 xxxx 64 71590		3,202.9	0	3,202.9
9 xxxx 52 71589		3,202.9	0	3,202.9
9 xxxx 02 74845		4,008.5	0	4,008.5
9 xxxx 93 74599		4,017.1	0	4,017.1
9 xxxx 68 88032		3,670.8	0	3,670.8
9 xxxx 63 88027		3,670.8	0	3,670.8
Shipping co.	Lykiardopoulo & Co			
9289726	Argenta	4,708.7	0	4,708.7

[25] This vessel has been removed from VPA 1, as noted earlier.

Parameter 3. Soil Condition. Sub-parameter 3a. Paint volume (litres)

Table 19. Paint volume (litres): Baseline, Project, and Reduction through project activity

Ship IMO no.	Ship name	Baseline	Project	Reduction
Shipping co.	[redacted]			
9xxxx14/ 86366				
9xxxx52 86375		4,166	2,980	1,186
9xxxx40 86374		4,209	2,860	1,349
9xxxx68 86377		4,202	3,000	1,202
9xxxx56 86376		4,202	3,040	1,162
9xxxx70 86378		4,209	2,880	1,329
9xxxx76 82973		4,806	3,680	1,126
9 xxxx 88 82974				
9 xxxx 90 83199		4,806	3,290	1,516
9 xxxx 54 79707		3,929	2,740	1,189
9 xxxx 12 79832		3,929	2,600	1,329
9 xxxx 64 71590		4,214	2,880	1,334
9 xxxx 52 71589		4,214	2,780	1,434
9 xxxx 02 74845		5,274	4,235	1,039
9 xxxx 93 74599		5,286	3,840	1,446
9 xxxx 68 88032		4,830	3,660	1,170
9 xxxx 63 88027		4,830	3,560	1,270
Shipping co.	Lykiardopoulo & Co			
9289726	Argenta	6,196	4,330	1,866

[26] This vessel has been removed from VPA 1, as noted earlier.

Parameter 3. Soil Condition. Sub-parameter 3b. Waste tins (kg)

Table 20. Weight of waste tine (kg): Baseline, Project, and Reduction through project activity

Ship IMO no.	Ship name	Baseline	Project	Reduction
Shipping co.	[redacted]			
9xxxx14/ 86366				
9xxxx52 86375		458.2	327.8	130.4
9xxxx40 86374		462.9	314.6	148.3
9xxxx68 86377		462.2	330.0	132.2
9xxxx56 86376		462.2	334.4	127.8
9xxxx70 86378		462.9	316.8	146.1
9xxxx76 82973		528.6	404.8	123.8
9 xxxx 88 82974				
9 xxxx 90 83199		528.6	361.9	166.7
9 xxxx 54 79707		432.1	301.4	130.7
9 xxxx 12 79832		432.1	286.0	146.1
9 xxxx 64 71590		463.6	316.8	146.8
9 xxxx 52 71589		463.6	305.8	157.8
9 xxxx 02 74845		580.2	465.9	114.3
9 xxxx 93 74599		581.4	422.4	159.0
9 xxxx 68 88032		531.3	402.6	128.7
9 xxxx 63 88027		531.3	391.6	139.7
Shipping co.	Lykiardopoulo & Co			
9289726	Argenta	681.5	476.3	205.2

[27] This vessel has been removed from VPA 1, as noted above.

The total for all ships, for each of the four environmental parameters listed above, for the baseline and project scenarios, and the reduction through the project activity are listed below.

Table 21. Total for all ships of environmental parameters determined above.[28]

Monitoring parameter	Baseline	Project	Reduction
VOCs (kg)	30,786	13,523	17,263
Biocide content (total)	55,708	0	55,708
Paint volume (litres)	73,300	52,355	20,945
Waste tins (kg)	8,063	5,759	2,304

Parameter 2 and 5 (Biocide release) as a function of monitoring period

Less VOCs are released, and less waste tins are produced if the project coating is used instead of the baseline coating. Since the paint is applied at the start of the docking cycle, during which the VOC is released and waste tins produced, the environmental improvement takes place at the start of each docking cycle.

The advanced hull coating does not contain any biocides, as noted in Table 16 and Table 18. The baseline coating contains biocides, which would be released over the baseline docking cycle. It would be released into the water while in service, or at the time of the following hull coating.

In all except four ships in VPA-1 (the exceptions are highlighted in yellow in the table below), the duration of the monitoring period with the project coating exceeds the baseline docking cycle. This is because the advanced hull coating deteriorates slower than with the baseline coating. For these cases, in the baseline scenario, all of the biocides would have been released. Indeed, more biocides would be released during an additional docking cycle with the baseline hull coating, since the hull would need to be recoated if the baseline hull coating were applied instead of the advanced hull coating. In order to be conservative in our estimates of biocide release reduction, we consider only one baseline docking cycle. The biocide release values are listed in the right most column of the table below.

For four ships, the monitoring period up to 30/6/2015 is shorter than the baseline docking cycle. For these cases, we consider that the biocide released into the environment in a baseline scenario would be proportional to the monitoring period with respect to the baseline docking cycle. The biocide release values for these four ships are also listed in the right column of the table below, in this case highlighted in yellow.

Note that in the table below, the monitoring period starts with the application of the advanced hull coating and ends with the end of the first monitoring period, which is

[28] All figures adjusted to account for removal of vessel ([redacted]) as explained earlier.

30/6/2015 in most cases; one ship ([redacted]) went out of service in May 2015, so the end of the monitoring period is considered to be 30/4/2015; another ship (Argenta) was recoated with the advanced hull coating in February 2015. These early end dates are shown in red below.

Table 22. Duration of monitoring period and baseline docking cycle for the determination of biocide release in monitoring period

	Ship Id: IMO no.	Ship name	Project hull coating application	End of monitoring period	Duration of monitoring period, days	Baseline docking cycle, days	Reduced biocide release up to end of monitoring period (kg)
Shipping co.		[redacted]					
1	9xxxx14/ 86366						
2	9xxxx52 86375		25/08/2012	30/06/2015	1039	513	3,165.9
3	9xxxx40 86374		28/08/2012	30/06/2015	1036	574	3,198.5
4	9xxxx68 86377		03/09/2013	30/06/2015	665	475	3,193.6
5	9xxxx56 86376		20/08/2013	30/06/2015	679	566	3,193.6
6	9xxxx70 86378		28/08/2013	30/06/2015	671	453	3,198.5
7	9xxxx76 82973		14/02/2011	30/06/2015	1597	1080	3,652.3
8	9 xxxx 88 82974						
9	9 xxxx 90 83199		23/12/2010	30/06/2015	1650	448	3,652.3
10	9 xxxx 54 79707		08/03/2011	30/06/2015	1575	1027	2,985.7
11	9 xxxx 12 79832		15/01/2011	30/04/2015	1566	836	2,985.7
12	9 xxxx 64 71590		01/09/2013	30/06/2015	667	1535	1,391.7

[29] This vessel has been removed from VPA 1, as noted earlier, so totals revised here accordingly.

13	9 xxxx 52 71589	[redacted]	27/08/2011	30/06/2015	1403	1089	3,202.9
14	9 xxxx 02 74845		26/09/2013	30/06/2015	642	2234	1,151.9
15	9 xxxx 93 74599		10/09/2013	30/06/2015	658	1458	1,812.9
16	9 xxxx 68 88032		08/01/2013	30/06/2015	903	637	3,670.8
17	9 xxxx 63 88027		20/12/2012	30/06/2015	922	762	3,670.8
Shipping co.		Lykiardopoulo & Co					
18	9289726	Argenta	28/02/2010	08/02/2015	1806	1811	4,695.7
	Total						**48,824**

Parameter 4 (Acidification potential). Not quantified

Parameter 5 (Biocide content). Same as Parameter 2.

Parameter 6. Same as Sub-parameter 1.a. VOCs.

Parameter 7. Human and Institutional Capacity (Training and Education)

Internal training on carbon credits and vessel eligibility is an on-going process with the sales team within International Paint. The following training programmes were held during the VPA #1 Monitoring Period:

Date	Location	Attendees	Topics	Trainer
10/04/2014	Webinar	45 Attendees from Sales teams from Far East and Middle East	Carbon Credits introduction	Trevor Solomon
10/04/2014	Webinar	17 attendees from Sales teams from Europe and Americas	Carbon Credits introduction	Trevor Solomon
04/06/2014	Webinar	35 attendees from Sales teams from North and South America	Carbon Credits introduction	Trevor Solomon
10/06/2014	Dubai	6 Sales team members	Carbon Credits – use with customer	Trevor Solomon
10/06/2014	Germany	10 Sales team members from Germany and Netherlands	Carbon Credits – use with customer	Michael Hindmarsh
26/06/2014	China	35 Sales team members from China, Japan, Hong Kong and Taiwan	Carbon Credits – use with customer	Trevor Solomon
01/07/2014	South Korea	40 Sales team members from Korea and East Russia	Carbon Credits – use with customer	Trevor Solomon
15/07/2014	North America	10 Sales team members from North America	Carbon Credits – use with customer	Michael Hindmarsh
16/09/2014	Singapore	30 Sales team members from Singapore, Malaysia, Vietnam, Australia, Indonesia and India	Carbon Credits – use with customer	Trevor Solomon

Training materials provided include: Carbon Credits Webinar Revision 02.pdf; Carbon Credit.pdf; Carbon Credit Process Steps.pdf; all uploaded to the GS Registry.

Parameter 8. Technology Transfer and Technological Self-reliance

Sub-parameter: Number and types of events attended and/or press releases published.

Sessions attended to discuss the methodology and project:

1. Ship owners were invited to a meeting at the International Maritime Organization (IMO) offices, located at 4 Albert Embankment, London, SE1 7SR, UK on June 27th, 2013, at which a presentation on the proposed GS PoA was made. The outcome of this meeting is included in the Design Consultation Report:
Hull_coating_PoA_design_consultation_14oct14.docx (and PDF).

2. International Paint invited ship owners and operators to a presentation, on the Intersleek product line and the benefits of participating in the Gold Standard PoA. One such presentation took place at the Royal Society of Chemistry in London, United Kingdom, on 29th April, 2014. The invitee list can be found in "London invites IP Apr 2014.pdf" (previously uploaded to Registry). Invitation also uploaded to GS Registry:
"Carbon_Credits_Customer_Invite.pdf."

3. Workers and other personnel at the plant where the advanced hull coating is manufactured attended a live in-person meeting, conducted in Felling, United Kingdom on June 26, 2015. List of invitees and attendees included in Local Stakeholder Consultation Report, uploaded to the Registry.

Related press releases (screenshots also included below):

http://www.international-marine.com/NewsMedia/Documents/first-ever-carbon-credit-methodology-international-shipping.pdf

http://www.international-marine.com/NewsMedia/Documents/AkzoNobel-details-financial-benefits-of-carbon-credits-methodology.pdf

http://www.internationalmarine.com/NewsMedia/Documents/Spanish%20ferry%20operator%20enrolls%20in%20AkzoNobel%20carbon%20credits%20program.pdf

Press release

29 April 2014

First ever carbon credit methodology developed for international shipping approved by The Gold Standard

New approach drives uptake of foul release eco-efficiency technologies and provides revenue from carbon reductions

AkzoNobel's Marine Coatings business, supplier of International® advanced hull coatings and The Gold Standard Foundation have announced a new and unique marine-based methodology to reward the improved fuel efficiency of ships within the international maritime industry.

Certification by The Gold Standard for the first of its kind, peer-reviewed methodology will allow ships to generate carbon credits, thus income, for the CO_2 emission reductions they achieve.

The methodology is based on ship owners and operators converting existing vessels from a biocidal antifouling system to a premium, biocide-free advanced hull coating such as Intersleek®. A baseline emission level is determined for the vessel prior to the application of Intersleek® with the same data source then used to determine the emission savings after the application of Intersleek®. The carbon credits generated are directly related to reduced emissions as a result of reduced fuel consumption.

Using a 'results based finance' approach, carbon credits are awarded annually, based on vessel data that is collected, analysed and for Intersleek®, administered by International® and submitted to The Gold Standard Foundation for validation. To ensure rigour and transparency, the fuel savings that are generated are verified by independent UN accredited auditors. Once the carbon credits are issued to International® they can be sold at market price and the revenue shared with customers.

This significant landmark for sustainability within international shipping will act as a further incentive to drive an increase in the uptake of eco-efficient technologies, as ship owners and operators can additionally benefit from their investment in Intersleek® technology once the performance of the hull coating is independently verified in service. Many owners and operators are already eligible to benefit from the process and receive credits that have already been accrued.

International® spent more than two years developing the carbon credits methodology as part of its research into making eco-efficiency technologies more accessible for the wider shipping industry. The company chose to work with The Gold Standard Foundation because it is the highest quality and most trusted carbon certification standard with rigorous sustainability benchmarks over three categories; environmental, social and economic, as well as technological.

The environmental credentials for Intersleek® technology have already been thoroughly established through an Eco-Efficiency Analysis conducted according to ISO14040 and ISO14044 and independently validated by the Swedish Environmental Research Institute.

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"This landmark methodology enables ship owners and operators to benefit twice when they invest in Intersleek® technology. Firstly, they can increase operational, environmental and energy efficiencies, which reduces fuel costs and emissions and then they can reap the additional financial benefits of carbon credits, which we will share with them. We will also handle all the administrative requirements, so customers don't have to invest time, capital or resource in generating the carbon credits," says Trevor Solomon, Intersleek Business Manager.

Adrian Rimmer, CEO of The Gold Standard Foundation, said: "This pioneering initiative will help to increase the uptake of clean technologies in the international shipping industry and credibility is key to its success. The Gold Standard looks forward to continuing its work with International® and the broader maritime sector as it develops its environmental credentials, enabling owners and operators to benefit from the commercial and reputational advantages of sustainable business."

-ends-

AkzoNobel is a leading global paints and coatings company and a major producer of specialty chemicals. We supply industries and consumers worldwide with innovative products and are passionate about developing sustainable answers for our customers. Our portfolio includes well-known brands such as Dulux, Sikkens, International and Eka. Headquartered in Amsterdam, the Netherlands, we are consistently ranked as one of the leaders in the area of sustainability. With operations in more than 80 countries, our 50,000 people around the world are committed to delivering leading products and technologies to meet the growing demands of our fast-changing world.

The Gold Standard is an award winning certification standard for carbon mitigation projects, recognised internationally as the benchmark for quality in both the compliance and voluntary carbon markets. The Gold Standard is the standard of choice for multiple governments, multinationals and the United Nations and the only certification standard trusted and endorsed by more than 80 NGOs worldwide. A carbon credit, or carbon offset, is a unit of measurement that represents the removal of one tonne of carbon dioxide equivalent (tCO2e) from the atmosphere. More information can be found at www.goldstandard.org

For more information

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News release

October 30, 2014

AkzoNobel details financial benefits of carbon credits methodology

Two ship owners are due to be awarded a combined total of almost $500,000 when the first claims resulting from a new carbon credits methodology developed by AkzoNobel and The Gold Standard Foundation are finalized next year.

The scheme allows ships to generate income in the form of carbon credits, which are earned by reducing CO_2 emissions. A total of 17 vessels feature in the first two claims, while 50 further vessels are expected to join the scheme by the end of the year.

The landmark methodology is based on ship owners converting existing vessels from a biocidal antifouling system to a premium, biocide-free advanced hull coating such as Intersleek, part of AkzoNobel's International marine coatings product line.

"With ship owners and operators under increasing pressure to drive efficiencies and improve sustainability, the ability of carbon credits to turn energy efficiency into bottom line benefits is a timely and significant step forward," said Trevor Solomon, Intersleek Business Manager at AkzoNobel's Marine Coatings business.

"Almost 90% of the shipping industry considers it important to measure emissions using a standard methodology, which makes carbon credits particularly advantageous for senior management teams who require evidence of a tangible return before investing in a clean technology such as advanced hull coatings," Solomon said. "This is possible through our partnership with The Gold Standard Foundation, which validates carbon credits based on vessel data that is collected, analyzed and for Intersleek, administered by AkzoNobel. As an additional step to ensure rigor and transparency, the fuel savings that are generated are also verified by independent UN accredited auditors"

Based on the 100 eligible ships already converted from a biocidal antifouling to Intersleek technology, there is an estimated $2.8 million worth of carbon credits potentially available to ship owners and operators.

As well as being able to sell the carbon credits, the scheme also offers ship owners the option of passing them on to other stakeholders, such as cargo owners, to offset their emissions. They can alternatively be used to voluntarily offset other sources of CO_2 emissions.

Adrian Rimmer, CEO of The Gold Standard Foundation, said: "This pioneering initiative is designed to help increase the uptake of clean technologies in the international shipping industry. We are following its progress with great interest."

Launched in April, the scheme is the first peer-reviewed and independently validated methodology that allows ships to generate carbon credits for the CO_2 emission reductions they achieve.

AkzoNobel spent more than two years developing the carbon credits methodology as part of its research into making eco-efficiency technologies more accessible for the wider shipping industry. The company worked with The Gold Standard Foundation because it is the highest quality and most trusted carbon certification standard with rigorous sustainability benchmarks.

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Since the official launch of the methodology in April 2014, many ship owners and operators around the world have welcomed and taken part in information seminars to better understand and disseminate the benefits of generating carbon credits.

AkzoNobel is a leading global paints and coatings company and a major producer of specialty chemicals. We supply industries and consumers worldwide with innovative products and are passionate about developing sustainable answers for our customers. Our portfolio includes well-known brands such as Dulux, Sikkens, International and Eka. Headquartered in Amsterdam, the Netherlands, we are consistently ranked as one of the leaders in the area of sustainability. With operations in more than 80 countries, our 50,000 people around the world are committed to delivering leading products and technologies to meet the growing demands of our fast-changing world.

Not for publication – for more information

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AkzoNobel
Marine Coatings

News release

April 24, 2015

Spanish ferry operator enrolls in AkzoNobel carbon credits program

Leading Spanish ferry operator Baleària has signed up to AkzoNobel's landmark carbon credits program. The company has enrolled its passenger ferry Martin i Soler into the scheme, which financially rewards ship owners by enabling them to generate income in the form of carbon credits earned by reducing CO_2 emissions.

The landmark program was developed in 2014 in conjunction with the Gold Standard Foundation. It is based on ship owners converting existing vessels from a biocidal antifouling system to a premium, biocide-free advanced hull coating such as Intersleek, part of AkzoNobel's International® line of marine coatings. Intersleek products are proven to reduce fuel consumption, and hence reduce CO_2 emissions.

The Martin i Soler was converted from an existing silyl biocidal antifouling to Intersleek®1100SR in November 2013. The vessel's performance was monitored over the following 12 months and showed a 12 percent improvement in fuel efficiency. These fuel savings – which equate to a reduction of 15 tons of CO_2 per day – convinced Baleària to enroll the vessel into the carbon credits program.

"We are happy with the performance of our vessel since Intersleek1100SR was applied," said Guillermo Alomar, managing fleet director of Baleària. "We decided to use the new technology due to the fuel saving potential and the positive environmental image of using biocide-free technology on our passenger vessels in the Mediterranean Sea. The performance improvement was immediately apparent and analysis of the first year of sailing data confirms a significant fuel saving of over 12 percent.

He added that Baleària intends to use the carbon credits as evidence of the ferry operator's commitment to reducing its impact on the environment and to aid investment in its other vessels.

Commenting on Baleària's enrolment, Trevor Solomon, Intersleek Business Manager for AkzoNobel's Marine Coatings business, said: "The fuel saving figures from the Martin i Soler prove that Intersleek 1100SR can give immediate efficiency gains and maintain those over time. This enables ship owners and operators to benefit from operational, environmental and energy efficiencies. Baleària joins a growing number of companies that have enrolled into the second round of carbon credit claims – our first claim, worth almost $500,000 for 17 vessels is being audited now – and we anticipate the first credits to be issued shortly."

Oscar Wezenbeek, Director of AkzoNobel's Marine Coatings business, added: "We are very pleased with the positive response to our carbon credits programme. Based on the 100 eligible ships already converted from a biocidal antifouling to Intersleek technology, there is an estimated $2.8 million worth of carbon credits potentially available to ship owners and operators."

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Stakeholder Feedback Round (SFR) – update

As outlined in the Local Stakeholder Consultation Report uploaded to the Registry on September 14, 2015 (filename: *IP Hull Coating Programme LSC Report 9sep15.pdf*), the details below summarize the process and the outcome of the SFR:

All invitees and participants in the various consultations are recorded and shown in the following documents, uploaded to the Registry:

- **Design consultation**: Hull_coating_PoA_design_consultation_14oct12.pdf
- **International Paint presentation of GS PoA**: London invites IP Apr 2014.pdf
- **Local stakeholder review**: VPA1 Local Stakeholder Review 29_06_2015.pdf

Stakeholder feedback round:

Stakeholder	Role as stakeholder	File name inviting comments
International Paint	Employees of advanced hull coating manufacturing plant	SFR email with link Akzo stakeholders July 10 2015.pdf See Annex 3
[redacted]	Shipping company with ships in VPA 1	SFR email with link [redacted] July 10 2015.pdf See Annex 4
Lykiardopolou	Shipping company with one ship in VPA 1	SFR email with link Lykiardopolou July 10 2015.pdf See Annex 5

The feedback from the two shipping companies involved in VPA 1 are as follows:

Minutes of other consultations

Besides physical meetings, there were e-mail consultations of shipping companies whose ships are included in VPA-1 (see Annexes 4 and 5). There were no minutes as such. Comments were received by e-mail, as follows.

[redacted] from [redacted] noted (See "LSC Feedback Aug 19 2015 [redacted].pdf"):
"*From our side, we don't have any formal objections on carbon credit project.*"

From Panos Deligiannis of Tankers Technical Dept., NEDA Maritime (Lykiardopolou & Co.) made the following suggestions to improve the project (See "LSC Feedback form Lykiardopolou July 22 2015.pdf"):

"Air quality indicator can be improved by gathering actual data for SOx, NOx COx emissions both from shipping and landbased industry. Water quality improvement can be additionally monitored through measurements taken via recently and future installation of ballast water management systems"

The documents listed above have been uploaded on the Registry as noted in section B.1.i.

Section F of the LSC Report, together with the supporting Annexes as shown below, specifically address the SFR process, feedback and outcome.

To summarize, there were no negative comments or other stakeholder feedback that warranted any changes at all in monitoring or other project parameters.

SECTION F. DESCRIPTION OF THE DESIGN OF THE STAKEHOLDER FEEDBACK ROUND

Text copied from GS rules is shown in blue below.
[See Toolkit 2.11]

The Stakeholder Feedback Round (SFR) was carried out for plant manufacturing workers following physical meeting held in Felling, UK on 26/6/2015. An SFR with ship owners/operators was conducted electronically via email and a public online posting for a period of 30 days, as agreed with the Gold Standard).

Stakeholder	Role as stakeholder	Copy of invitation letter
International Paint	Employees of advanced hull coating manufacturing plant	See Annex 3
[redacted]	Shipping company with ships in VPA 1	See Annex 4
Lykiardopolou	Shipping company with one ship in VPA 1	See Annex 5

LSC Report Annex 3. Invitation and link to submit comments for International Paint plant employees

Monday, July 13, 2015 at 1:25:45 PM Eastern Daylight Time

Subject: Carbon Credits Stakeholder Review - Feedback Request

Date: Friday, July 10, 2015 at 9:39:29 AM Eastern Daylight Time

From: Solomon, Trevor

To: Stephenson, Gordon, Montgomery, Helen, Finnie, Janine, Criddle, Robert, Bennett, Linda, Bruce, Samantha, Bullock, Allan, Prowse, Gareth, Allan, Dawn, McGurk, Catherine, Mason, Richard, Hewitt, Adam, Aydon, John, McConkey, David, Berry, Sarah, Booth, Lisa, Chubb, Christopher, Hall, Christine, Hughes, Sandra (Felling), King, Julie, Gent, Julie, Coutts, John, Curry, Andrew, Frank, Victoria

CC: Alison Morris, (amorris@fremco.com), neha.rao@goldstandard.org, vikash.talyan@goldstandard.org

Dear All,

For those who managed to attend the local stakeholder review for the AkzoNobel Carbon Credit Initiative a couple of weeks ago thank you for your time.

For those who were not able to attend, there is still the opportunity to participate as for the final part of the process we are required to publically post an opportunity for feedback from interested parties for which you are all now invited to do so.

The document is posted on our consultants' website and can be found by following this link

http://www.fremco.com/IP%20VPA1%20LSC%207%20July%202015.html

In case you have any trouble opening the file after pressing "download" due to firewall permissions, I have also attached the document for convenience.

This feedback opportunity will close on August 10th 2015 so I would ask you to send any feedback using the form direct to myself at your convenience before then.

Also attached for reference is the presentation which I gave at the review.

Kind regards

Trevor

Trevor Solomon
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LSC Report Annex 4. Invitation to [redacted] for Stakeholder Feedback Review

Wednesday, August 19, 2015 at 11:22:24 AM Eastern Daylight Time

Subject: R: Carbon Credits Update
Date: Wednesday, August 19, 2015 at 10:29:05 AM Eastern Daylight Time
From: [redacted]
To: Solomon, Trevor, [redacted]
CC: [redacted] Willsher, John

Dear Trevor,
From our side, we don't have any formal objections on carbon credit project. Unfortunately we'are not more able to open link sent for Local stakeholder review.
Thanks and best regards

Alberto [redacted]

Da: Solomon, Trevor [mailto:Trevor.Solomon@akzonobel.com]
Inviato: martedì 11 agosto 2015 11:36
A: [redacted] Willsher, John
Oggetto: RE: Carbon Credits Update

Dea[redacted]

Apologies for the formalities of this request but the Local Stakeholder Review has now closed but we need, for the record, confirmation that you have no objections. You can provide this by replying to this email.

Kind regards

Trevor

From: Solomon, Trevor
Sent: 10 July 2015 15:39
To: [redacted] Willsher, John (John.Willsher@akzonobel.com)
Subject: Carbon Credits Update

Dear[redacted]

In advance of our discussions next week, I would like to provide you with an update of where we are with the carbon credit project and invite you to participate in a local stakeholder review.

Update
We have just had a conference call with all parties involved with the logistics of the claim and I can now indicate to you the remaining steps and give provisional dates;

1. Final validation report from RINA now received.
2. Registration review commenced by the Gold Standard. Expected completion date 14th August

3. Verification audit by RINA. Expected completion by end September.
4. Issuance review by the Gold Standard. Completion 3 weeks after completion of verification audit.

This means that we have a preliminary Registration Date of 14th August. This is a formal notification from the Gold Standard that credits can be issued against the project (i.e. your vessels).

Depending on the verification audit timescales, we should be looking at credit issuance by end October. I will discuss with you next week the sale of the credits and our options.

Extra Data Requirements

Now that we have a clear understanding of the registration date we can carry out the final analysis in order to determine the emission reductions from your vessels for submission to the auditors for verification. For that, can I request that you kindly prepare data for the period up to 30th June for all of the vessels in the project? Ideally we would need this by the end of July.

Local Stakeholder Review

As part of the verification, the Gold Standard process calls for us to request feedback on the project from those involved and anyone else interested.

I would like to take this opportunity therefore to invite you to participate in that feedback. We have created a document in line with the Gold Standard guidance which can be found on our consultants' website by following this link

http://www.fremco.com/IP%20VPA1%20LSC%207%20July%202015.html

In case you have any trouble opening the file after pressing "download" due to firewall permissions, I have also attached the document for convenience.

This feedback opportunity will close on August 10th 2015 so I would ask you to send any feedback using the form direct to myself at your convenience before then.

Kind regards

Trevor

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LSC Report Annex 5. Invitation to Lykiardopolou for Stakeholder Feedback Review

Monday, July 13, 2015 at 1:26:42 PM Eastern Daylight Time

Subject: Carbon Credits Stakeholder Review - Feedback Request
Date: Friday, July 10, 2015 at 9:58:49 AM Eastern Daylight Time
From: Solomon, Trevor
To: technical@nedamaritime.gr
CC: Cass, Andrew

Message for Panos Deligiannis

To : Technical Department / Panos Deligiannis
Copies to : Andrew Cass (International Paint)
Subject : Carbon Credit Stakeholder Review

Dear Panos,

We are now moving ever closer to the carbon credit issuance. I apologise for the length of time this has taken but we are following due processes as quickly as we can.

The status of the project now is that we have the final validation audit report and have commenced the Registration Review by the Gold Standard.

The next phases after the registration review will be the verification of the claim amount from your vessel by the auditor and a carbon credit issuance review by the Gold Standard. It is at the end of the credit issuance review when the credits will be available for transfer to yourselves. We estimate that this will now be towards the end of October.

As part of the verification, the Gold Standard process calls for us to request feedback on the project from those involved and anyone else interested.

I would like to take this opportunity therefore to invite you to participate in that feedback. We have created a document in line with the Gold Standard guidance which can be found on our consultants' website by following this link

http://www.fremco.com/IP%20VPA1%20LSC%207%20July%202015.html

In case you have any trouble opening the file after pressing "download" due to firewall permissions, I have also attached the document for convenience.

This feedback opportunity will close on August 10th 2015 so I would ask you to send any feedback using the form direct to myself at your convenience before then.

Kind regards

Trevor

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