

**Programme:** 100m LNG Dual-fuel Ro-Ro Passenger Ferry

**Review Period:** January 2023

<u>Name</u>	<u>Job Title</u>	
David Tydeman	CEO	
[REDACTED]	Ship Delivery Director	
[REDACTED]	Ship Delivery Director	
[REDACTED]	CFO	



# Agenda

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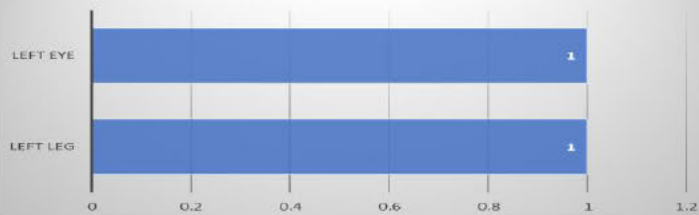
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# HSE Dashboard December 2022

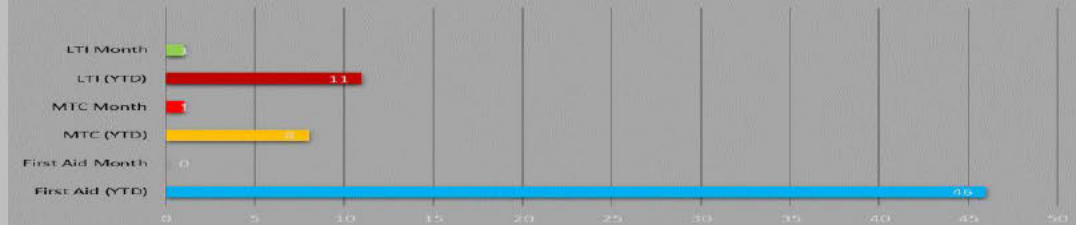
\* Per 1,000,000 working hours  
\*\* Estimated no. of hours worked

Incident Statistics	Target	Actual		Fatal	0	Fire	0	Proactive Statistics	Target		Actual	
	2022	Month	YTD						Month	2022	Month	YTD
Number of Hours Worked**	870,000	69509	636431	RIDDOR	1	Damage	0	Number of YSYD Cards	>50	>600	48	427
Number of Lost Time Incidents (> 3 Days)	< 9	1	11	LTI (> 3days)	1	Environmental	0	Toolbox Talks Issued	2	24	2	16
Lost Time Incident Freq Rate*	< 30.14	14.39	17.28	Medical Treatment (MTC)	1	Serious Near Miss	0	Housekeeping Inspections	4	48	4	29
Number of Recordable Injury Incidents	< 30	1	16	First Aid	0	YSYD	48	Emergency Drills Completed	>4	>48	2	19
Total Recordable Injury Incident Rate*	< 35.0	28.77	29.85	Total Injuries	2	TOTAL Incidents	2	Vessel Compliance Checks	30	420	30	260

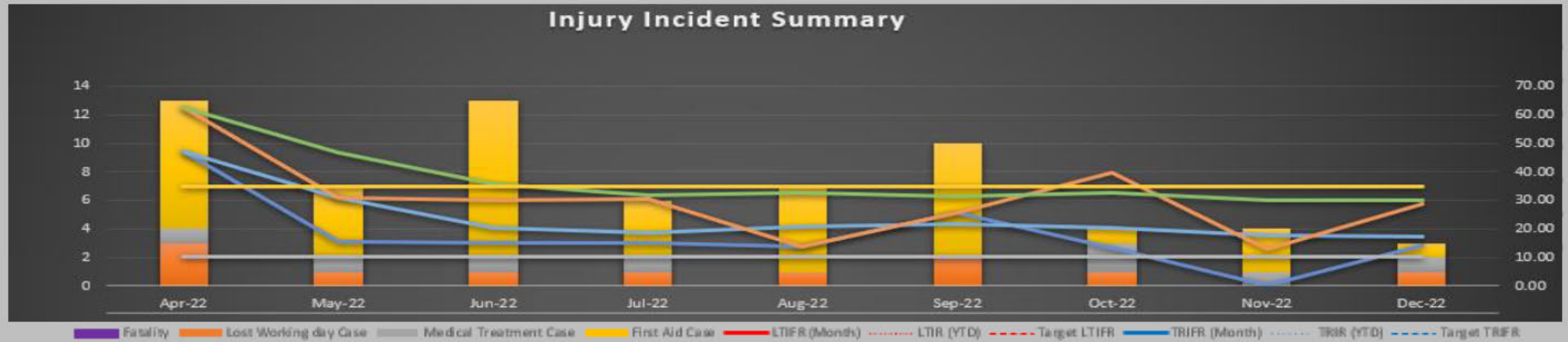
Affected Areas Dec 22



Reported Incidents YTD 2022



Injury Incident Summary



# HSE Summary November 2022

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## Progress Update:

- We experienced a RIDDOR this month - incidents reported with – 1 RIDDOR, 1 MTC reported.
- As we continue to move through the commissioning part of the project on 801 extra vigilance is required throughout including better communications and supervision onboard.
- Encouraging and driving better engagement in YSYD program from all, FMPG Management and Supervision & Subcontractor involvement will now be reviewed weekly.
- Vessel Daily HSE inspections continue to be valuable on both vessels, these along with the weekly safety walk around is helping drive continual improvement throughout all areas of the yard and both vessels, these inspections were noted as a positive improvement from the HSE.
- Following a successful trial of various gloves these will now be introduced into circulation in January, Toolbox Talk to follow in the coming days.
- HSE inspection Report – Report received 22nd December with 4 opportunities of improvement detailed in the report.
  - Management of Permit to Work
  - Management of Work at Height (Control of Scaffolding Arrangements)
  - Number of Competent Persons Appointed within HSE Department
  - Emergency Procedures to be implemented following Fire Safety Risk Assessment



# 801 Level 0 Programme



**Subject to update after Dry Dock**

# LNG Update

Latest LNG update/plan below, now based on confirmed lead time and [REDACTED] update:

Preliminary Plan, Pending Skid Approval from [REDACTED] Register

	2022		2023									
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct
Plan Approval												
Equipment Order + Manufacture + Inbound Equipment												
Skid Manufacture, Assembly & Testing												
Despatch to Shipyard												
Installation at Ship												
Commissioning and Testing												
Vessel Available for Service												

[REDACTED] Update 12/12/2022

FMPG PO 111310 (replacing 111098) received against VOR 400005853a + 400005883a, thanks for trust in us.

Actions ongoing:

1. Procurement: Ordering VMS at skid maker. Equipment needed for skid assembly already ordered. PRV's can't be in time as known, est delivery end-Jul-23/early-Aug-23 at yard, borrow from bunkerline meanwhile;
2. Engineering:
  - a. P&ID draft to be approved,
  - b. VMS GA + STP under work as priority. We can & will change orientation of vent outlet (Z) to upwards as requested by you;
  - c. Pkg of all doc updates will be taken under work and IPI update will follow in couple of weeks.
3. Class approval: after documentation is ready, we will send replies to comments + package to LR, hopefully DAD will follow soon;

# 801 RAG Status



Discipline	Overall Status							
	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23
Overall Status	R	A	A	A	A	A	A	A
Safety	R	R	A	A	A	A	A	A
Engineering- Design	R	R	R	R	R	R	R	R
Procurement	R	A	A	A	A	A	A	G
Hot-Work	R	A	A	A	A	A	A	A
Piping - FMPG	R	R	A	A	A	A	A	A
[REDACTED] Piping	R	A	A	A	A	A	A	A
[REDACTED] Piping	R	A	A	A	A	A	A	A
Mechanical	A	A	A	A	A	A	A	A
[REDACTED] Electrical	R	R	R	R	A	R	R	R
[REDACTED] HVAC	A	A	A	A	A	A	A	A
Commissioning	A	A	A	A	A	A	A	A
LNG	A	A	R	R	R	R	R	R
Lift Install	A	A	A	A	A	A	A	A
RO-RO Equipment						A	A	A

[REDACTED]

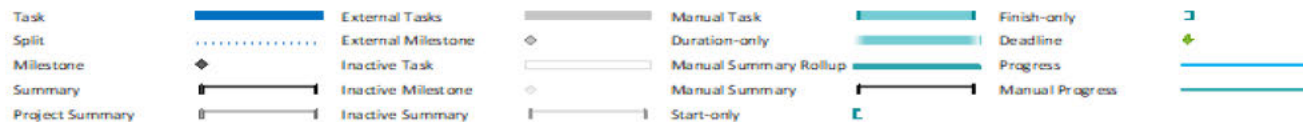


# 801 Critical Path



ID	Phase	Task Name	Start	Finish	RAG	% Work Comp	Comments	Main Discipline	Half 2, 2022	Half 1, 2023								
									S	O	N	D	J	F	M	A	M	
1	Engineering/Design	Completion of engineering and design	Sat 26/11/22	Fri 31/03/23	Red	65%	Newly uncovered design deficiencies , potential delay to programme. [REDACTED]	Engineering/Design										
2		Review of P&IDs	Mon 17/10/22	Fri 31/03/23	Yellow	75%	Review of P&IDs, 23 now reviewed and returned from to Engineering.											
3		LNG systems	Mon 14/11/22	Thu 22/12/22	Red	70%	Review of system uncovering additional design work. [REDACTED]											
4		Hazardous zone plan	Tue 15/11/22	Fri 27/01/23	Green	100%	Complete approved.											
5		Shipwide piping systems	Mon 03/10/22	Fri 31/03/23	Red	65%	Ongoing review of shipwide systems, identifying non compliant technical issues.											
6	Phase 1	Hotwork Completion	Mon 12/09/22	Fri 10/02/23	Yellow	96%	63 Work Packs Remaining on original scope, 23 open for change/rework. Revised [REDACTED]											
7	Confidence level on delivery of the vessel will move to 75% on completion of phase 1 tasks.	Switchboards / MCC's & UPS's	Sat 05/11/22	Fri 13/01/23	Yellow	85%	Switchboard cabling on priority systems progressing well. [REDACTED]	Electronic/Electrical										
8		Emergency Generator Load Test	Tue 18/10/22	Thu 20/10/22	Green	100%	load testing successfully completed.	Commissioning										
9		HTAT System	Mon 03/10/22	Fri 04/11/22	Green	100%	Operationally available subject to refill. [REDACTED]	Piping										
10		Harbour Generator	Tue 18/10/22	Fri 21/10/22	Green	100%	First run 18th Oct, load test to follow. [REDACTED]	Commissioning										
11		Auxiliary Generators	Wed 07/12/22	Fri 16/12/22	Yellow	95%	Pipe systems complete service team now onsite. [REDACTED]	Commissioning										
12		Main Engines	Sun 08/01/23	Fri 27/01/23	Yellow	70%	service team now onsite, modifications works ongoing [REDACTED]	Commissioning										
13		Gear box & Propulsion Commissioning	Sun 08/01/23	Fri 27/01/23	Yellow	50%	service team now onsite, modifications works ongoing [REDACTED]	Commissioning										
14	Phase 2	Generator Load Test	Tue 07/02/23	Fri 17/02/23	Green	20%	Emergency generator fully load tested. [REDACTED]	Commissioning										
15	Confidence level on delivery of the vessel will move to 80% on completion of phase 2 tasks.	PMS Set Up	Thu 05/01/23	Tue 07/03/23	Yellow	50%	[REDACTED] now received.	Electronic/Electrical										
16		Preliminary Inclining Test	Fri 20/01/23	Fri 17/02/23	Green	0%	N/A	Commissioning										
17		Fwd & Aft Thrusters	Wed 08/03/23	Fri 17/03/23	Green	75%	Final cables being installed, pitch pipework underway.	Mechanical										
18		Steering Gear	Mon 10/10/22	Mon 27/03/23	Green	80%	Final cables being installed.	Mechanical										
19		Stabilisers	Mon 27/03/23	Fri 07/04/23	Green	65%	Self contained stabiliser unit, Control cabling installation underway.	Mechanical										
20		Bilge / Ballast System	Sun 22/01/23	Thu 09/03/23	Green	90%	Install ongoing, modifications to carry out.	Piping										
21		Fuel Oil System & Purifiers	Mon 10/10/22	Sun 19/02/23	Green	98%	Install ongoing, modifications to carry out. Engineering/Design to clarify. Still rem [REDACTED]	Piping										
22		Lub Oil System & Purifiers	Mon 17/10/22	Sun 19/02/23	Green	90%	Engineering/Design mnds now clarified and need to be addressed.	Piping										
23		Domestic Fresh Water	Wed 01/02/23	Thu 09/03/23	Yellow	85%	Install ongoing, modifications to carry out. Engineering/Design to clarify.	Piping										
24		Black Water System	Mon 06/02/23	Fri 10/03/23	Yellow	60%	Design issues now being reviewed causing major rework.	Piping										

801 - Critical Path - Level 1  
Issue : 06 February 2023





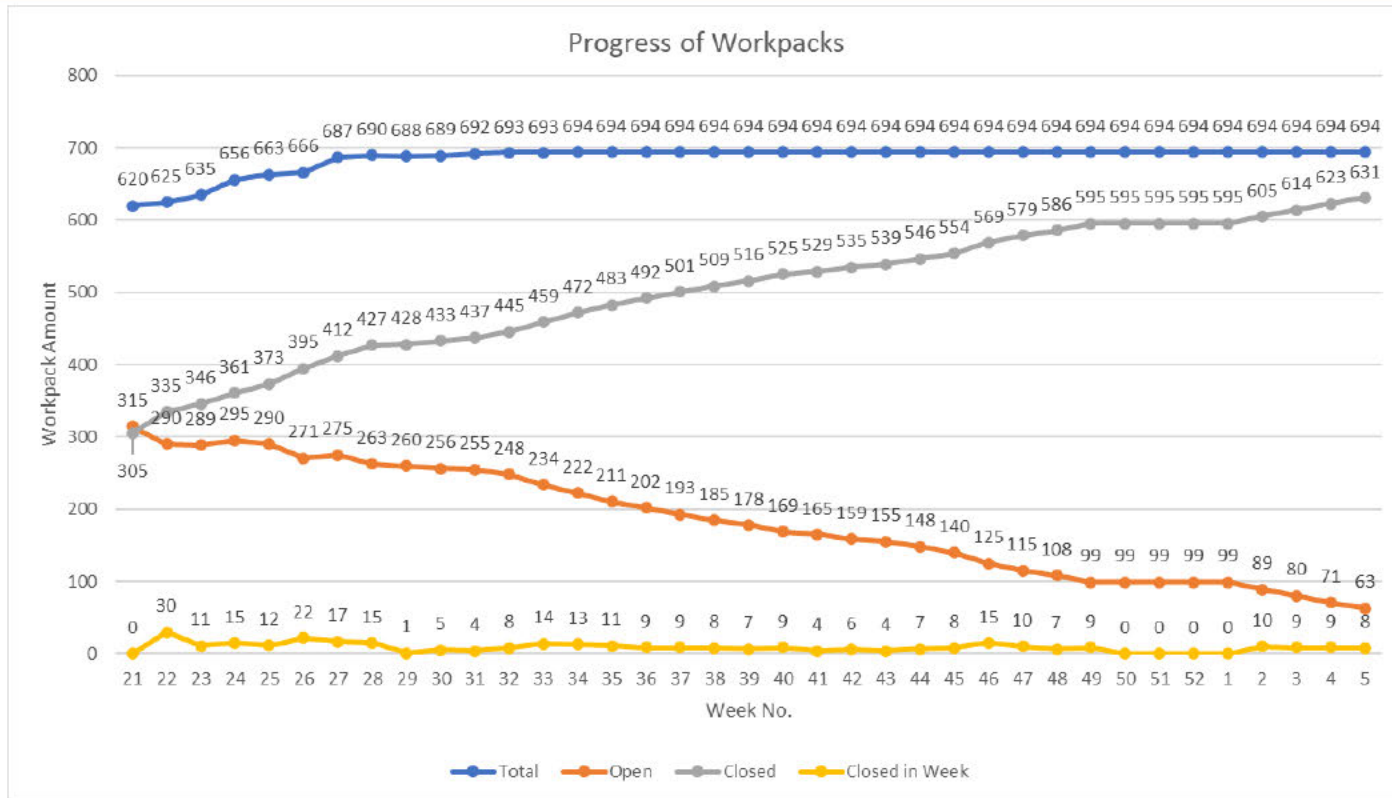
# 801 Critical Path Continued

ID	Phase	Task Name	Start	Finish	RAG	% Work Comp	Comments	Main Discipline	Half 2, 2022	Half 1, 2023							
									S	O	N	D	J	F	M	A	M
25		Accommodation Outfit	Mon 03/10/22	Tue 07/03/23	Green	75%	Progressing with minor changes.	Outfitting	[Gantt bar from Oct 2022 to Mar 2023]								
26	Phase 3	Galley, Servery & Bar	Mon 07/11/22	Fri 03/03/23	Green	65%	awaiting delivery of specialised equipment, rescheduled completion date.	Hotwork	[Gantt bar from Nov 2022 to Mar 2023]								
27	Confidence level on delivery of the vessel will move to 90% on completion of phase 3 tasks.	Navigation Systems & External Comms	Fri 06/01/23	Fri 14/04/23	Yellow	45%	Installation of cabling ongoing.	Electronic/Electrical	[Gantt bar from Jan 2023 to Apr 2023]								
28		Internal Comms & Entertainment Syst	Fri 20/01/23	Fri 28/04/23	Yellow	20%	Installation of cabling ongoing.	Electronic/Electrical	[Gantt bar from Jan 2023 to Apr 2023]								
29		HVAC & Cold Stores	Mon 12/12/22	Thu 23/03/23	Yellow	70%	Major rework required above cold stores.	HVAC	[Gantt bar from Dec 2022 to Mar 2023]								
30		Safety Systems	Mon 14/11/22	Fri 21/04/23	Red	10%	Electrical design clarifications affecting progress.	Piping	[Gantt bar from Nov 2022 to Apr 2023]								
31		Passenger & Crew Lifts	Wed 25/01/23	Mon 24/04/23	Yellow	25%	[REDACTED] on site, initial survey work undertaken and install work now ongoing	Hotwork	[Gantt bar from Jan 2023 to Apr 2023]								
32		Fire Fighting & Detection	Mon 16/01/23	Fri 21/04/23	Yellow	40%	Missing components now identified.	Piping	[Gantt bar from Jan 2023 to Apr 2023]								
33		Shell Side Doors	Mon 05/12/22	Fri 31/03/23	Yellow	55%	Hydraulic pipes require strip out as consequence of LNG vacuum skid	Mechanical	[Gantt bar from Dec 2022 to Mar 2023]								
34		Clam Shell Doors	Mon 14/11/22	Fri 17/02/23	Yellow	85%	Legacy work still being addressed, major scaffold now complete. Hot work has completed	Hotwork	[Gantt bar from Nov 2022 to Feb 2023]								
35	Phase 4	Ramps (Fwd & Aft)	Wed 30/11/22	Fri 07/04/23	Yellow	50%	Aft ramp awaiting pipework completion, forward ramp to install.	Mechanical	[Gantt bar from Dec 2022 to Apr 2023]								
36	Confidence level on delivery of the vessel will move to 100% on completion of phase 4 tasks.	Deck Machinery (Winders & Bollards)	Mon 06/02/23	Fri 31/03/23	Green	70%	All machinery now installed with cabling underway, commissioning will follow dry dock	Mechanical	[Gantt bar from Feb 2023 to Mar 2023]								
37		Basin Trials (Propulsion)	Mon 20/02/23	Thu 16/03/23	Yellow	0%	Complete after drydock, driven by repair work to stern tubes	Commissioning	[Gantt bar from Feb 2023 to Mar 2023]								
38		Drydock	Mon 20/02/23	Thu 02/03/23	Yellow	10%	Now planned for 20th Feb until 2nd March.	External	[Gantt bar from Feb 2023 to Mar 2023]								
39		MES Deployment	Mon 06/03/23	Mon 06/03/23	Yellow	0%	Subject to availability of ships crew.	Electrical/Electronic	[Gantt bar from Mar 2023 to Mar 2023]								
40		Mezz Deck Load Test	Mon 13/03/23	Fri 07/04/23	Yellow	0%	Dependant on dry dock and basin trials	Engineering	[Gantt bar from Mar 2023 to Apr 2023]								
41		Dock Trial (Pre-Sea Trial)	Tue 04/04/23	Fri 07/04/23	Yellow	0%	Dependant on dry dock and basin trials	Commissioning	[Gantt bar from Apr 2023 to Apr 2023]								
42		Inclining Test	Fri 07/04/23	Sun 09/04/23	Green	0%	Postponed due to new preliminary inclining test date.	Engineering	[Gantt bar from Apr 2023 to Apr 2023]								
43		Builder Sea Trials	Fri 14/04/23	Mon 17/04/23	Yellow	0%	Dependant on plan.	Commissioning	[Gantt bar from Apr 2023 to Apr 2023]								
44		Owners Sea Trials	Fri 21/04/23	Sun 23/04/23	Yellow	0%	Dependant on builders sea trials.	Commissioning	[Gantt bar from Apr 2023 to Apr 2023]								
45		LNG Bunkering & Commissioning	Mon 24/07/23	Sat 12/08/23	Red	30%	Major modifications to incorporate vacuum sensing module.	Commissioning	[Gantt bar from Jul 2023 to Aug 2023]								
46		LNG Dock Trial	Sun 13/08/23	Sun 13/08/23	Red	0%	To be discussed, FMPG/CMAL/CAIMAC/SG.	Commissioning	[Gantt bar from Aug 2023 to Aug 2023]								
47		LNG Sea Trials	Mon 14/08/23	Tue 22/08/23	Red	0%	To be discussed, FMPG/CMAL/CAIMAC/SG.	Commissioning	[Gantt bar from Aug 2023 to Aug 2023]								

801 - Critical Path - Level 1  
Issue : 06 February 2023

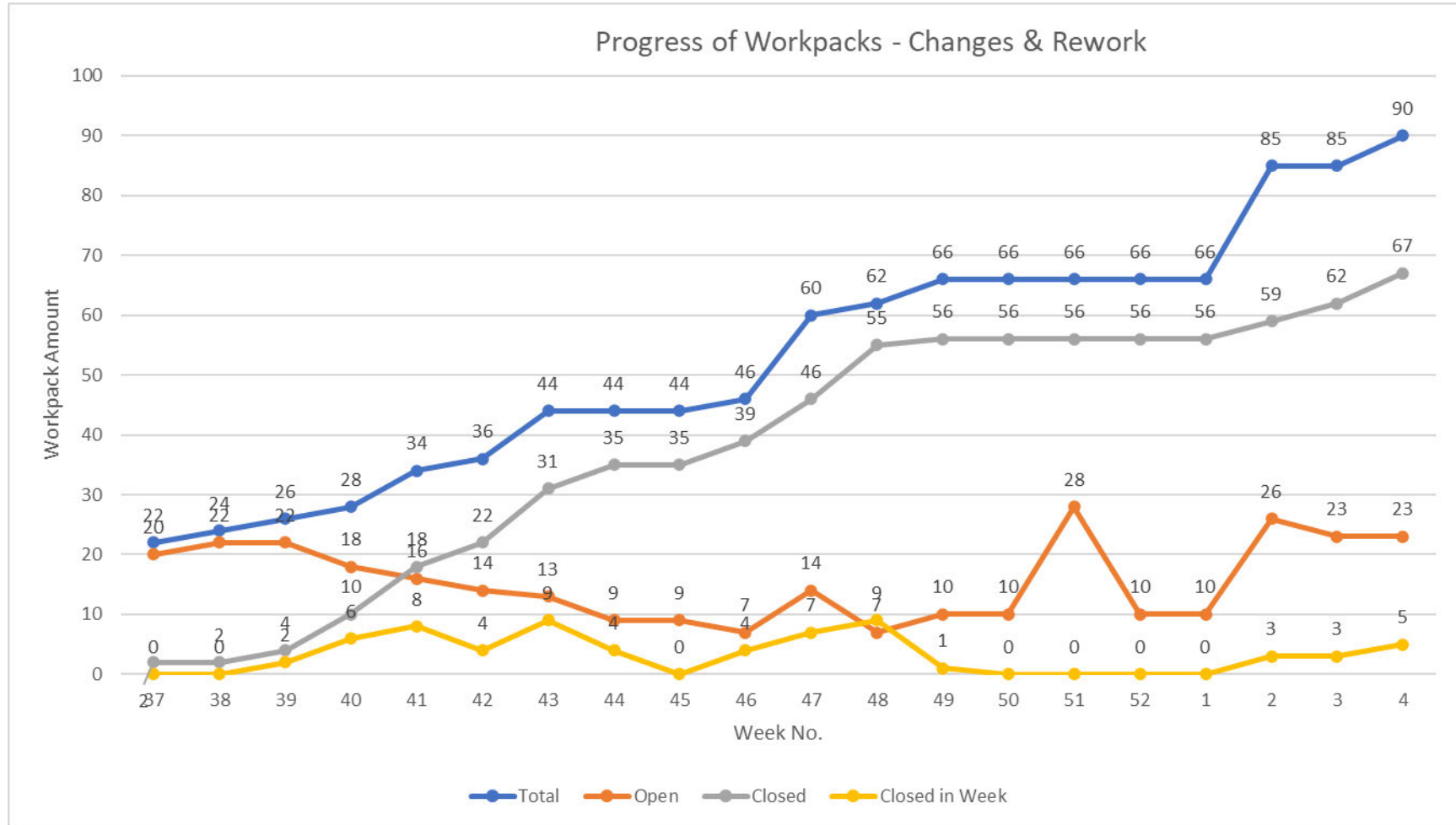
Task		External Tasks		Manual Task		Finish-only		Deadline
Split		External Milestone		Duration-only		Progress		
Milestone		Inactive Task		Manual Summary Rollup		Manual Progress		
Summary		Inactive Milestone		Manual Summary				
Project Summary		Inactive Summary		Start-only				

# 801 Hotwork Work Packs



- 63 Hotwork workpacks to complete
- Compartment completion is main focus of teams closing out 7 deck and 6 deck accommodation
- Clamshell doors scope complete for dry dock
- Hotwork complete in zone 401

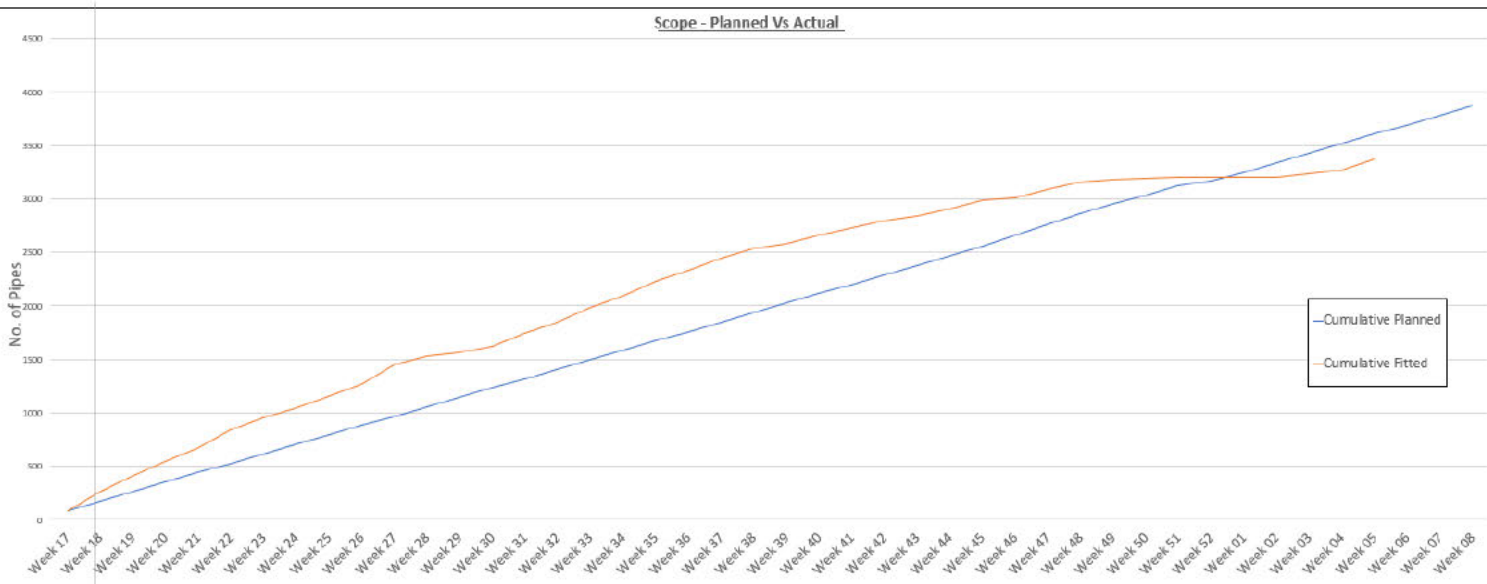
# 801 Hotwork Changes & Rework





[REDACTED] Pipework Installation

- Scuppers remain priority for completion., spools now returning from galvanizing.
- Constantly monitoring level of change being issued, design engineering being asked to conduct impact assessment on each change.
- [REDACTED] manpower now back at full capacity after Christmas holiday breaks.
- Agreed teams to work additional hours to recover spool installation count.



Total spools to install:  
 Previous: 4526  
 Revised: 5038

Cumulative planned:  
 4695 (93%)  
 Cumulative installed:  
 3681 (73%)

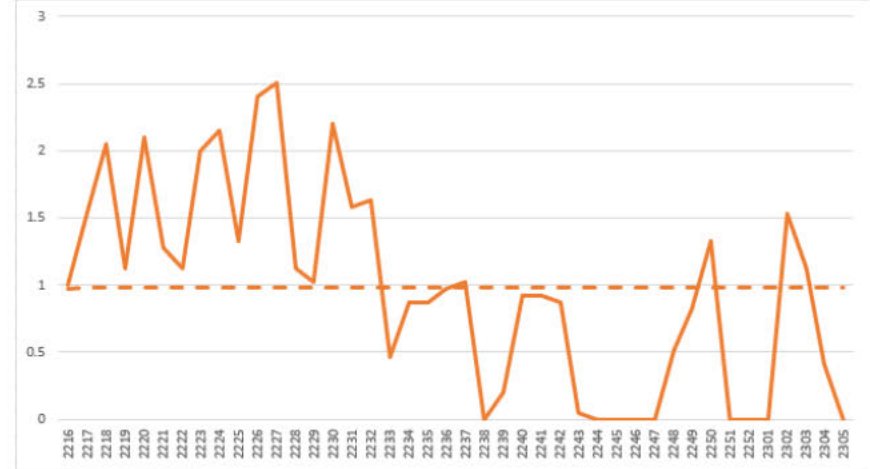
Average SPI: 0.79



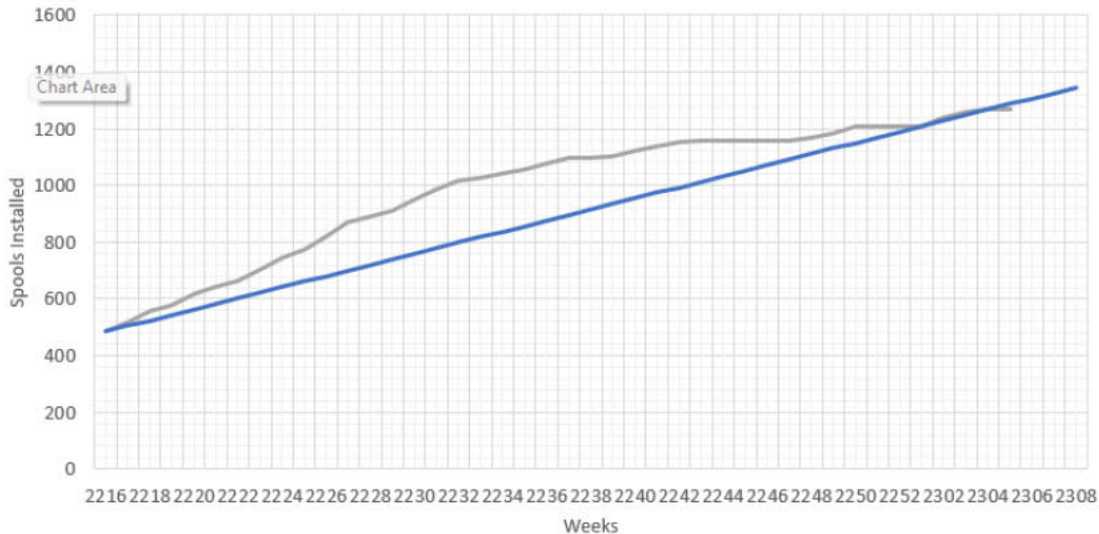
# 801[REDACTED]Hydraulic Pipework Installation

[REDACTED]

- Concentrated on Pipe testing and Manufacturing due to access issues in Bow Area, hence no progress on pipe install.
- No major concerns at present.



[REDACTED]  
Install S-curve



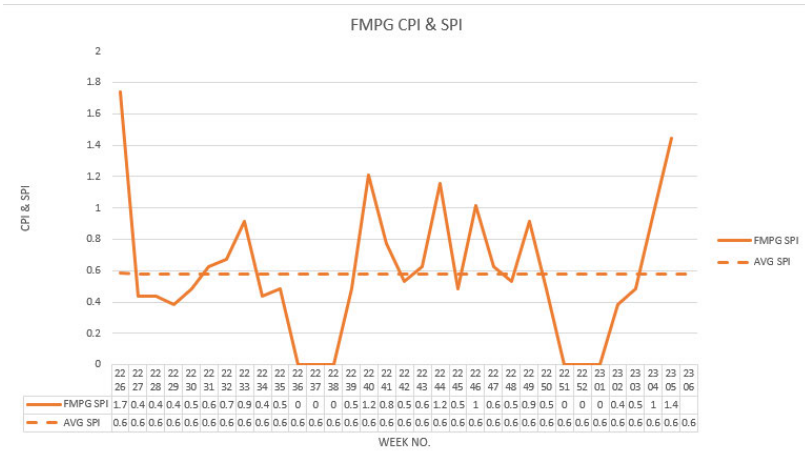
Total planned spools to completion:  
1346

Week 5:  
Cumulative planned 1287 (96%)  
Cumulative installed 1268 (94%)

Average SPI: 0.98

# FMPG- Pipework Installation

- Completion date under review.
- 10 personnel now seconded in from [REDACTED] to accelerate pipe install. Significant increase in spools installed as a result.
- High level of change requests and modification work still ongoing.

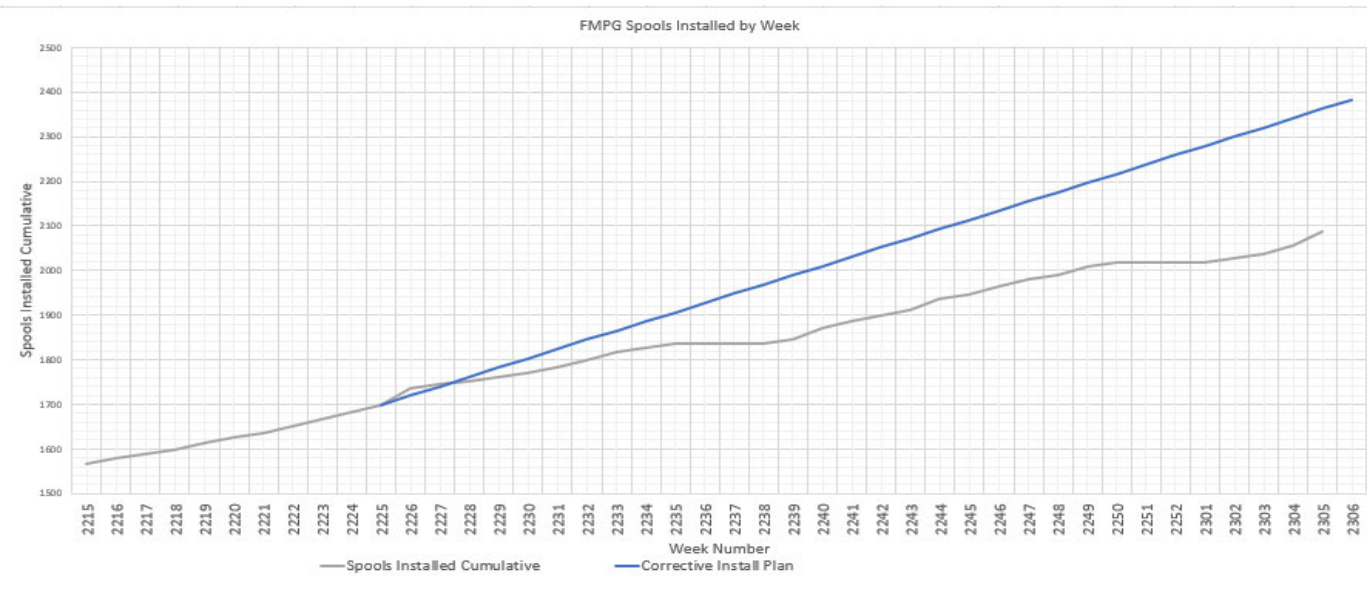


Total planned spools: 2384

Cumulative planned: 2362 (99%)

Cumulative installed 2057 (88%)

Average SPI 0.58



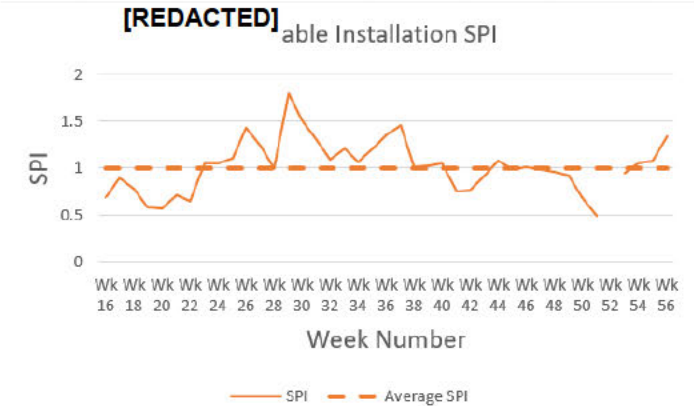
# 801 [REDACTED] Cable Install



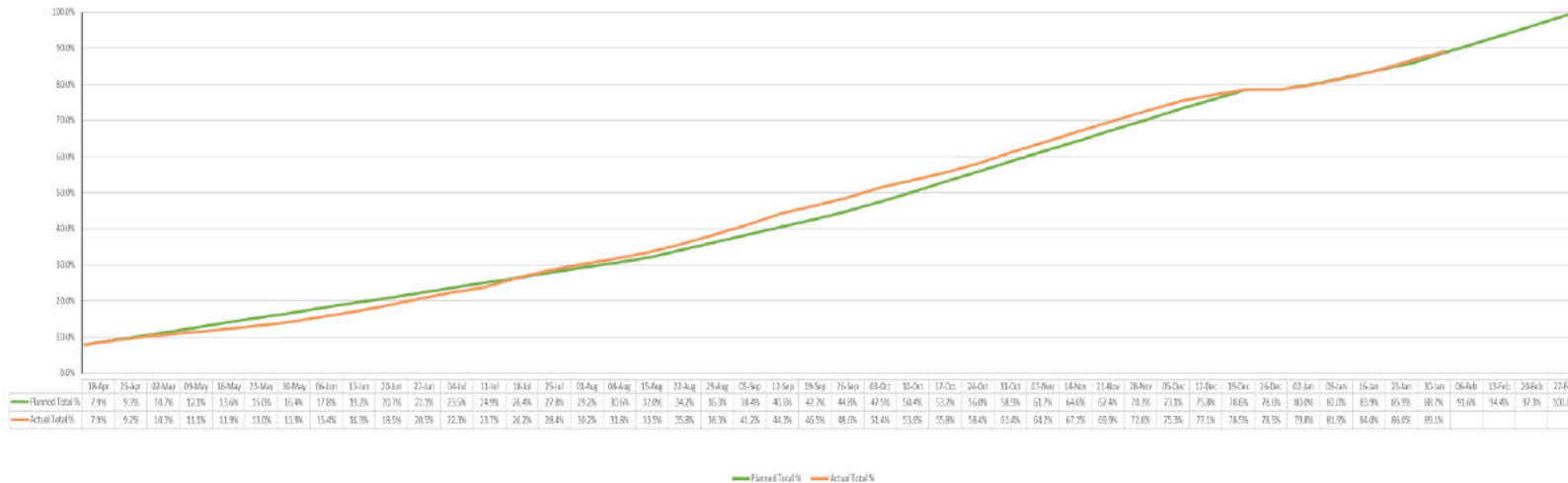
[REDACTED] have now reported cumulative total of cables to be installed as 281,669m. This is due to previously incorrect reporting against most recent cable schedule, circa 5 weeks is projected to install further 37k cables.

## Installation of Priority Cabling for Systems & Gland/Terminate and Test Cables:

- Propulsion, Auxilliary Engine
- Propulsion & Thruster Control
- Main Engine & Shaft Generators
- Tunnel Thruster, Radar
- Nav Light
- Alarm & Monitoring
- Wheelhouse
- Server Room
- Instrument Room



[REDACTED] Ship 801 Cable Pulling



Previous total cable to install: 244,088

Total cable to install: 281,332 metre

Cumulative Planned: 249,651 metre (88.7%)

Cumulative actual: 250,739 metre (89.1%)

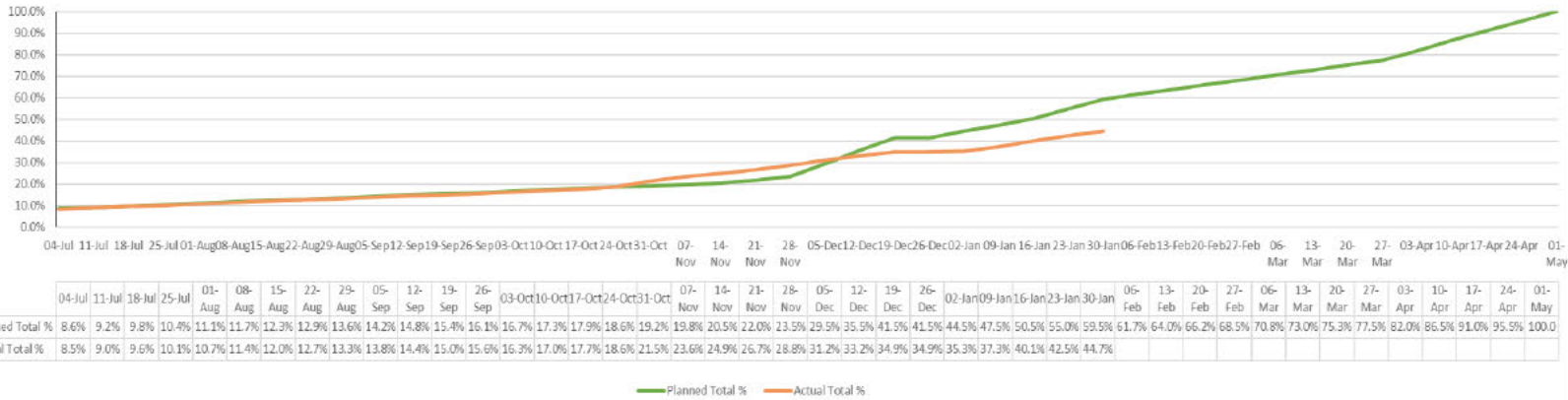
Average SPI: 1



# BGEN Glanding/Terminating and Testing



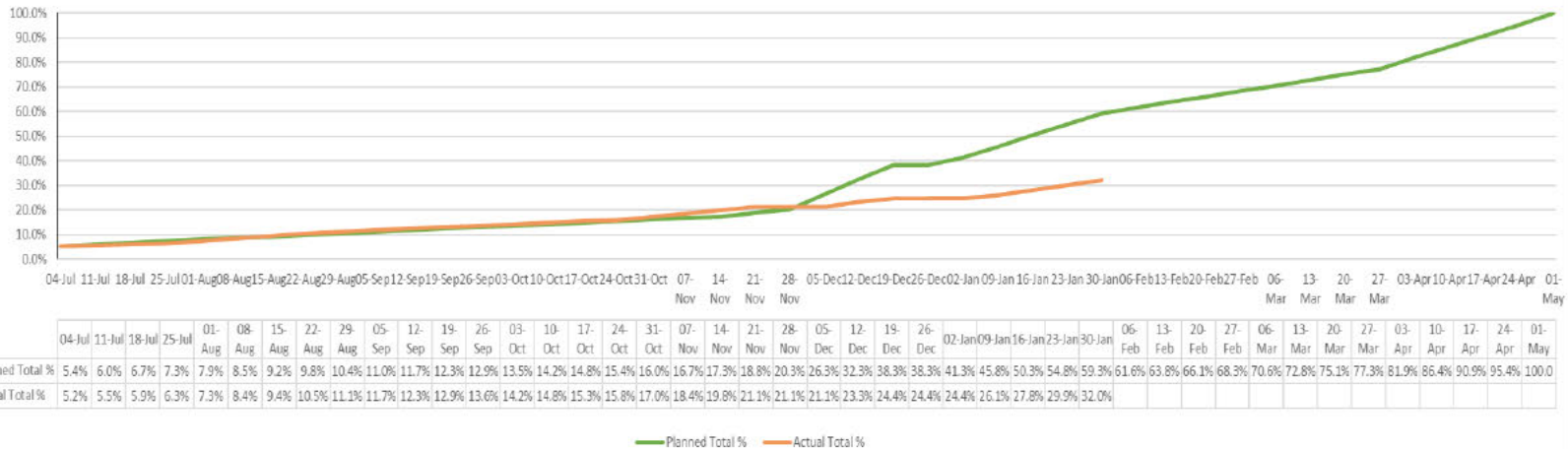
[REDACTED] Ship 801 G&T



Planned G and T:  
59.5%

Actual G and T:  
44.7%

[REDACTED] Ship 801 Testing



Planned testing:  
54.8%

Actual Testing: 32%



# HVAC Instal [REDACTED]

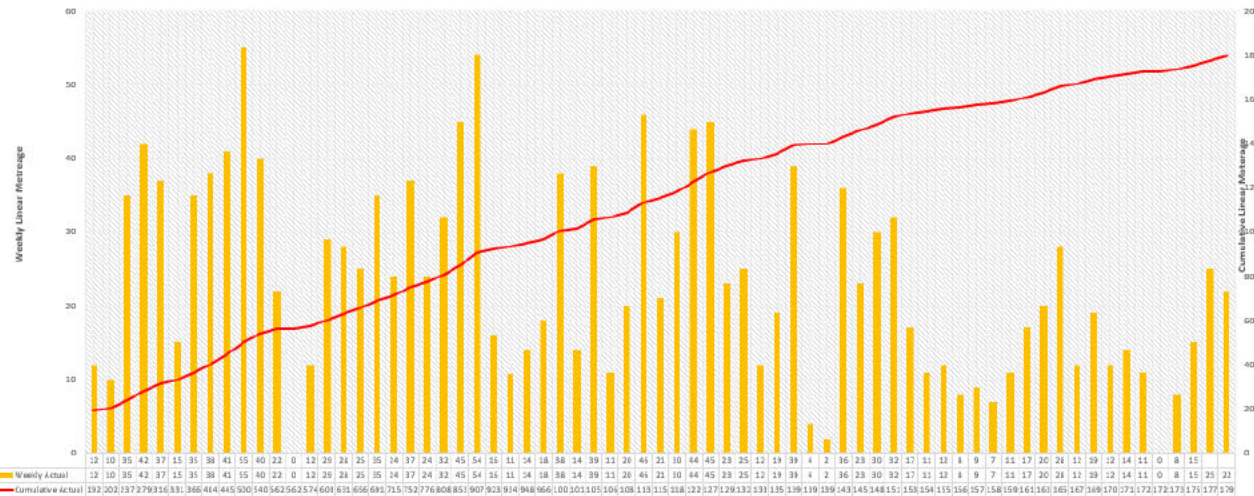


Week 5:

Currently no major issues.

Zone	Total Metreag	stalled Metreag	%age Complete
1	32	23	71.9%
2	35	26	74.3%
3	113	84	74.3%
4	94	73	77.7%
5	14	10	71.4%
6	378	134	35.4%
7	0	0	#DIV/0!
8	280	274	97.9%
9	1096	866	79.0%
10	198	198	100.0%
11	115	115	100.0%
<b>Totals</b>	<b>2355</b>	<b>1803</b>	<b>76.5%</b>

HVAC Installation Progress 'S' Curve



## Engineering & Steelwork

### [REDACTED] Scope-

Initial survey planned for mid-January carried out by [REDACTED], installation will commence mid March on Mezzanine decks and ramp.

### Steelwork

- Clamshell work that was due before dry dock now complete (stainless steel flatbar and welding to be complete)
- Stopping Chocks on the mezzanine deck underway
- Final welding of pipes left in Stabilisers
- Zone 401 hotwork now complete including instrumentation work into fresh water tanks
- New style drip trays from Joiners in the Bow Thruster room complete
- Focus on compartment completion
- Lift shaft hotwork complete including service hatches
- Shelving now underway shipwide
- Important pipe modifications for onboarding of fuel supported and a quick turnaround of work complete

### Specialist Subcontractors

- [REDACTED] return to site has been delayed due to Covid infection preventing travel. Return date now planned for first half of week 6. We have used this delay as productively as possible by pushing through the remaining FMPG scope such as insulation of lift shaft.

### Electrical

Priorities remain the same as previous week.

### Installation of Priority Cabling for Systems & Gland/Terminate and Test Cables:

- Propulsion
- Auxiliary Engine
- Propulsion & Thruster Control
- Main Engine & Shaft Generators
- Tunnel Thruster
- Radar
- Nav Light
- Alarm & Monitoring
- General G&T&T

### Pipework

### Following systems/areas were progressed in week 5:

- Sludge waste oil system
- Oily bilge system
- Heeling/Ballast system
- Galley pipework
- Ship scupper drain installation
- Gear box pipework installation

## 801 Status Continued

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### Engineering/Design/Technical:

- The main focus for Engineering recently has been the design reviews for 802. Internally these were held during week 2 and externally these were held in Week 3 in Galati. The reviews covered work zones 6, 8, 9 & 10. Additional final comments on work zones 1, 5, 7 and 11 were also passed on to [REDACTED]. The reviews covered functionality, accessibility, producibility and weight saving. The review records have been collected by [REDACTED] with a response and costing to follow.
- System reviews for Mechanical and Piping are well underway [REDACTED] are expected to submit a cost for the changes required in the first 24 P&IDs reviewed imminently. A further 8 systems have been reviewed end of week 3 and will be submitted to [REDACTED] in week 4 for [REDACTED] consideration and costing. 32 systems will remain to be reviewed these are [REDACTED] and [REDACTED] systems and are considered low risk. Once the [REDACTED] drawings are received they will be submitted to the MCA for review. A combined discussion on system reviews will be held in the coming weeks once the responses from [REDACTED] have been received. The final reviews of the [REDACTED] and [REDACTED] systems will be started pending response from the MCA. Modification sheets for 801 are being reviewed currently and requisitions being issued as required, filters for Nitrogen system, dry powder fittings, valves and fittings for black water system etc. Support for production and HB remains ongoing.
- In Electrical 20 [REDACTED] TQs were closed out, 10 further were raised, in total 29 are remaining. There were 8 [REDACTED] holds removed last week with 21 remaining and currently being worked on. Cable overfills remain an issue on 801 and have been caught for 802. These are being dealt with on 801 by increasing cable carrying capacity where necessary. Concerns remain regarding [REDACTED] system drawings. [REDACTED] are currently on site feeding back real time solutions for 801 these are then being caught for 802 by Engineering.
- In Hull and Outfitting, Generator Room arrangement was issued, pilot ladders ordered MTO for storage shelving remains ongoing, B15 sliding doors ordered for accessible and baby change toilets. Mods for LNG Compt removable walkways issued. HVAC discussion with [REDACTED] to address outstanding issues with connections through structure held and [REDACTED] site Liaison currently working up solutions this will be fed back to [REDACTED] for 802. Floating floors above freeing ports have been investigated with further feedback to come from Piping and Mechanical.
- For structures we continue to support lifting and turning operations and site queries. Modifications required to accommodate sliding doors for stairway recesses have been reviewed. Checks continue on [REDACTED] production submissions. Rope stowage boxes revised and issued. Lofting to support unit build and outfitting and material requisitioning continue as required.

# 801 Issues, Challenges & Successes

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## Issues

- [REDACTED] team delayed returned to site until week 6 due to COVID.
- Additional work uncovered on Clam shell doors, Ongoing will be complete in dry dock
- Engineering/Design, still seeing large amounts of change. [Still relevant this month.](#)

## Challenges

- Clam shell door install. [Still relevant this month.](#)
- Cable install/termination/glanding and testing. [Still relevant this month, progressing slowly](#)
- Fire main and accommodation to resolve. [Site run pipe now complete and sent to galvanizing.](#)
- Level of change being managed. [Still relevant this month.](#)
- Driving OORs to closure. [Still a challenge, process now in place with mechanism for monitoring close out.](#)

## Successes

- Port Main Engines alignment checked.
- Protection settings set and tested on 690V switchboard.
- Propulsion system commissioning well advanced.
- Tunnel Thruster control system commissioning well advanced.
- [REDACTED] Bollard winches commissioned.
- Rudder angle Indicator system set-up. All Bridge displays operational.
- Steering Gear partially commissioned. Rudders are operational.
- 90% of main engine and auxiliary generator alarms signed off.
- Control Air compressor demonstrated to Client.
- Gearbox pipes flushed and pressure tested.
- Thruster pitch control pipework flushed and pressure tested.
- Fuel onboard.



# Hull 802 – Monthly Report

## Reporting Period: January 2023



# 802 Status

## Manufacturing Sheds

- Fabrication complete for units A10/6, A11/6, A4/7, U99, U100, awaiting erection.
- Following 7 deck units in progress: A7/7, A8/7, A9/7, A10/7, AFT & FWD Masts. These are the last units remaining for fabrication completion.

## Erection and Consolidation

- Consolidation of several units in progress: A4/6, A5/6, A6/6, A7/6, UA8/6, U97, U98.
- Consolidation complete, awaiting dry survey: A7/5, A8/5, A9/5, A10/5, A11/5, U85, U86, U89, U90.

## Outfitting

In January, the main focus was structural hotwork in the lift shafts, fabrication of [REDACTED] platforms, installation of manholes, and closing plates are also in progress, 1 remaining. Installation of embarkation and pilot doors finished. Ongoing structural modifications in zone 4. Lack of ship wide scaffolding support. Welding of link up widows in 5 deck in progress. Manufacturing of major seats in 0202 and installation of major seats in 0402 ongoing. Various work packs are on hold due to the ongoing design review by [REDACT] on 802. Continuing installation of 48 lashing pots, FF-8 (8 of) complete, FF-9 (25 of) installation in progress, LE-8F (6 of) installation finished, further 9 of awaiting start.

## Pipework Installation

Continuing with QC sign-off of over boards, penetrations still being burned and fitted. Pipe fitting has commenced, no pipes claimed as fitted before QC sign off, which is ongoing.

- There are 61 spools in the overboards, 45 spools fitted and signed off by QC.
- Total amount of spools ship wide: 12021.
- Total amount of spools manufactured/procured: 4003.
- Total amount of spools installed on ship: 347.

## Launch

- Launch agreed to take place in August. Meeting postponed. In diary for Wednesday 18<sup>th</sup> of Jan.
- University report received. Launching aids and consumables are under review.

## Electrical

- Contract to be re-tendered.

## HVAC

- Nothing to report.

## Specialist Contractors

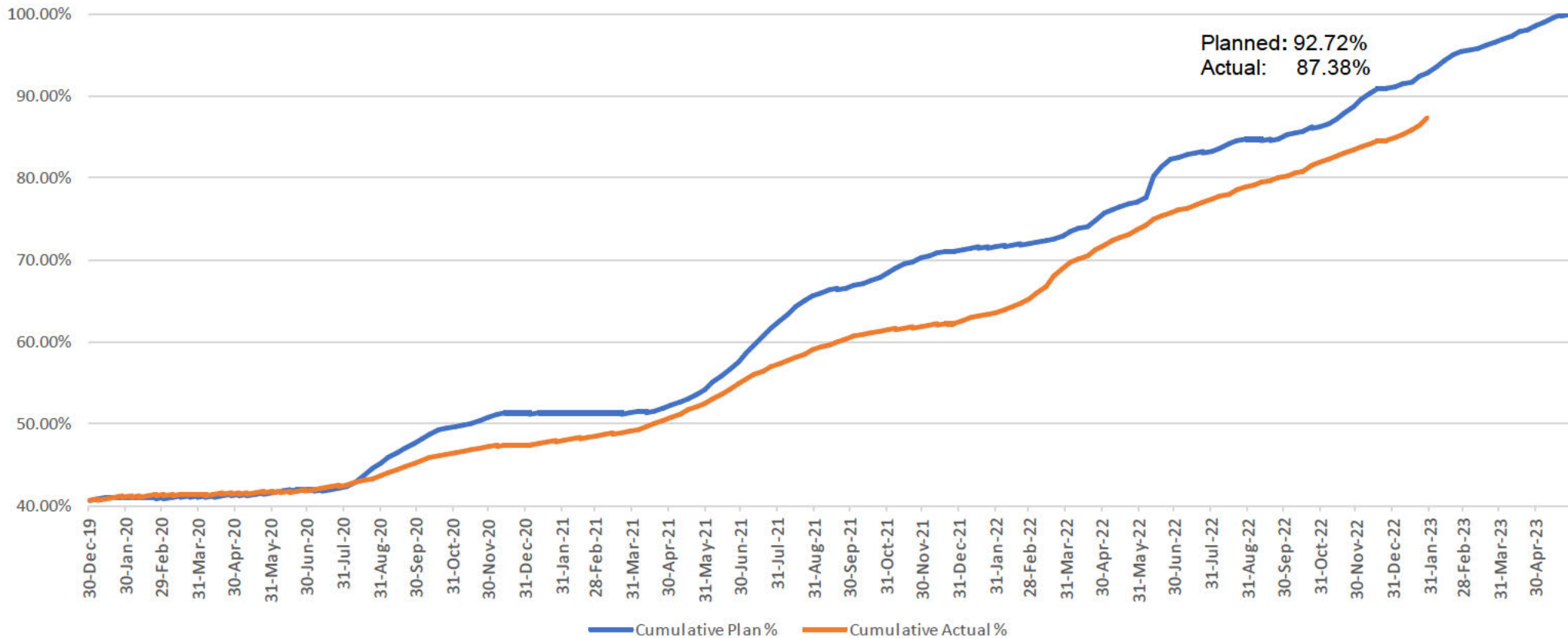
- Currently reviewing opportunities and finalizing plan with specialist contractors.



# 802 Primary Structure

- Unit Fabrication completion rescheduled to end of March 2023 due to limited manpower and bad weather.
- Unit Erection completion rescheduled for April 2023 due to fabrication plan changing.
- Unit consolidation completion planned for 31st May 2023 on track.

802 Primary Structure % Progress S-Curve (Phase 2)



# 802 Issues, Challenges & Successes

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## Issues

- Unit outfit in manufacturing sheds is minimal due to the lack of clean drawings.
- Lack of process for [REDACTED] workpack delivery and execution. Drafts in progress.

## Key Challenges

Key known challenges for Hull 802 to meet the programme:

- Manpower support. Lack of manpower available on 802. Manpower improving.
- Material availability. A Min/Max process is in progress of being implemented which will reduce bottlenecking of work due to unavailable material.
- Lack of tracking information from 801 to 802 due to new set of clean drawings.
- Scaffolding support shipwide.
- Unit consolidation is challenging due to lack of manpower and bad weather.
- Identification of available equipment in Greenock stores proving challenging due to factory master stock list inaccuracies.

## Successes

- Effective workforce – good progress for the limited manpower available.
- Unit fabrication on track with plan.
- [REDACTED] delivery of Workpacks and new BOMs has ongoing with minimal delay.

# Weight & Stability

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## Stability

- Stability book was submitted on 9th Dec to the MCA. MCA`s review is ongoing. Damage calculations to be submitted mid-Feb 2023.
- NAPA loading computer will be integrated after MCA`s preliminary book approval.
- Bespoke WT buffer door [REDACTED] is WIP with candidate manufacturers. One company has met the technical requirements and integration works are ongoing with [REDACTED] Subsequently, they will submit an official offer. [REDACTED] per door and 6-8 weeks lead time including shipping. It is not a blocker for the programme.

## • Weight

- Final inclining will be undertaken after drydocking about 7Apr23.



## Other docs to deliver

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- CMAL & FMPG have agreed (13/05/22) that FMEA is not required as a final deliverable document however a test pack will be created to show how the system recovers after failures. FMPG to propose a test pack format to CMAL.
- Machinery list (including serial numbers) is WIP. The commissioning team are producing and will also record last maintenance date where appropriate. This shall also cover the requirements for producing tallies. PO currently being raised.
- Operations Manual – This will be reviewed on an ongoing basis during commissioning and training of equipment.
- As built drawings for P&IDs and technical compartment arrangements have been agreed with CMAL. Other as built drawings to be agreed with CMAL
- OEM Manuals etc will be shared on FMPG-CMAL SharePoint site to allow CMAL-CALMAC access for crew training/familiarization prior to delivery of document pack.

# MCA/ [REDACTED] submission update



Under Review with [REDACTED]	Date sent to [REDACTED]	Note
Cargo Securing Manual	01/02/2022	All actions were addressed except CMAL furnished equipment (loose lashing type and certification) details are awaited to satisfy [REDACTED] comments dated 18 Nov 2022. In progress by CMAL since 29 Nov 2022. CalMac to provide quantity of lashing items and types. CalMac feedback is awaited as of 6 Feb 23
Damage Control Plan	20/04/2022	Part of Stability book. To be released after stability book approval

## MCA outstanding status

Count of Approval Status	Outfit		Elec.		Naval Arch.		CMAL Deliverable	Grand Total	
	Yes	Total	Yes	Total	Yes	Total			
1. Awaiting Submission	3	3	9	9	20	1	1	4	49
11. Structural Fire Protection Plan	2	2						1	2
13. Marpol								1	3
15. Lifting Plant/ Use of Work Equipment	1	1						1	1
16. LNG			6					1	7
17. Other						1		1	1
3. Boilers and Machinery			3					20	23
4. Electrical Equipment & Installations				3	20				3
7. LSA and Navigation								2	2
8. Radio				2					4
9. Passenger and Crew Accommodation				4					4
<b>Grand Total</b>	<b>3</b>	<b>3</b>	<b>9</b>	<b>9</b>	<b>20</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>49</b>

## MCA Approval status

Count of Approval Status	Outfit		Struct.		Mech.		Elec.		Naval Arch.		CMAL Deliverable	Grand Total
	Yes	Total	Yes	Total	Yes	Total	Yes	Total	Yes	Total		
1. Awaiting Submission	1	1										49
11. Structural Fire Protection Plan	2	2			2						1	3
13. Marpol												1
15. Lifting Plant/ Use of Work Equipment	1	1										7
16. LNG							5				1	1
17. Other										1		3
3. Boilers and Machinery							3					23
4. Electrical Equipment & Installations							3	20				3
7. LSA and Navigation											3	2
8. Radio							2					4
9. Passenger and Crew Accommodation							4					4
<b>2. Submission required/ needed</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>7</b>
11. Structural Fire Protection Plan	1	1							2			3
12. Fire Extinguishing					1							1
7. LSA and Navigation									2			2
9. Passenger and Crew Accommodation									1			1
<b>3. Conditionally Approved</b>	<b>7</b>	<b>7</b>	<b>10</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>24</b>
12. Fire Extinguishing	1	1	5		1							7
3. Boilers and Machinery					1							1
4. Electrical Equipment & Installations							2					2
5. Elige Pumping Arrangements					1	1						2
8. Anchor Handling Equipment Anchors & Chain Cable	2	2										2
7. LSA and Navigation	1	1										2
9. Passenger and Crew Accommodation	3	3	4		1				1			8
<b>4. CMPS submitted to MCA awaiting feedback</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>22</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>43</b>
1. Hull					2							2
10. Stability									5			5
11. Structural Fire Protection Plan	1	1			1							2
12. Fire Extinguishing					19		4					23
13. Marpol					2							2
16. LNG					2	1						3
2. Load Line												1
8. Anchor Handling Equipment Anchors & Chain Cable	1	1										1
7. LSA and Navigation									1			1
9. Passenger and Crew Accommodation	2	2								1		3
<b>5. Approved</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>5</b>
12. Fire Extinguishing					3							3
7. LSA and Navigation									1			1
9. Passenger and Crew Accommodation					1							1
<b>6. Note 4 on Supporting Info</b>	<b>15</b>	<b>15</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>36</b>
1. Hull					14							14
10. Stability									1			1
11. Structural Fire Protection Plan												1
12. Fire Extinguishing					4		1					5
13. Marpol					1							1
16. LNG							1					1
5. Elige Pumping Arrangements					1	1						2
8. Anchor Handling Equipment Anchors & Chain Cables					1						5	6
7. LSA and Navigation									1	3		4
9. Passenger and Crew Accommodation										1		1
<b>7. N/A</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>1</b>
11. Structural Fire Protection Plan	1	1										3
7. LSA and Navigation												3
<b>Grand Total</b>	<b>16</b>	<b>16</b>	<b>1</b>	<b>19</b>	<b>46</b>	<b>13</b>	<b>23</b>	<b>20</b>	<b>19</b>	<b>7</b>	<b>4</b>	<b>166</b>

- LNG pipework chemical analysis for ups scale equivalence to 3.2 certification agreed and now with test house for testing
- Escape routes plan requires resubmission due to arrangement of secondary escape route from 6dk Observation lounge area. Will be submitted as MSF 1261 – Assessment of equivalence/Exemption based on evacuation analysis
- Structural fire protection requires resubmission for detail IWO of LNG tank and accommodation draught stops
- Electrical submissions to MCA slowed – demand on Engineering

# CMAL Drawing Approval update

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- NO CHANGE due to other priorities as these drawings will be covered when as built drawings are produced for the final sign off.
- CMAL Outfit Drawing Approval update - List now provided to CMAL and reviews undertaken on weekly basis
- P&IDs
  - 9 Systems Approved (P&IDs)
  - 23 Systems (P&IDs) to be approved by CMAL, currently these are being reviewed separately and then both parties. Details of the 4 Systems to be resubmitted to Southampton provided separately to this meeting.

## Contract Specification

- There are various updates within the document which require to be internally reviewed and then presented to CMAL for agreement.



# Crew Training

**Training schedule (Dates for 801 and soft booking for 802 about to be confirmed by [REDACTED])**

## 1<sup>st</sup> vessel in Q1/2023

- Week 2: 9<sup>th</sup> until 13<sup>th</sup> January 2023 Propulsion at [REDACTED]
- Weeks 6-7: 6<sup>th</sup> until 17<sup>th</sup> February 2023 Engines W20DF and W34DF operation and practical at [REDACTED]
- Week 8: 20<sup>th</sup> until [REDACTED]
- Week 10: 6<sup>th</sup> until 10<sup>th</sup> March 2023 LNGPac [REDACTED]

## 2<sup>nd</sup> vessel in Q1/2024

- **Week 8:** 19<sup>th</sup> until 23<sup>rd</sup> February 2024 (Propulsion at [REDACTED] or on board)
- **Weeks 9-10:** 26<sup>th</sup> February until 8<sup>th</sup> March 2024 (Engines at [REDACTED])
- **Week 11:** 11<sup>th</sup> until 15<sup>th</sup> March 2024 (Engine Control at [REDACTED])
- **Week 12:** 18<sup>th</sup> until 22<sup>nd</sup> March 2024 (LNGPac at [REDACTED])

Still to confirm

PMS and Alarm and Monitoring system Under discussion to arrange with [REDACTED]

## 118 TECHNICAL TRAINING FOR CREW

The Builder will provide on board training in machinery and equipment for key staff. The Builder will also provide training as detailed in the Requirement Specification and Technical Schedule, and will include:

LNG Systems	Up to 10 people (3 courses)
Navigation and Communication Systems	6 people
Communications Systems	6 people
Generators & Prime Movers	Up to 10 people (3 courses)
Propeller Units	Up to 10 people (CPP)
Power Management System	6 people
Alarm, Monitoring & Control Systems,	6 people
Lifesaving Equipment	6 people

This will be done separately from the commissioning process.

The training is to be in English and held by specialist commissioning engineers from the Builder, or representatives from sub-contractors, prior to delivery and signed off by Buyers.

Specialist LNG training (approx. 1 week per ship) will be provided to ship's crew.

Training will also include Ship Specific ECDIS training for Deck Officers.

# Commissioning Update

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## The following has been achieved in the last 3 weeks:

- Port Main Engines alignment checked.
- Protection settings set and tested on 690V switchboard.
- Propulsion system commissioning well advanced.
- Tunnel Thruster control system commissioning well advanced.
- <sup>(REDACTED)</sup> Bollard winches commissioned.
- Rudder angle Indicator system set-up. All Bridge displays operational.
- Steering Gear partially commissioned. Rudders are operational.
- 90% of main engine and auxiliary generator alarms signed off.
- Control Air compressor demonstrated to Client.
- Gearbox pipes flushed and pressure tested.
- Thruster pitch control pipework flushed and pressure tested.
- Fuel onboard.

## Planned activities for the next 3 weeks.

- Stbd Main engine Alignment to be checked.
- Fuel supply to Aux/Main engines to pressure test and flush.
- Gearbox's to be flushed.
- First run of Auxiliary and Main Engines.
- <sup>(REDACTED)</sup> booked to commission Bollard Winches 30 January.
- Nav & Comms commissioning ongoing
- Load test auxiliary and harbour generators.

## 801

### **801 NDT Activity**

9 MPI

### **801 Fabrication Surveys with [REDACTED]**

- Engineering Room Sludge Tank
- Flushing Fuel Systems

Various other compartment surveys carried out for production and snagging reports created for production to complete.

### **Insulation Survey's – Above Ceilings**

- DK 6 Gym & Changing Room
- DK 6 Stbd Cabins & Passageways
- DK 6 Port Side cabins & Passageways
- Port Aft Lift shaft

### **Insulation Survey's – Behind Linings**

- Remainder of 5 DK Galley
- DK 5 Bhd 67 Comp. 5318, 5309, 5301
- DK 6 Quiet Lounge
- DK 6 Stbd Fwd Lounge

### **Pre-Insulation Surveys complete with MCA**

- DK 6 Stbd Cabins & Passageways
- DK 6 Port Side cabins & Passageways
- DK 6 Gym & Changing Room

## 802

### **802 NDT Activity**

4 MPI

6 DPI

### **802 Fabrication Surveys with [REDACTED]**

- A11 /6 Unit Dry Survey
- 10-6 Unit Dry Survey
- A4 / 7 Join up Dry Survey



<b>CMAL Top Priority OOR's</b>	<b>Cat 1</b>	<b>Cat 2</b>	<b>Cat 3</b>	<b>Overall</b>
Committed	4	1	0	5
Close when work complete	1	1	0	2
Still to resolve	1	0	0	1
<b>CMAL Priority OOR's Totals</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>8</b>

<b>All other OOR's</b>	<b>Cat 1</b>	<b>Cat 2</b>	<b>Cat 3</b>	<b>Overall</b>
Total Committed	17	7	0	24
Close when work complete	25	8	1	34
Still to resolve	0	4	0	4
<b>All other OOR's Totals</b>	<b>42</b>	<b>19</b>	<b>1</b>	<b>62</b>

<b>Totals</b>	<b>48</b>	<b>21</b>	<b>1</b>	<b>70</b>
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Submit to CMAL for closure

	<b>Cat 1</b>	<b>Cat 2</b>	<b>Cat 3</b>	<b>Overall</b>
Total Committed	2	0	0	2
Close when work complete	6	2	0	8
Still to resolve	0	0	0	0
<b>Submitted to CMAL to close Totals</b>	<b>8</b>	<b>2</b>	<b>0</b>	<b>10</b>

<b>Overall Total</b>	<b>80</b>
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Category 1 - Must be done before handover

Category 2 - General / Specification Issues to be done - may carry over to warranty period

Category 3 – Snagging

- 25 OOR's closed. 10 still under review with CMAL
- Review conducted with CMAL of the Top Priority OOR's to reallocate the OOR's that have evolved and not significantly at risk
- 8 Top Priority (Red Risk Issue) remaining with CMAL with potential for significant impact.
- 12 identified as Amber risk. implementation of remedials requires close monitoring as vessel maturity evolves
- 70 now remaining, action plans defined round WHO/WHAT/WHEN have been compiled with administrative staff now appointed to support with tracking & reporting activates

- Comments
- AOB