

RV Belgica refit & replacement: the final step?



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Overview

1. Introduction
2. Regular & obsolescence maintenance
3. Replacement
4. Outlook

Introduction



Introduction

Characteristics

Built: 1984 in Temse (B) – 32 years
 Prize: 440 M BEF (11 M€)
 Length: 51 m
 Beam: 10 m
 Draft: 4.6 m
 Gross Tonnage: 765 t
 Berths Crew + Scientists: 15 + 16
 Operating cost: 2.8 M€/y incl. VAT
 - **Last 2 years:** > 4 M€/y incl. VAT



Introduction Management

**Owned by the Belgian Federal State
Responsibility of Belgian Science Policy**

**Convention Belgica
Ministry of Science Policy – Ministry of Defence**

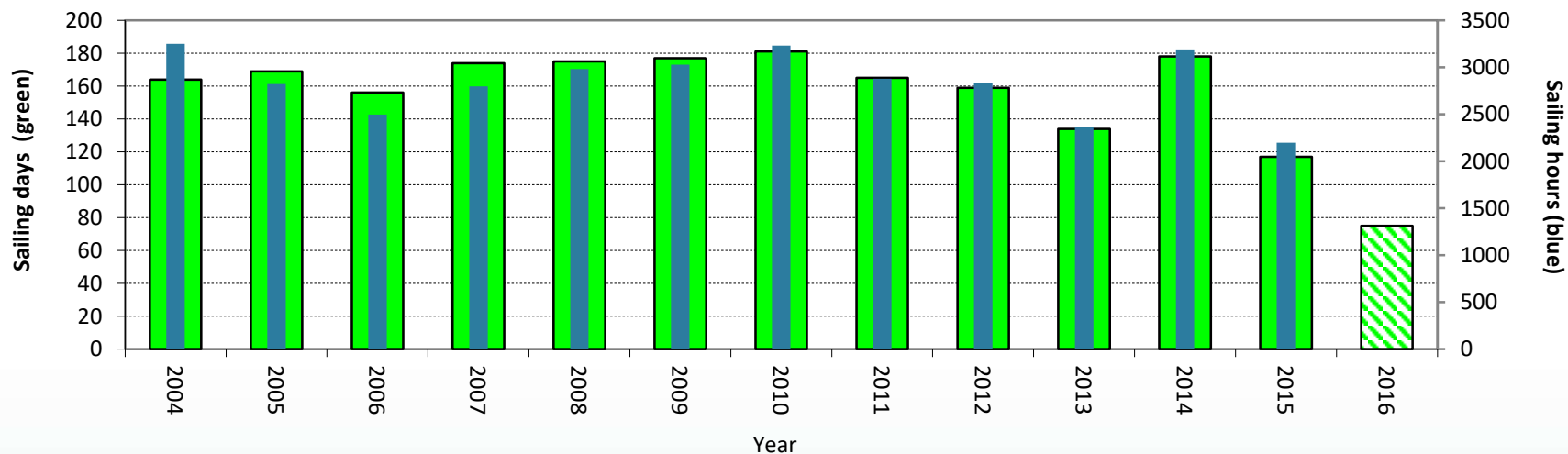
- **BELSPO – RBINS – OD Nature**
 - control of total budget (crew, maintenance, fuel etc.)
 - yearly scientific programming
 - detailed weekly campaign programming
 - scientific instrumentation
 - POC between scientists & crew
- **Defence – Marine component**
 - logistical and operational aspects
 - crew
 - maintenance contract
 - home port: Zeebrugge



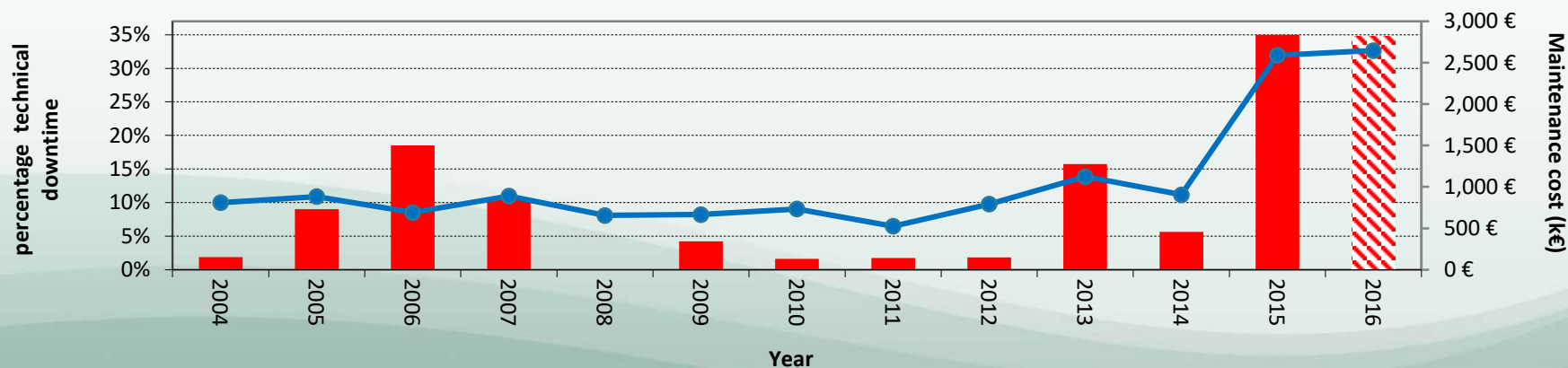
Introduction

Activity

Performed scientific sailing days



Technical downtime & maintenance cost



Regular & obsolescence maintenance



Flooding & damages

2015

- 19th of July: Flooding of engine room (0.8-1.2 m): affecting main engine, generators, pumps, electrical cabling, etc.
- Analyses showed that the hole was the result of biological corrosion mediated by sulfur-reducing bacteria
- Final cost was 1.5 M€ incl. VAT, of which 100 K€ was refused by the expert (cfr. regular maintenance costs)
 - CASCO insurers paid an advance of 900 k€
 - CASCO insurers refuse to pay the 250 k€ VAT (cfr. enrichment of the Federal State)
- Renewal CASCO insurance 2016 was obtained after an increase of the fee by 32%
- 63 planned scientific days lost; 17 programs affected (mainly seasonal monitoring – no recuperation)
 - Makeshift solutions using other vessels were problematic (cfr. cost, availability, capabilities, berths, etc.)
 - Campaigns were restarted from the 7th of Dec



Obsolescence maintenance

2016

- Obsolescence maintenance
 - Planned from 28th of March to 24th of August 2016
 - 1.019 M€ extra budget foreseen

January	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	Vacation	Zeebrugge	MT																												
February	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
March	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
April	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
June	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
July	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
August	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
September	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
October	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
November	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
December	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Obsolescence maintenance

2016

- Obsolescence maintenance
 - Replacement/automation of alarm & control systems engine room / main engine / propeller



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Obsolescence maintenance

2016

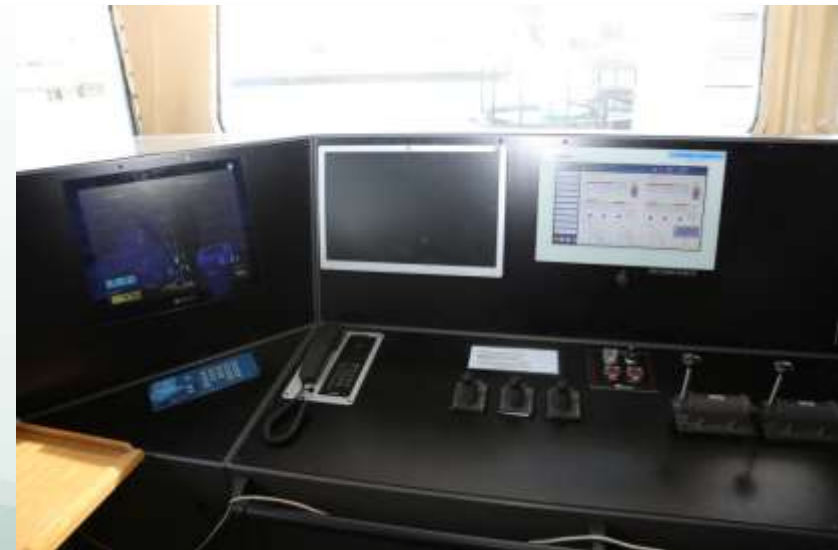
- Obsolescence maintenance
 - Replacement/automation of alarm & control systems engine room / main engine / propeller
Incl. bridge controls on portside



Obsolescence maintenance

2016

- Obsolescence maintenance
 - Replacement control systems hydraulic system
 - Incl. fishery corner on the bridge
 - Incl. bridge wing controls



Obsolescence maintenance

2016

- Obsolescence maintenance
 - Extension of fire and bilge alarm systems
 - Replacement of CCTV system
 - Replacement of telephone system
 - Replacement of navigation lights (LED)
 - Replacement flood lights (LED)
- Replacement of kitchen (cfr. HACCP)
 - New floor
 - List of rest points to be solved
- Replacement of living container
 - Discussion on acoustic norm



Regular maintenance

2016

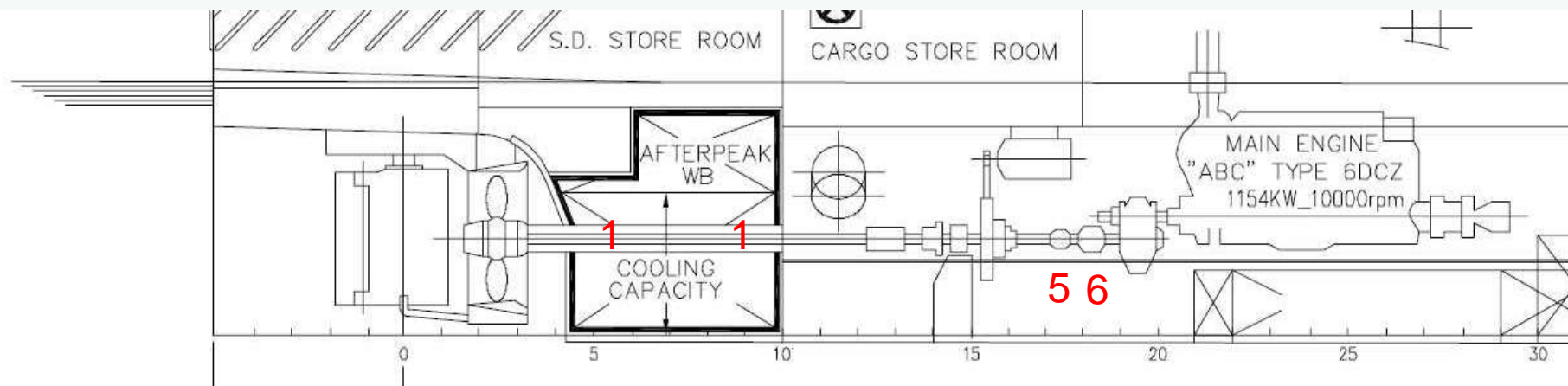
- Regular maintenance
 - Planned from 28th of March to 24th of August 2016 (cfr. obsolescence maintenance period)
 - 1.028 M€ budget foreseen
 - Standard dry dock foreseen cfr. Class (DNV-GL)
 - Propeller shaft needed to be removed and checked

...nothing special!?

Regular maintenance

2016

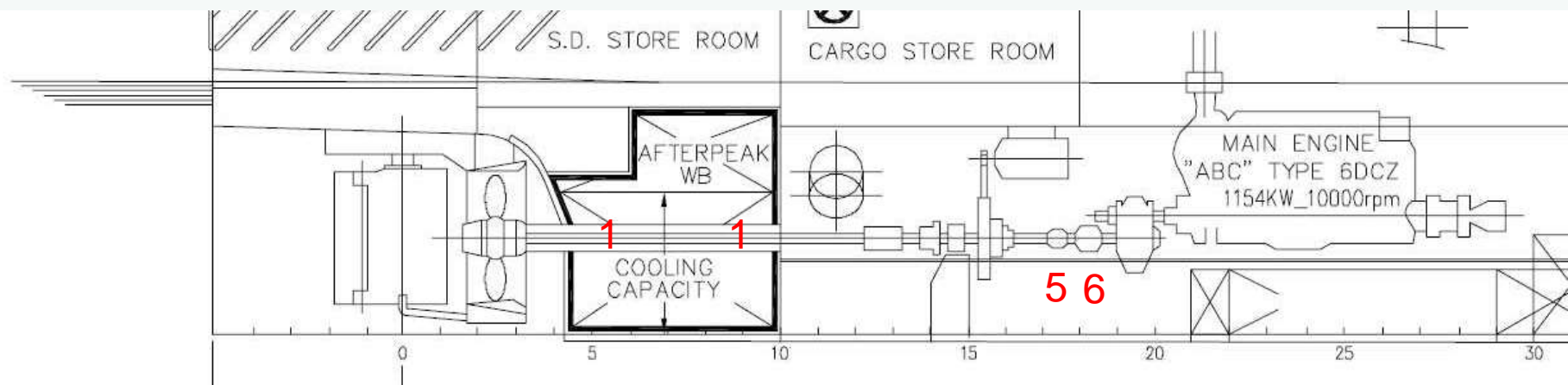
- Regular maintenance
 - Propeller shaft needed to be removed and checked
1. Stern tube bearings were run in (**April 2016**)
 2. Stern tube incl. bearings /propeller shaft were misaligned
 3. Realignment of stern tube incl. bearings /propeller shaft resulted in misalignment of propulsion line
 4. Propulsion line (incl. main engine) was moved to achieve alignment (i.e. 7 mm)
 5. During SAT the intermediate bearing overheated (> 90 degrees C; cfr. 55 degrees C) (**July 2016**)
 6. After adjustments bearing and tooth gear coupling overheated
 7. New measurement indicated again misalignment of propulsion line (i.e. 1 mm); propulsion line moved
 8. After several adjustments & SATs intermediate bearing still overheats (**October 2016**)



Regular maintenance

2016

- Regular maintenance
 - Overheating of intermediate bearing
 - Solution?
 - Who is responsible?
 - Who will pay?



Replacement



Replacement

2015-2016

- Working group with Cabinet Science policy
- Cooperation agreement Belgian Defence – Belspo – RBINS-OD Nature
 - Steering committee
 - Project team technical and scientific specifications (NewRV@belspo.be)
 - Working group operational aspect – convention
- Final input by scientists cfr. scientific needs
- New support letters rectors/directors of universities, institutes & private companies
- Contacts were made with neighboring countries for cooperation (FR, UK, NL, DK, LUX, etc.)
- Note to Council of Ministers (CoM) finalized
 - Inter Cabinet Working group was successful
 - Decision will be made during budget negotiations (before mid Oct 16)
- End 2016: finalizing of tender document
 - In the meanwhile we discussed the specifications with 9 ship yards (ESP, FR, NED, UK)

Replacement

Built:	2018 - 2020
Prize:	54, 5 M€ incl. 21% VAT
Length:	> 65 m
Beam:	> 15 m
Draft:	Max. 4.8 m
Berths Crew + Scientists:	15 + 24
Days (24h) at sea:	300/y
Operating cost:	4,3 M€/y incl. VAT



Outlook



Outlook

RV Belgica & replacement

- Return of the ship to sea in November 2016
- 188 planned scientific sailing days in 2017
- Tender for the new ship in 2017
- Delivery of the new ship in 2020



Thank you!



Please visit: odnature.naturalsciences.be/belgica (website, Facebook, Twitter, etc.)