



RINA

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Final

TITLE OF CPA

“PAHSF Project 1”

TITLE OF POA TO WHICH CPA IS INCLUDED

“Programme for the application of advanced hull coatings
to reduce shipping fuel consumption (PAHSF)”

Monitoring period: 14/08/2013 to 30/06/2015

Report N° 2014DG28MD

Revision N° 2.2 Aa

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PoA Title: Programme for the application of advanced hull coatings to reduce shipping fuel consumption (PAHSF)		GS Registration Reference N° GS ID 3492	
CPA Title: PAHSF Project 1		GS Registration Reference N° GS ID 2767	
Monitoring period: 14/08/2013 to 30/06/2015	Estimated VERs (tCO₂e) annual average 29,100	Certified VERs (tCO₂e): 222,403 126,785 (after GS feedback)	
Client: International Paint Ltd	Client contact: Trevor SOLOMON		
Report No.: 2014DG28MD	Revision: 2.2 Aa	Date of this report: 11/02/2016	
Approved by (Final Report – AO Authorized office signing for the DOE):  Laura Severino		Date of approval: 26/02/2016	
Methodology			
Number: GS	Version: 2.0 of 17/11/2014	Title: Reducing vessel emissions through the use of advanced hull coatings	Scale Large
		SS(s): 7	
RINA Services S.p.A. (RINA), commissioned by International Paint Ltd, has verified the greenhouse gas emission reductions reported for the project activity “PAHSF Project 1”, GS Registration Reference N° GS ID 2767, for the period 14/08/2013 to 30/06/2015, with regard to the relevant requirements for GS activities. The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable GS VER requirements, which refer to CDM rules, in order to be certified. The PoA was validated by RINA SERVICES SPA (validation report N° 14DG28MD rev. 2.0 issued on 02/09/2015) and it was registered on 14/08/2015 under the GS registration reference N° GS ID 3492; the CpA was validated by RINA SERVICES SPA (validation report N° 14DG28MD rev. 2.0 issued on 02/09/2015) and it was registered on 14/08/2015 under the GS registration reference N° GS ID 2767. The GHG emission reductions were calculated on the basis of the approved GS methodology version 2.0 of 17/11/2014, Reducing vessel emissions through the use of advanced hull coatings and the monitoring plan included in the registered PoA-DD and VPA-DD, version 5 of 25/08/2015. In conclusion, it is RINA’s opinion that the project activity “PAHSF Project 1”, as described in the Monitoring Report version 5 of 01/12/2015 and version 6 of 21/01/2016, meets all relevant requirements for GS PoA/CPA activities and correctly applies the GS baseline and monitoring methodology “Reducing vessel emissions through the use of advanced hull coatings”, version 2.0 of 17/11/2014. Hence RINA is able to certify that the emission reductions from the project during the monitoring period 14/08/2013 to 30/06/2015 amount to 126,785 tCO₂e (after Gold Standard recommendation, before the certified amount was 222,403 tCO₂e).			
	2013	2014	2015
Baseline emissions tCO₂e	27,697	72,641	26,447
Project emissions tCO₂e	0	0	0
Leakage tCO₂e	0	0	0
Emission reductions tCO₂e	27,697	72,641	26,447



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Work verified by (Final Report – Scheme Manager)

Laura Severino

Keywords:

Climate Change, Kyoto Protocol, Verification, Gold Standard

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Abbreviations

BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CDM-PCP	Clean Development Mechanism Project Cycle Procedure
CDM-PS	Clean Development Mechanism Project Standard
CDM-VVS	Clean Development Mechanism Validation and Verification Standard
CER(s)	Certified Emission Reduction (s)
CH ₄	Methane
CR	Clarification Request
CME	Coordinating and Managing Entity
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CP	Certification Program
DD	Design Document
DNA	Designated National Authority
DNHA	Do No Harm Assessment
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reductions
FR	Feedback Round
GHG(s)	Greenhouse gas(es)
GS	Gold Standard
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LSC	Large scale
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PoA	Programme of Activities
PoA-DD	Programme of Activities Design Document
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SD	Sustainable Development
SDI	Sustainable Development Indicator
SMP	Sustainability Monitoring Plan
SS(s)	Sectoral Scope(s)



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SSC	Small Scale
UNFCCC	United Nations Framework Convention on Climate Change
VERs	Verified Emission Reduction(s)
VOC	Volatile Organic Component
VPA	Voluntary Programme Activity
VPA-DD	Voluntary Programme Activity Design Document

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1 INTRODUCTION

International Paint Ltd has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered “PAHSF Project 1”, GS Registration Reference N° GS ID 2767, for the period 14/08/2013 to 30/06/2015, included in the PoA “Programme for the application of advances hull coatings to reduce shipping fuel consumption (PAHSF)” – GS ID 3492.

This report summarizes the findings of the verification of the project, performed on the basis of GS VER requirements, which refer to CDM rules, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The objective of the verification is to have an independent review ex post determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered GS project activity during a defined monitoring period and to monitor the impact of project activity on sustainable development, throughout the monitoring of the non-neutral Sustainable Development Indicators and moreover to monitor all the mitigation and compensation measures put in place. Certification is the written assurance by the DOE that, during a specific time period, a proposed GS project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified and that all the defined Sustainable Development Indicators to be monitored have been monitored according to the sustainability monitoring plan and that all the mitigation measures forecast have been correctly and effectively implemented.

The objective of this verification/certification was to verify and certify emission reductions and effective implementation of the monitoring of sustainable development indicators and mitigation measures, reported for the “PAHSF Project 1” for the period 14/08/2013 to 30/06/2015.

1.2 Scope

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence;
- to evaluate whether all the mitigation measures have been effectively put in place according to the monitoring plan and that all the sustainable development indicators have been correctly monitored.

Verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable GS VER requirements which refer to CDM rules, in order to be certified.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

The GS criteria refer to GS requirements, GS Toolkit and supporting annexes.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

2 METHODOLOGY

Verification was conducted using RINA procedures in line with the requirements specified in the GS Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

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The verification consisted of the following three phases:

- Desk review;
- On-site assessment;
- The resolution of outstanding issues and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

2.1 Desk Review

The monitoring report, version 5 of 01/12/2015 and version 6 of 21/01/2016 /05/, the emission reduction calculations provided in the form of a spreadsheets, /13/, were assessed as part of the verification. In addition, the PoA-DD and CPA-DD /01/ /02/, in particular as regards the baseline estimations and the monitoring plan, the PoA and VPA Passport /03/ /04/, and the validation report, revision 2.0 of 02/09/2015 /11/ for the PoA and specific VPA, were reviewed.

The following table lists the documentation that was reviewed during the verification.

/01/	International Paint Ltd: CDM-PoA-DD for PoA "Programme for the application of advanced hull coatings to reduce shipping fuel consumption (PAHSF)", version 5 of 25/08/2015.
/02/	International Paint Ltd: CDM-CPA-DD for VPA "PAHSF Project 1", version 5 of 25/08/2015.
/03/	International Paint Ltd: PoA Passport for PoA "Programme for the application of advanced hull coatings to reduce shipping fuel consumption (PAHSF)", version 2 of 25/02/2015
/04/	International Paint Ltd: PoA Passport for VPA PAHSF Project 1", version 5 of 25/08/2015
/05/	International Paint Ltd: Monitoring report for VPA PAHSF Project 1, version 5 of 01/12/2015, version 6 of 21/01/2016
/06/	Gold Standard Foundation: Gold Standard Methodology Reducing emissions through the use of advanced hull coatings, version 2.0 of 17/11/2014
/07/	Gold Standard Foundation: The Gold Standard Requirements, version 2.2 of 01/06/2012
/08/	Gold Standard Foundation: The Gold Standard Principles, of May 2013
/09/	Gold Standard Foundation: The Gold Standard Toolkit, version 2.2 of 01/06/2012
/10/	Gold Standard Foundation: The Gold Standard PoA rules and guidance – Annex F (GSV2.2)
/11/	RINA SERVICES Spa – Validation Report No. 2014DG28MD version 2.0 of 02/09/2015
/12/	International Paint Ltd – Fouling control eco-efficiency analysis summary of 10/07/2015, for the following ships: - [REDACTED] 79707 - [REDACTED] 82974 - [REDACTED] 83199 - [REDACTED] 82973 - [REDACTED] 86374 - [REDACTED] 86377 - [REDACTED] 86375 - [REDACTED] 88032 - [REDACTED] 71589 - [REDACTED] 74845 - [REDACTED] 74599 - [REDACTED] 88027 - [REDACTED] 79832 - [REDACTED] 71590 - [REDACTED] Argenta

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/13/	International Paint Ltd: Ers analysis and calculation: - Argenta analysis 29sep15.xls - [REDACTED] 79707 analysis 23nov15.xlsx - [REDACTED] 82974 data analysis 29sep15.xlsx - [REDACTED] 83199 Analysis 29sep15.xlsx - [REDACTED] 82973 analysis 29sep15.xlsx - [REDACTED] 86374 analysis 29sep15.xls - [REDACTED] 86377 analysis 29sep15.xlsx - [REDACTED] 86378 analysis 29sep15.xlsm - [REDACTED] 86376 analysis 24nov15.xlsm - [REDACTED] 86375 analysis 24nov15.xlsx - [REDACTED] 88032 analysis 22nov15.xls - [REDACTED] 71589 analysis 29sep15.xlsx - [REDACTED] 74845 analysis 22nov15.xls - [REDACTED] 74599 analysis 22nov15.xls - [REDACTED] 88027 analysis 29sep15.xlsx - [REDACTED] 79832 analysis 29sep15.xlsx - [REDACTED] 71590 analysis 21nov15.xlsx
/14/	International Paint Ltd: Local stakeholder feedback form of 03/08/2015
/15/	International Paint Ltd: Local stakeholder feedback form of 22/07/2015
/16/	International Paint Ltd: Monitoring of environmental data and parameters of 02/10/2015 VPA 1 Monitoring environmental data parameters.xlsx
/17/	RINA Services Spa: International anti-fouling system certificate No. 74599-V042-001 of 08/11/2013 ship 74599 [REDACTED] (IMO Number [REDACTED]) – date of application of anti-fouling system 12/09/2013 Intersleek 757, 1100SR, Intersmooth 7460SPC.
/18/	RINA Services Spa: International anti-fouling system certificate No. 75845-R092-011 of 28/09/2013 ship [REDACTED] 74845 (IMO Number [REDACTED]) date of application of anti-fouling system 26/09/2013 Intersleek 750, 1100SR.
/19/	RINA Services Spa: International anti-fouling system certificate No. 83199-R037-001 of 23/12/2010 ship [REDACTED] 83199 (IMO Number [REDACTED]) date of application of anti-fouling system 28/10/2010 Intersleek 757
/20/	RINA Services Spa: International anti-fouling system certificate No. 2012/RM/01/627-C1 of 04/12/2012 ship [REDACTED] 82973 (IMO Number [REDACTED]) date of application of anti-fouling system 02/2011 Intersleek 757
/21/	RINA Services Spa: International anti-fouling system certificate No. 08/PU/01/775-12 of 03/08/2012 ship [REDACTED] 86374 (IMO Number [REDACTED]) date of application of anti-fouling system 08/2012 Intersleek 756
/22/	RINA Services Spa: International anti-fouling system certificate No. 2012/GE/01/2424 of 27/08/2013 ship [REDACTED] 86378 (IMO Number [REDACTED]) date of application of anti-fouling system 08/2013 Intersleek 757, 1100SR
/23/	RINA Services Spa: International anti-fouling system certificate No. 86375-R020-005 of 03/12/12 ship [REDACTED] 86375 (IMO Number [REDACTED]) date of application of anti-fouling system 08/2012 Intersleek 757
/24/	RINA Services Spa: International anti-fouling system certificate No. 79832-V032-001 of 11/01/2013 ship [REDACTED] 79832 (IMO Number [REDACTED]) – date of application of anti-fouling system 01/2011 Intersleek 757.
/25/	RINA Services Spa: International anti-fouling system certificate No. 097NA/01/80 of 08/03/2011 ship [REDACTED] 79707 (IMO Number [REDACTED]) – date of application of anti-fouling system 03/2011 Intersleek 970

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/26/	RINA Services Spa: International anti-fouling system certificate No. 2012/GE/01/2501 of 02/09/2013 ship [REDACTED] 86377 (IMO Number [REDACTED]) – date of application of anti-fouling system 08/2013 Intesleek 757, 1100SR
/27/	RINA Services Spa: International anti-fouling system certificate No. 88027-V024-001 of 21/12/2012 ship [REDACTED] 88027 (IMO Number [REDACTED]) – date of application of anti-fouling system 20/12/2012 Intersleek 757
/28/	RINA Services Spa: International anti-fouling system certificate No. 10.XH.114.01-03 of 09/01/2013 ship [REDACTED] 88032 (IMO Number [REDACTED]) – date of application of anti-fouling system 07/01/2013 Intesleek 757
/29/	RINA Services Spa: International anti-fouling system certificate No. 08/PU/01/772-12 of 10/09/2012 ship [REDACTED] 86366 (IMO Number [REDACTED]) – date of application of anti-fouling system 09/2012 Intersleek 757.
/30/	International Paint Ltd: Dataplan Coating and Inspection Report of 26/08/2011 ship [REDACTED] 71589 (IMO Number [REDACTED]) – date of application of anti-fouling system 08/2011
/31/	International Paint Ltd: Dataplan Coating and Inspection Report of 20/08/2013 ship [REDACTED] 86376 (IMO Number [REDACTED]) – date of application of anti-fouling system 08/2013
/32/	International Paint Ltd: Dataplan Coating and Inspection Report of 31/08/2013 ship [REDACTED] 71590 (IMO Number [REDACTED]) – date of application of anti-fouling system 08/2013
/33/	CDM Executive Board: Methodological tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 02 of 02/08/2008.
/34/	IPCC – 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2 Energy, Table 1.2, Table 3.5.2.
/35/	[REDACTED]: Weekly reports for consumption of fuel (2014)
/36/	CDM Executive Board: Methodological tool for the demonstration and assessment of additionality, version 07.0.0 of 23/11/2012.
/37/	AkzoNobel Technology and Engineering: Eco-Efficiency Assessment of 18/03/2011.
/38/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – Argenta, of 21/02/2010
/39/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 86375, of 25/08/2012
/40/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 86374, of 29/08/2012
/41/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 86377, of 03/09/2013
/42/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 86376, of 20/08/2013
/43/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 86378, of 28/08/2013
/44/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 82973, of 14/11/2011
/45/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 82974, of 02/02/2011
/46/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 83199 of 20/12/2010
/47/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 79707, of 10/10/2013
/48/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 79832, of 13/01/2011
/49/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] 74845, of 26/09/2013

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/50/	International Paint Ltd: Dataplan coating and inspection report [REDACTED] – [REDACTED] [REDACTED] 74599, of 10/09/2013
/51/	International Paint Ltd: Dataplan coating and inspection report [REDACTED]. – [REDACTED] 88032, of 08/01/2013
/52/	International Paint Ltd: Dataplan coating and inspection report [REDACTED]. – [REDACTED] 88027, of 20/12/2012
/53/	International Paint Ltd: Typical drydocking process procedure, of 04/2015
/54/	International Paint Ltd: Invitation for briefing “Turning Energy Efficiency into Bottom Line Benefits”, 29/04/2014 London.
/55/	International Paint Ltd: Generating carbon credits with Intersleek – Frequently asked questions, of 16/04/2014
/56/	International Paint Ltd: List of attendees to programme design consultation.
/57/	International Paint: Emission reductions calculation VPA_1 GS2767 ER 1dec15.xlsx Summary results_Shipping VPA rd_2 resp GD 21jan16 (2).xlsx
/58/	International Paint Ltd: Ers analysis and calculation: - Argenta analysis 20jan16.xls - [REDACTED] 79707 analysis original no D 13jan16.xlsx - [REDACTED] 83199 Analysis no D 19jan16.xlsx - [REDACTED] 82973 analysis 29sep15.xlsx - [REDACTED] 86374 analysis 20jan16.xls - [REDACTED] 86377 analysis 21jan16.xlsx - [REDACTED] 86378 analysis 20jan16.xlsx - [REDACTED] 86376 analysis 20jan16.xlsx - [REDACTED] 86375 analysis 21jan16 no D.xlsx - [REDACTED] 88032 analysis 20jan16.xls - [REDACTED] 71589 analysis no D 21jan16.xlsx - [REDACTED] 74845 analysis 22nov15.xls - [REDACTED] 74599 analysis 20jan16.xls - [REDACTED] 88027 analysis 20jan16.xlsx - [REDACTED] 79832 analysis 20jan16.xlsx - [REDACTED] 71590 analysis 6jan16 no D.xlsx
/59/	International Paint Ltd: VPA 1 Monitoring environmental data rev 19jan16.xlsx
/60/	Fathom – Hull Coating for Vessel Performance of September 2013
/61/	IMO – Air pollution and energy efficiency: a transparent and reliable hull and propeller performance standard, 23/12/2011
/62/	Jotun Hull Performance Solution – Low hanging fruit: optimising hull and propeller performance,

2.2 On-site assessment

From 09/02/2015 to 12/02/2015, RINA visited the offices of one of the ship company included in the specific VPA Project 1 ([REDACTED]). The specific VPA Project 1 includes 17 vessels of which 16 owned by [REDACTED] and 1 owned by [REDACTED]. As per the sampling method used with 5% of margin of error and with a confidence level of 95%, the sample size accounts to 17. Due to no availability of all 17 vessels, the following have been visited: [REDACTED] 74599 (Salerno), [REDACTED] 82973 (Civitavecchia), [REDACTED] 86377 (Livorno), [REDACTED] 86374 (Livorno), [REDACTED] 86375 (Genova), [REDACTED] 86376 (Livorno). The verification on-site visit was in conjunction with the validation site visit, since the monitoring period is a retro-active period. During the on-site assessment of the project, RINA assessed the implementation and

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operation of the proposed project activity, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment including calibration performance, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters, checked the correct and effective implementation of the mitigation measures foreseen in the sustainability monitoring plan, to prevent violation or the risk of violating a safeguarding principle of the “Do No Harm” Assessment or to “neutralize” a Sustainable Development Indicator.

The key personnel interviewed and the main topics of the interviews are summarized in the table below.

	Date	Name and Role	Organization	Topic
/a/	09/02/2015-12/02/2015	Alberto [REDACTED] Technical Department Energy Saving	[REDACTED]	Technical issues of vessels; fuel consumption; data used for baseline estimation.
/b/	09/02/2015-11/02/2015	Trevor SOLOMON Business Manager Marine Marketing	INTERNATIONAL PAINT Ltd	Description of PoA and VPA specific; baseline and additionality; emission reductions; duration of PoA and project activity, crediting period; environmental and social impacts; local stakeholder consultation; GS sustainable indicators.
/c/	09/02/2015	Giancarlo SPADAFORA Marine Sales Area Manager	AKZO NOBEL COATINGS SPA	Technical characteristic of hull coatings.

2.3 Resolution of outstanding issues

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the monitoring report and emission reductions.

To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three tables; the different columns in these tables are described in the figure below (see Figure 1). The completed verification protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CR) is raised if information is insufficient or not clear enough to determine whether the applicable GS VER requirements, which refer to CDM rules, have been met.

CARs, CRs identified are included in the verification protocol in Appendix A of this report.

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Figure 1 Gold Standard Verification protocol tables

Verification Protocol, Table: Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 1	Response by project participants	Verification Conclusion
The CAR and/or CRs raised in table 1 are repeated here.	Reference to the checklist question number in Table 1 where the CAR or CR is explained.	The responses given by the project participants to address the CARs and/or CRs.	The verification team's assessment and final conclusion of the CARs and/or CRs.

Verification Protocol, Table - Forward Action Requests			
Forward action request	Reference to Table 1	Response by project participants	Verification Conclusion
The FAR raised in table 1 is repeated here.	Reference to the checklist question number in Table 1 where the FAR is explained.	Response by the project participants on how forward action request will be addressed.	

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2.4 Internal quality control

All the revisions of the verification report, before being submitted to the client, were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM/GS validation and verification.

2.5 Verification team and the technical reviewer(s)

The verification team and the technical reviewers consist of the following personnel:

Role/Qualification	Last Name	First Name	Type of involvement*					
			DR	SV	REP	TE	TR	TER
Team Leader - GS/CDM Validator	VALOROSO	Rita	X	X	X			
Technical Expert SS 7 – TA 7.1	PESCETTO	Alessandro				X		
Technical Reviewer	MENON	Rekha					X	

*DR: Document Review; SV: Site Visit/Interview; REP: Reporting; TE: Technical Expert in Technical Area; TR: Technical Review; TER: Technical Expert in Technical Area for Technical Review.

3 VERIFICATION FINDINGS

The findings of the verification related to the monitoring period from 14/08/2013 to 30/06/2015 as documented and described in the monitoring report version 5 of 01/12/2015 /05/ are stated in the following sections.

3.1 Description of the project activity

The main information of the project is summarized in the table below.

Project Participant(s)	International Paint Ltd		
VPA Title	PAHSF Project 1		
Location of the project	NA		
Methodology(ies)	GS methodology: Reducing vessel emissions through the use of advanced hull coatings, version 2.0 of 17/11/2014 /06/		
Sectoral Scope(s)	7	Technical Area(s)	7.1
Registered PoA	version 5 of 25/08/2015		
Date of registration	14/08/2015	GS Registration Reference N°	3492

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Registered VPA	version 5 of 25/08/2015		
Date of registration	14/08/2015	GS Registration Reference N°	2767
Starting date of the crediting period of the VPA	28/02/2010		
PoA crediting period	28/02/2010 to 27/02/2020		
Monitoring period	14/08/2013 – 30/06/2015 (retro-active period)		
Purpose of the VPA	The VPA under the PoA will be ships travelling between ports in different countries. The fuel consumed in these trips is classified as international bunker fuels and the emissions from the combustion are not part of the GHG national inventories. Each VPA comprises a set of ships that are coated with an advanced hull coating and each ship can claim carbon credits for a single docking cycle with the application of the advanced hull coating.		

3.2 Remaining issues (FARs) from previous validation or verification

Based on the review of the validation /11/ 2 FARs were raised during the validation to be addressed during the first verification.

FAR 2: During the following verifications the DOE shall have the chance to look at feedback received from stakeholders received post-registration

FAR 3: At the time of the first verification the stakeholder feedback round shall be available for validation.

At the time of the verification of the retro-active period, the PP provided the Local Stakeholder forms /14/ /15/. All FARs have been successfully closed.

3.3 Monitoring Report

The Monitoring Report for the project activity PAHSF Project 1, version 5 of 01/12/2015 and version 6 of 21/01/2016 submitted by the International Paint Ltd have been the basis for the verification process.

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3.4 Project implementation

Actual implementation of the registered project activity

The purpose of the VPA is reduce the GHG emissions through the application of advanced low-resistance hull coatings instead of traditional coating which reduce hydrodynamic resistance thus reducing fuel consumption for ship propulsion. The VPA under the PoA will be ships travelling between ports in different countries. The fuel consumed in these trips is classified as international bunker fuels and the emissions from the combustion are not part of the GHG national inventories. Each VPA comprises a set of ships that are coated with an advanced hull coating and each ship can claim carbon credits for a single docking cycle with the application of the advanced hull coating. The docking cycle comprises the interval between successive dry dockings and is usually 60 months for large cargo vessels, though for some ships it can be 36, 30, 24 or even 12 months /01/ /02/. A set of 17 ships identified are included in the specific VPA PAHSF Project 1 /02/ as described in the table below; the ship types are Ro-Ro (Roll on Roll off) cargo, Ro-Ro (Roll on Roll off) passengers, pure car carrier and crude oil tank

Ship Id: IMO number	Ship name	Ship type	Intersleek
Shipping company:			
	86375	Ro-Ro Cargo	700
	86374	Ro-Ro Cargo	700
	86377	Ro-Ro Cargo	700/1100SR
	86376	Ro-Ro Cargo	700/1100SR
	86378	Ro-Ro Cargo	700/1100SR
	82973	Ro-Ro Passenger	700
	82974	Ro-Ro Passenger	700
	83199	Ro-Ro Passenger	700
	79707	Ro-Ro Passenger	900
	79832	Ro-Ro Passenger	700
	71590	Pure Car Carrier	700/1100SR
	71589	Pure Car Carrier	700
	74845	Pure Car Carrier	700/1100SR
	74599	Pure Car Carrier	700/1100SR
	88032	Ro-Ro Passenger	700
	88027	Ro-Ro Passenger	700
Shipping company:			
	Argenta	Crude Oil Tanker	900

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The expected operational lifetime of the VPA is determined for each ship and it is the length of the docking cycle which is typically 60 months for the cargo vessels, or shorter (36, 30 or 24 months) for some other ships. The length of the crediting period is strictly related to the duration of the docking cycle until each ship is coated again, therefore the overall crediting period for the VPA starts on the date that the first ship received the advanced hull coating and end when the last ship with the advanced hull coating reaches the end of its docking cycle. The monitoring period is related to retro-active period.

As verified through the International anti-fouling certificates and/or Dataplan and Inspection Report /17-32/, it is demonstrated that the advanced hull coating falling into the Interseek family products have been applied to the ships included in the VPA /02/.

Based on the onsite inspection and checking the above documents, RINA confirms that the project activity has been implemented and it is in operation as described above in accordance with the PoA and VPA in the registered PoA-DD and VPA-DD /01/ /02/

Post registration changes

As per the registered VPA the following ships are not taken into account for the monitoring period:

- (a) Ship [REDACTED] 79832 caught fire in May 2015
- (b) Ship Argenta the docking cycle ended in February 2015
- (c) Ship [REDACTED] 82974 : after the GS feedback/guidance Ship [REDACTED] 82974 has been removed from the ERs calculation, more details are included in section 3.5.4 of this report.

3.5 Methodology for determining Emission Reductions.

According to the applied methodology Gold Standard Methodology Reducing emissions through the use of advanced hull coatings, version 2.0 of 17/11/2014 /06/, the emission reductions have been calculated as follows.

Baseline emissions.

The baseline emissions are calculated as the fuel consumption which is the fuel that the ship would consumed if it had the historical, baseline coating. The historical data on daily fuel consumption are analysed using the regression approach which is in accordance with the applied methodology /07/. The following formula is used:

$$BE_{j,y} = \sum_i \left(\sum_k BFC_{i,j,k} \right) \times COEF_{i,y}$$

Where BFC is the quantity of fuel type that would have been combusted in ship during a specific year (excluding the fuel not used for propulsion), and $COEF$ is the CO_2 emission coefficient of fuel type in year (tCO_2 /mass or volume unit). According to the methodology the $COEF$ is determined as per the methodological tool to calculate project or leakage CO_2 emissions from fossil fuel combustion /33/. Option B is chosen where $COEF$ is determined using NCV and EF standard values as per the IPCC guidelines /34/. Each analysis contains data provided by the ship owner, as weather parameters, voyage parameters, fuel consumption separately for navigation and maneuvering activities /12/ /13/. The data are coming from weekly reports prepared by the personnel on board according the activities data /35/.

Project emissions.

The project emissions are determined by the emissions associated with the actual fuel consumption in ship propulsion following the application of the advanced coating products. The PP has demonstrated

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that the navigation fuel is only used for navigation and maneuvering activities thus data /35/ the data used are the same for both baseline and project scenario . Project emissions are considered as zero.

Leakage.

As per the applied methodology /06/ the PoA/VPA comprise the used of one coating product instead of another, no leakage effects are expected.

Emission Reductions

Since the project and leakage emissions are zero, the emission reduction equals to baseline emissions.

3.5.1 Compliance of the monitoring plan with the monitoring methodology and applicable methodological tools

The registered VPA applies the approved Gold Standard Methodology Reducing emissions through the use of advanced hull coatings, version 2.0 of 17/11/2014 /06/. RINA confirms that the monitoring plan in the registered VPA-DD /02/ complies with the applied GS methodology /06/ and with the sustainability indicators established by the Gold Standards requirements /07/ /09/.

3.5.2 Deviation in GHG emission reduction

Additionality assessment has been performed according to methodological tool for the demonstration and assessment of additionality /36/ is used which is line with the applied methodology /06/. The baseline scenario selection and the calculation of emission reductions have been carried out as per the approved GS methodology. RINA considers the same conservative and thus accepted.

3.5.3 Compliance of monitoring with monitoring plan

The following parameters have been monitored in accordance with the monitoring plan in the registered VPA-DD /02/ and the monitoring report /05/.

3.5.3.1 Data and parameters fixed ex-ante or at renewal crediting period

DATA/PARAMETER Unit	Unit	Reported value for the project period	Assessment/Observation
NCV residual fuel oil	TJ/Gg	40.4	The parameters have been validated at the time of validation as per the validation report /11/ and were cross checked with the IPCC guidelines Volume Energy (table 1.2 and 3.5.2) /34/.
NCV marine diesel	TJ/Gg	43.0	
NCV low Sulphur heavy fuel oil	TJ/Gg	40.4	
NCV liquefied natural gas	TJ/Gg	48.0	
EF residual fuel oil	Kg/GJ	77.4	
EF marine diesel	Kg/GJ	74.1	
EF low Sulphur heavy fuel oil	Kg/GJ	77.4	
EF liquefied natural gas	Kg/GJ	56.1	

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3.5.3.2 Data and parameters monitored ex-post

The ex-post parameters that are mentioned in the methodology are included in the VPA-DD and in the monitoring plan, and are provided in compliance with the methodology.

	Parameter	Description/Assessment
1	j ship	Identification number and name of the ship. The data is available from the ship owner or from the coating manufacturer. The monitoring frequency is once when the ship is coated.
2	date_prev(j).	date on which the previous coating application was finished on ship j. The data is available from the ship owner or from the coating manufacturer. The monitoring frequency is once when the ship is coated and it is recorded at the dry dock where the coating is applied.
3	Previous coating material (j). The data is available from the ship owner or from the coating manufacturer. The monitoring frequency is once when the ship is coated and it is recorded at the dry dock where the coating is applied.	
4	Hull cleaning (underwater) in baseline period (j). The data is available from the ship owner or from the coating manufacturer. The monitoring frequency is as needed and it is recorded at the dry dock where the hull is cleaned.	
5	Date_adv(j)	date on which the advanced coating application is finished on ship (j). The data is available from the ship owner or from the coating manufacturer. The monitoring frequency is once when the ship is coated and it is recorded at the dry dock where the coating is applied.
6	Advanced coating material (j). The data is available from the ship owner or from the coating manufacturer. The monitoring frequency is once when the ship is coated and it is recorded at the dry dock where the coating is applied.	
7	Main engine fuel (j). The data is available from the ship operator and fuel type will be confirmed with fuel purchase invoices.	
8	Auxiliary engine fuel (j). The data is available from the ship operator and fuel type will be confirmed with fuel purchase invoices.	
9	Engine or other modifications undertaken at the same time as the application of advanced hull coating. The data is available from the ship operator with documentation from third party (where applicable). The monitoring frequency is once at the time of hull coating.	
10	Change in fuel at the same time as the application of advanced hull coating. The data is available from the ship operator with documentation from third party (where applicable). The monitoring frequency is once at the time of hull coating.	
11	Voyage data for ships operating on shorter voyages or on long routes	(a) Date (b) Daily distance (nautical miles) (c) Daily streaming time (hours) (d) Average daily speed through water since last daily record (Knots) (e) Sea state (Beaufort number) (f) Vessel condition (ballast/loaded or displacement) (g) Fuel consumption of the main engine since last daily record (tonnes) (h) Daily fuel consumption of the auxiliary engine(s) since last daily record (tonnes) The data are available from ship operator and the monitoring

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		frequency is daily.
12	Voyage data for ships operating on shorter voyages	(a) Date of voyage start and end (b) Distance between departure port and arrival port (nautical miles) (c) Voyage time (hours) (d) Average navigation speed during voyage (Knots) (e) Sea state (Beaufort number) (f) Vessel condition of ship at the time of data recording (Ballasts/Loaded or displacement) (g) Fuel consumption of the main engine for navigation part of voyage (tonnes) (h) Fuel consumption of the auxiliary engine for navigation part of voyage (tonnes) The data are available from ship operator and the monitoring frequency is per voyage.

The monitoring frequency established by the PP for each parameter is in accordance with the applied methodology /06/. The measurement method and/or equipment have been defined as GPS, fuel flow meter and ship log data. The fuel flow meter are calibrated through periodic dip test on tanks.

The monitored data related to the retro-active monitoring period are available for each ship included in the registered VPA /02/ in emission reductions and analysis spreadsheets /13/.

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3.5.3.3 Gold Standard sustainability monitored parameters

Parameter	Sub-parameter	Assessment
Air Quality	VOCs NO _x SO _x	Reducing fuel consumption in ship engines means that less fuel is burnt with less emissions of SO _x and NO _x from combustion. At the same time the application of the Intersleek system reduces emissions of VOC compared to the biocidal systems /62/. The corresponding application is cross checked with the dataplan reports /30-32/ /38-52/ and with the Fouling control eco-efficiency analysis summary /12/. NO _x and SO _x are not quantified.
Water quality and quantity Biodiversity	Biocide content (kg)	According the procedure /53/ during the application of the Intersleek system the water consumption of fresh water is expected for vessel washed when repairs of fouling control systems occur, and no waste water treatment is needed, since the product is biocide free. No indicator is established for water consumption or discharge since there is no negative impact /37/.
Soil condition	Paint volume (litres) Waste tins (kg)	According the LCA study /37/ the Intersleek products are substantially lower in toxicity compared to biocidal systems and thus it does not affect the soil ecosystem.
Other pollutants	Acidification potential	Since the Intersleek system has no biocides means that none are released into the water; compared to the baseline coating, low quantity of copper is used and thus it reduces the potential acidification; less waste is generated due to less paint is needed; the intersleek system being biocid-free it does not impact the loss of biodiversity /37/. The data is not quantified.
Quality of employment	Labour conditions (job related health and safety)	The application of the Intersleek system reduces emissions of VOC compared to the biocidal systems thus workers are exposed to less contamination /37/. The corresponding application is cross checked with the dataplan reports /30-32/ /38-52/ and with the Fouling control eco-efficiency analysis summary /12/.
Human and institutional capacity	Training and education	In 2014 the CME provided training on carbon credits through webinar.
Technology transfer and technological self-reliance	Number and types of events attended and/or press releases published	Since CO ₂ emissions are dominated by ships from Non-Annex I countries, the GS carbon credits would help to promote the transfer of advanced coating technologies to these countries, and to ship owners and operators in general. Sessions to discuss the

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		methodology and the project have been organized /54/ /55/ /56/.
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Comparison of environmental parameters between pre-project implementation and project scenario.

Monitoring parameter	Baseline	Project	Reduction
VOCs (kg)	32,804	14,463	18,342
Biocide content (total)	59,360	0	59,360
Paint volume (litres)	78,106	55,995	22,111
Waste tins (kg)	8,592	6,159	2,432

3.5.4 Assessment of data and calculation of emission reductions

Availability of the data

The data for the retro-active monitoring period have been correctly monitored, recorded according to the applied GS monitoring methodology /06/ and all data are available for this monitoring period.

The monitoring frequency established by the PP for each parameter is in accordance with the applied methodology /06/. The measurement method and/or equipment have been defined as GPS, fuel flow meter and ship log data. The fuel flow meter are calibrated through periodic dip test on tanks.

The monitored data related to the retro-active monitoring period are available for each ship included in the registered VPA /02/ in emission reductions and analysis spreadsheets /13/.

3.5.5 Accuracy of emission reduction calculations

The emission reduction calculations provided in the spreadsheet /13/ have been verified to be correct and in line with the registered VPA-DD /02/.

Before GS recommendation/guidance.

The emission reductions from the project for the monitoring period as reported in the monitoring report revision 5 of 01/12/2015 /05/ is equivalent to 222,403 tCO_{2e}. The data presented in the monitoring report /05/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidence was presented and verified by RINA for the reported emission reductions as listed in the above Section 3.4.2.2.

After GS recommendation/guidance.

The approved selected methodology has two stage calculation method:

- Stage 1. Multiple linear regression using Time (D) and Speed (V) as key parameters to calculate emissions.
- Stage 2. If the Time (D) coefficient has little or no effect, then it reverts to the second stage which is a straight linear equation of emissions: Emissions = F (Speed).

Between the 17 vessels considered in VPA1, 12 used the D function and 5 didn't require the D function. According the GS recommendation, to calculate the emission reductions in a conservative way and avoid an over-estimation of baseline emissions the PP has revised/update the calculation as following:

- Run the remaining 12 vessels without D. If no change in statistical relevance of the analysis, the calculation is accepted if the overall savings are less than 18%.

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- For any vessel where D is significant, then re-run the analysis including D. If there is no significant difference between with and without D then revert to without D; if there is a significant change the calculation is accepted if the overall savings are less than 18%.

The deterioration rate which in turn increases resistance, has been reported to be between 10-30% over the typical docking cycle of a vessel. The Clean Shipping Coalition estimates a 15-20% decrease in vessel efficiency on average due to hull and propeller deterioration over a sailing interval /60/, the same data is estimated by IMO in the study of 2011 /61/. The study conducted by Jotun Marine /62/ based on vessel performance data collected from 32 vessels over 48 dry-docking intervals, concluded that average energy efficiency loss attributable to hull and propeller performance for a typical vessel in a typical trade was between 11 and 18%, depending on the length of its dry-docking interval (typically between 36 and 60 months). Based on the above studied the value defined by the PP can be considered conservative and justified.

- For any vessel falling outside of the GS recommendation a more conservative approach is adopted resetting D function to 1 after the end of the baseline time. If the baseline time period is 400 days, then D would be reset to 1 after each 400 day period.

According to the above approach, ship [REDACTED] 82974 has been removed from the ERs calculation because not in compliance and the total emission reductions accounts to 126,785 tCO₂e.

3.5.6 Accuracy of the GS indicators of sustainable development

The CME has a software which allow the monitoring of sustainability parameters summarized periodically in an Eco-Efficiency Report /12/.

3.5.7 Management system and quality control

To avoid double counting each VPA lists the names of the ships and their identification International Maritime Organisation. The CME keeps records of all the ships included in the VPAs to guarantee that no double counting could occur and check with Gold Standard to ensure that other Gold Standard projects or PoAs presented for similar project activities do not include any of the ships included in the proposed VPA.

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4 VERIFICATION AND CERTIFICATION OPINION

RINA Services Spa (RINA) has performed verification of the emission reductions reported for the VPA "PAHSF Project 1", GS Registration Reference N° GS ID 2767, for the period 14/08/2013 to 30/06/2015, with regard to the relevant requirements for GS activities.

The project participants of the "PAHSF Project 1" project are responsible for:

- the preparation of greenhouse gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the VPA-DD version 5 of 25/08/2015
- the development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project

It is the responsibility of RINA to express an independent verification opinion about the project's conformity with the requirements of paragraph 62 of the CDM modalities and procedures, GS requirements and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- the project has been implemented and operated as per the registered VPA-DD and Passport;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable GS VER requirements;
- monitoring is in place as per the applied baseline and monitoring methodology;
- monitoring complies with the monitoring plan in the registered VPA-DD and Passport;
- the monitoring plan in the registered VPA-DD and Passport is as per the applied baseline and monitoring methodology.

It is RINA's opinion that the GHG emission reductions stated in the monitoring report version 5 of 01/12/2015 and version 6 of 21/01/2016, for the "PAHSF Project 1" for the period 14/08/2013 to 30/06/2015 are fairly stated. The GHG emission reductions were calculated correctly, the sustainability development indicators were correctly monitored, on the basis of the approved GS monitoring methodology Reducing emissions through the use of advanced hull coatings, version 2.0 of 17/11/2014 and the monitoring plan contained in the registered VPA-DD.

Hence RINA is able to certify that the emission reductions from the project during the monitoring period 14/08/2013 to 30/06/2015 amount to 126,785 tCO_{2e} (after Gold Standard recommendation, before the certified amount was 222,403 tCO_{2e}).

GHG Emission Reductions or Removals	tCO _{2e}
Baseline Emissions	126,785
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	126,785

Genova, 04/02/2016



Rita Valoroso
GS Team Leader/Verifier
RINA Services Spa

Genova, 26/02/2016



Name
Authorized officer signing for the DOE
RINA Services S.p.A.

APPENDIX A

TABLE : RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
CAR 1			
CR 1			

TABLE: FORWARD ACTION REQUEST

Forward action request	Reference to Table 1	Response by project participants Verification conclusion
FAR 1		



RINA

**CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE**

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Rita Valoroso

è qualificato come1:
is qualified as:

**CDM -TEC, -VAL, -VER, -TL
TECHNICAL REVIEWER**

per le seguenti aree tecniche:
for the following technical areas:

1.2, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
13.1	Solid Waste and waste water	13

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	18-01-10	-
9	22-12-2014	Update qualification according to AS ver.6.0

Il Resp. QPT
Head of QPT

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS : Verified Carbon Standard:
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Alessandro Pescetto

è qualificato come¹:
is qualified as:

GS-TEC

per le seguenti aree tecniche:
for the following technical areas:

7.1 only for Naval sector, analyst of fleet energy data and
fleet performance data.

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
7.1	Transport	7

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	17-11-2014	First issue

Il Resp. QPT
Head of QPT

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
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CDM: Clean Development Mechanism
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RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Rekha Menon

è qualificato come¹:
is qualified as:

CDM-TEC, -VAL, -VER, -TL

per le seguenti aree tecniche:
for the following technical areas:

1.2, 2.1, 13.1, 13.2, 14.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
2.1	Energy Demand	2
13.1	Solid Waste and wastewater	13
13.2	Manure	13
14.1	Afforestation and reforestation	14

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	06-03-2008	-
10	22-12-2014	Update qualification according to AS ver.6.0

Il Resp. QPT
Head of QPT

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS : Verified Carbon Standard:
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

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RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports