

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

Review Period: October 2022

<u>Name</u>	<u>Job Title</u>	
[Redacted]	[Redacted]	
[Redacted]	[Redacted]	
[Redacted]	[Redacted]	



Agenda



- **801 RAG Status**
- **HSE**
- **Programme**
- **Production**
- **Engineering**
- **Commissioning**
- **Quality**
- **OOR's**
- **AOB**

801 RAG status

[Redacted]

Discipline	Overall Status					Concerns	Actions	Comments
	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22			
Overall Status	R	A	A	A	A			
Safety	R	R	A	A	A			
Engineering-Design	R	R	R	R	R			
Procurement	R	A	A	A	A			
Hot-Work	R	A	A	A	A			
Piping - FMPG	R	R	A	A	A			
Piping - [Redacted]	R	A	A	A	A			
Piping - [Redacted]	R	A	A	A	A			
Mechanical	A	A	A	A	A			
Electrical - [Redacted]	R	R	R	R	A			
HVAC - [Redacted]	A	A	A	A	A			
Commissioning	A	A	A	A	A			

HSE Dashboard October 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	75460	488604	RIDDOR	1	Damage	0	Number of YSYD Cards	>50	>600	75	304
Number of Lost Time Incidents (> 3-Days)	< 9	1	10	LTI (> 3days)	1	Environmental	0		Toolbox Talks Issued	2	24	2
Lost Time Incident Freq Rate*	< 10.14	13.25	20.47	Medical Treatment (MTC)	2	Serious Near Miss	0	Housekeeping Inspections	4	48	4	21
Number of Recordable Injury Incidents	< 30	2	15	First Aid	1	YSYD	75	Emergency Drills Completed	>4	>48	2	15
Total Recordable Injury Incident Rate*	< 35.0	39.76	32.75	Total Injuries	4	TOTAL Incidents	4	Vessel Compliance Checks	30	420	45	175

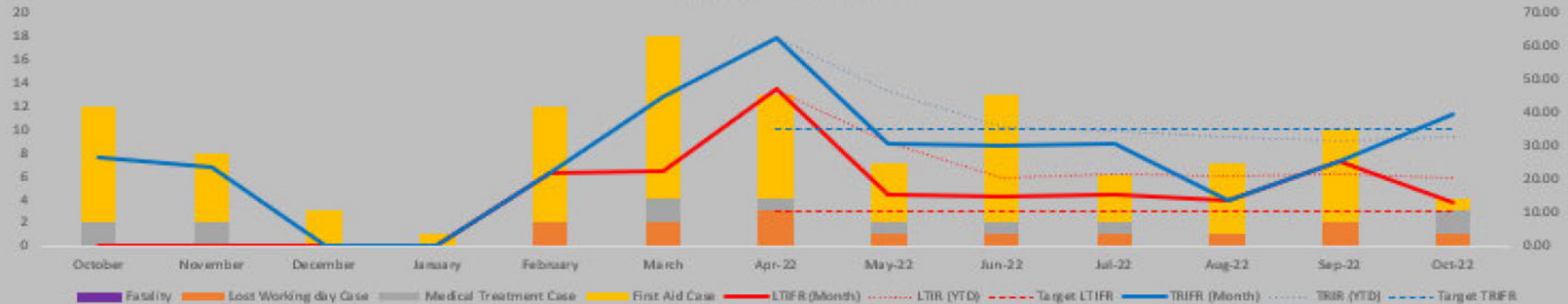
Affected Areas



Incident Classification



Injury Incident Summary



HSE Summary October 2022

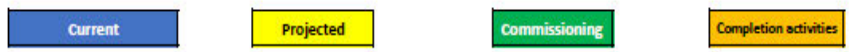
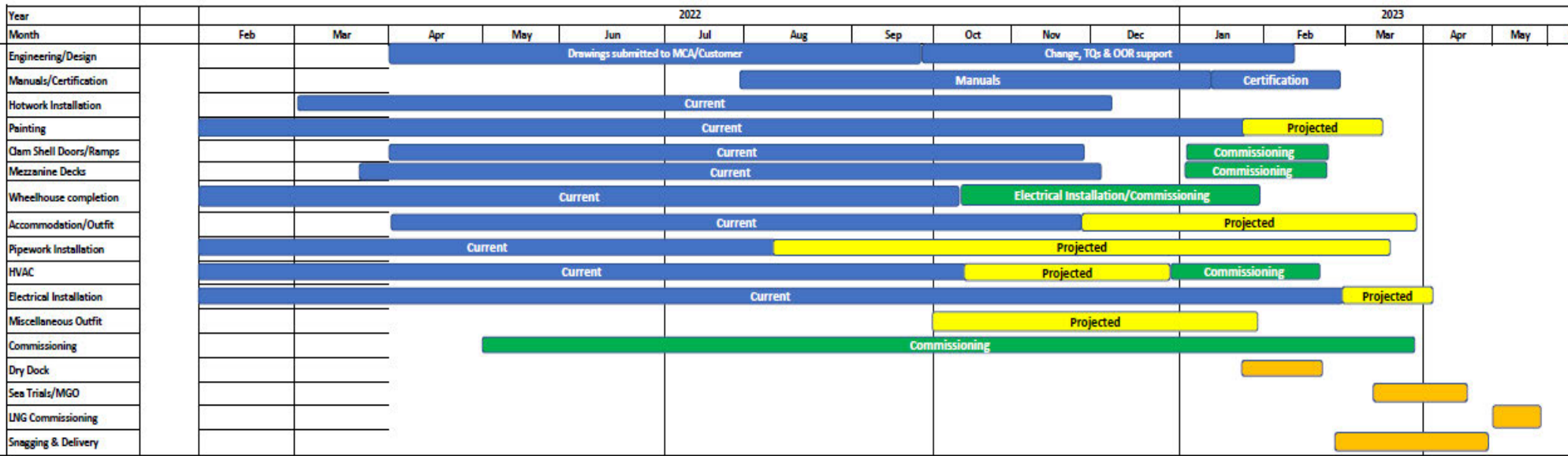
Progress Update:

- Another LTI this month, not severe injuries but again caused by carelessness, poor work practices and lack of supervisor awareness on the project.
- There requires a significant uptick in focus from all to eradicate these poor work methods and prevent further injuries.
- Notable lack of engagement in YSYD program from anyone except Safety Team and [Redacted].
- HSE inspection last Tuesday because of complaints made. Visit focused on PTW, CSE, Scaffold, COSHH and general observations – awaiting report and requirements.
- Vessel Daily HSE inspections continue to be valuable on both vessels.
- Operations to provide input into the new system as a priority.

801 Level 0 Programme



Level 0 - Programme



801

801 Critical Path



ID	Phase	Task Name	Start	Finish	RAG	% Work Complete	Comments	Sep '22	Oct '22	Nov '22	Dec '22	Jan '23	Feb '23	Mar '23	Apr '23	May '23
1	Phase 1	Hotwork Completion	Mon 12/09/22	Wed 30/11/22	Green	90%	178 Workpacks Remaining.	[Gantt bar: Sep 12 to Nov 28]								
2	Confidence level - 75%	Switchboards / MCC's & UPS's	Mon 12/09/22	Sat 12/11/22	Green	0%	[Redacted] to input.	[Gantt bar: Sep 12 to Nov 17]								
3		Emergency Generator Load Test	Tue 18/10/22	Thu 20/10/22	Green	0%	Trial run complete. Generator operation load test awaiting.	[Gantt bar: Oct 18 to Oct 20]								
4		HT/LT System	Mon 03/10/22	Fri 04/11/22	Green	99%	System filled for 10th Oct. Operationally available.	[Gantt bar: Oct 03 to Oct 04]								
5		Harbour Generator	Tue 18/10/22	Fri 21/10/22	Green	0%	First run 18th Oct	[Gantt bar: Oct 18 to Oct 21]								
6		Auxiliary Generators	Mon 14/11/22	Wed 23/11/22	Green	0%	On track, pipe systems to complete.	[Gantt bar: Nov 14 to Nov 23]								
7		Main Engines	Wed 23/11/22	Mon 12/12/22	Green	0%	On track, pipe systems to complete.	[Gantt bar: Nov 23 to Dec 12]								
8		Gearbox & Propulsion Commissioning	Wed 23/11/22	Mon 12/12/22	Green	0%	On track, pipework and flushing to complete.	[Gantt bar: Nov 23 to Dec 12]								
9	Phase 2	Generator Load Test	Tue 13/12/22	Fri 23/12/22	Green	0%	On track, awaiting aux and main engines to complete.	[Gantt bar: Dec 13 to Dec 23]								
10	Confidence level - 80%	PMS Set Up	Thu 05/01/23	Sun 22/01/23	Green	0%	[Redacted] comment.	[Gantt bar: Jan 05 to Jan 22]								
11		Preliminary Inclining Test	Fri 20/01/23	Sat 21/01/23	Green	0%	Postponed to 20-21 January, as ship will be closer to true weight.	[Gantt bar: Jan 20 to Jan 21]								
12		Fwd & Aft Thrusters	Mon 23/01/23	Wed 01/02/23	Green	0%	On track. Awaiting [Redacted] plan.	[Gantt bar: Jan 23 to Feb 01]								
13		Steering Gear	Sun 22/01/23	Sat 11/02/23	Green	0%	Awaiting [Redacted] for commissioning.	[Gantt bar: Jan 22 to Feb 11]								
14		Stabilisers	Sat 11/02/23	Thu 23/02/23	Green	0%	On track.	[Gantt bar: Feb 11 to Feb 23]								
15		Bilge / Ballast System	Sun 22/01/23	Wed 01/02/23	Yellow	85%	Pipe to comment.	[Gantt bar: Jan 22 to Feb 01]								
16		Fuel Oil System & Purifiers	Mon 10/10/22	Sun 19/02/23	Yellow	98%	Testing and flushing required, awaiting date.	[Gantt bar: Oct 10 to Feb 19]								
17		Lub Oil System & Purifiers	Mon 17/10/22	Sun 19/02/23	Yellow	100%	Testing and flushing required, awaiting date.	[Gantt bar: Oct 17 to Feb 19]								
18		Domestic Fresh Water	Wed 01/02/23	Mon 06/02/23	Yellow	84%	Pipework to complete, chlorification required.	[Gantt bar: Feb 01 to Feb 06]								
19		Black Water System	Mon 06/02/23	Sat 11/02/23	Yellow	77%	On track.	[Gantt bar: Feb 06 to Feb 11]								
20		Accommodation Outfit	Mon 03/10/22	Tue 07/03/23	Green	70%	On track.	[Gantt bar: Oct 03 to Mar 07]								
21	Phase 3	Galley, Servery & Bar	Mon 07/11/22	Wed 01/02/23	Green	0%	Outfit to comment.	[Gantt bar: Nov 07 to Feb 01]								

801 - Critical Path - Level 1
Issue : 27 October 2022

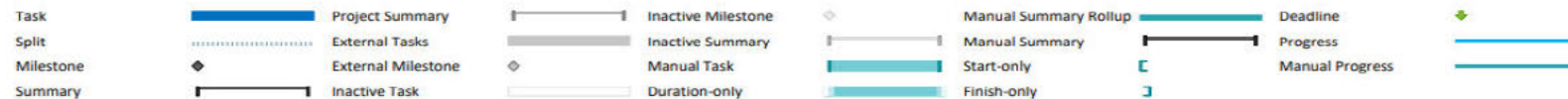
Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
Split		External Tasks		Inactive Summary		Manual Summary		Progress	
Milestone		External Milestone		Manual Task		Start-only		Manual Progress	
Summary		Inactive Task		Duration-only		Finish-only			

801 Critical Path Continued



ID	Phase	Task Name	Start	Finish	RAG	% Work Complete	Comments	Sep '22	Oct '22	Nov '22	Dec '22	Jan '23	Feb '23	Mar '23	Apr '23	May '23
22	Confidence level - 90%	Navigation Systems & External Comms	Mon 28/11/22	Tue 14/03/23		0%	Redacted comment.									
23		Internal Comms & Entertainment Systems	Mon 05/12/22	Tue 21/03/23		0%	Redacted comment.									
24		HVAC & Cold Stores	Mon 12/12/22	Sun 26/02/23		68%	HVAC to comment.									
25		Safety Systems	Mon 14/11/22	Tue 24/01/23		0%	On track. Pending Redacted plan.									
26		Passenger & Crew Lifts	Mon 14/11/22	Sun 19/02/23		0%	Structural and outfit to comment									
27		Fire Fighting & Detection	Mon 16/01/23	Tue 14/02/23		78%	On track. Pending Redacted plan.									
28		Shell Side Doors	Mon 05/12/22	Thu 02/02/23		0%	On track.									
29		Clam Shell Doors	Mon 14/11/22	Tue 07/02/23		40%	Structural to comment.									
30	Phase 4	Ramps (Fwd & Aft)	Wed 30/11/22	Thu 16/02/23		0%	Aft ramp awaiting pipework completion, forward ramp to inst.									
31	Confidence level - 100%	Deck Machinery (Windlas & Bollards)	Mon 06/02/23	Wed 15/02/23		0%	On track. Pending Redacted plan.									
32		Basin Trials (Propulsion)	Mon 20/02/23	Wed 01/03/23		0%	Redacted comment, complete after drydock.									
33		Drydock	Mon 20/02/23	Thu 02/03/23		0%	Redacted comment, dates clash with drydock.									
34		MES Deployment	Mon 06/03/23	Mon 06/03/23		0%	Installation to be finished, on track.									
35		Mezz Deck Load Test	Mon 13/03/23	Fri 17/03/23		0%	Awaiting installation.									
36		Dock Trial (Pre-Sea Trial)	Tue 04/04/23	Tue 04/04/23		0%	Dependant on drydock and basin trials.									
37		Inclining Test	Fri 07/04/23	Fri 07/04/23		0%	Postponed due to new preliminary inclining test date.									
38		Builder Sea Trials	Tue 11/04/23	Fri 14/04/23		0%	Dependant on plan.									
39		Owners Sea Trials	Tue 18/04/23	Thu 20/04/23		0%	Dependant on builders sea trials.									
40		LNG Bunkering & Commissioning	Tue 25/04/23	Mon 15/05/23		0%	Pipe to comment									
41		LNG Dock Trial	Tue 16/05/23	Tue 16/05/23		0%	Pipe to comment									
42		LNG Sea Trials	Wed 17/05/23	Sat 20/05/23		0%	Pipe to comment									

801 - Critical Path - Level 1
Issue : 27 October 2022



801 Critical Path Continued



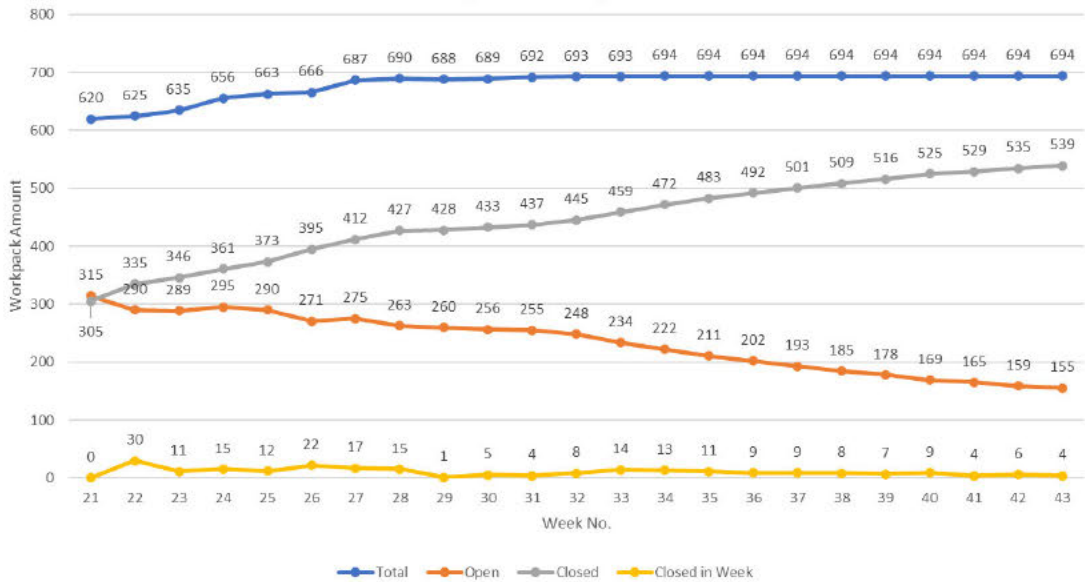
Two changes were made to the critical path in week 42. These are as follows:

- The preliminary inclining test was rescheduled from 25th of Nov. 2022 to the 20th of Jan. 2023. This was done to allow the ship to be closer to the true weight during the test. The test will be carried out on the 21st of Jan. if there are any issues with the weather on the day prior.
- The final inclining test was also rescheduled from the 17th of Feb 2023 to the 7th of April 2023, as the original date was too close to the new proposed preliminary inclining test date. This will also allow the ship to be at its true weight during the test, ensuring reliable inclining test results.

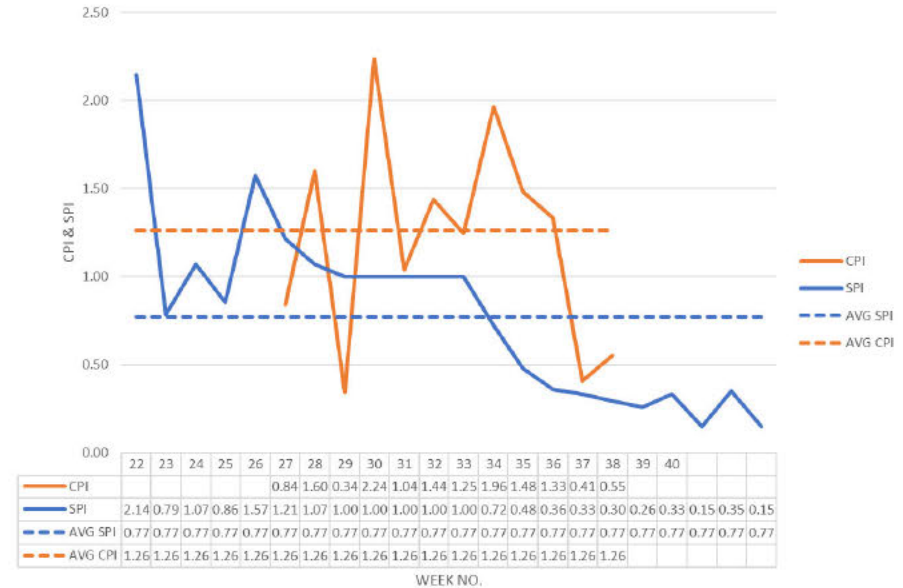
801 Hotwork Work Packs

- Tracker now in place for Change and Rework, see next slide.
- Currently 155 Hotwork packs remaining for known scope, 13 change/rework remaining to completion.
- Composite team now in place to support the enablement of remaining work packs.
- Scaffold on Bow doors to be installed Wk 44 to allow hotwork completion in this area.

Progress of Workpacks



CPI & SPI

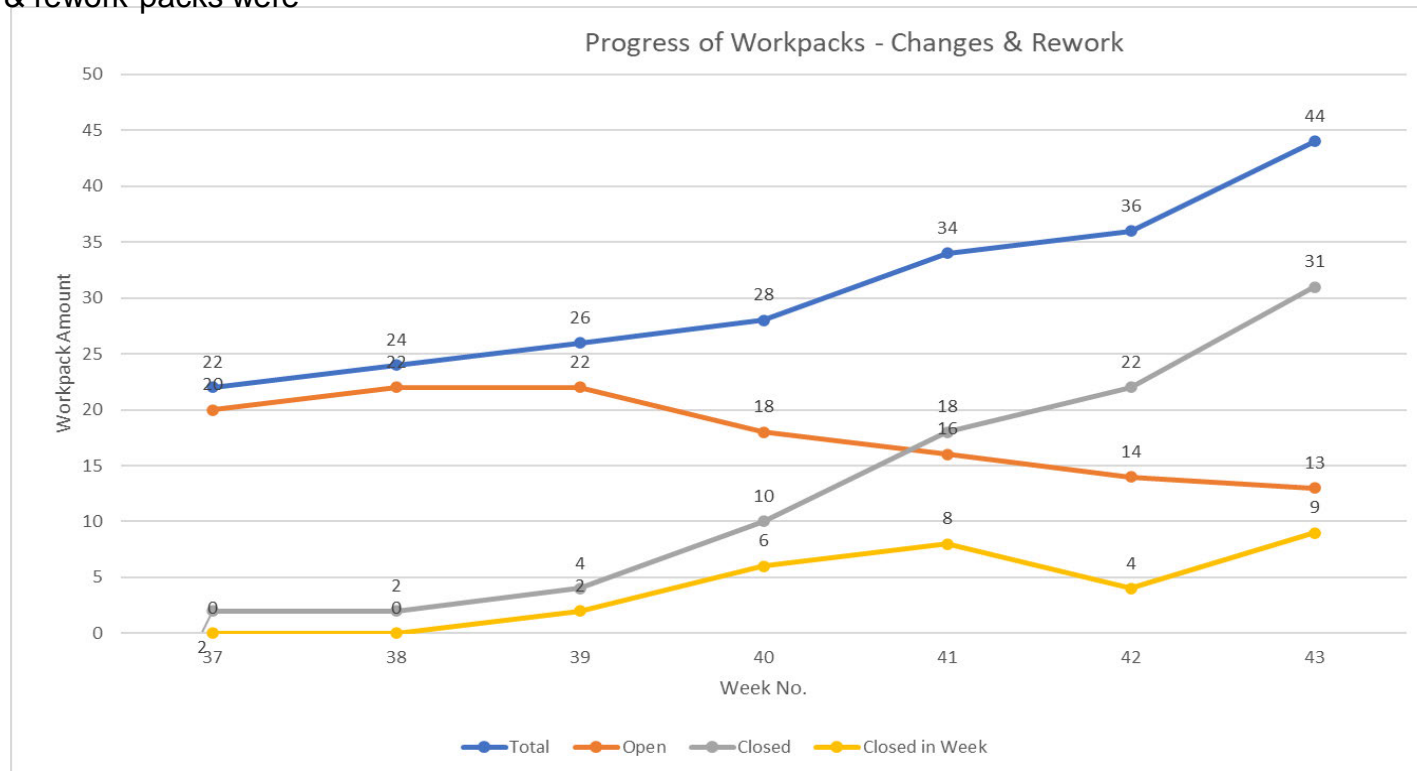


Average SPI: 0.77

Average CPI: 1.26

801 Hotwork Changes & Rework

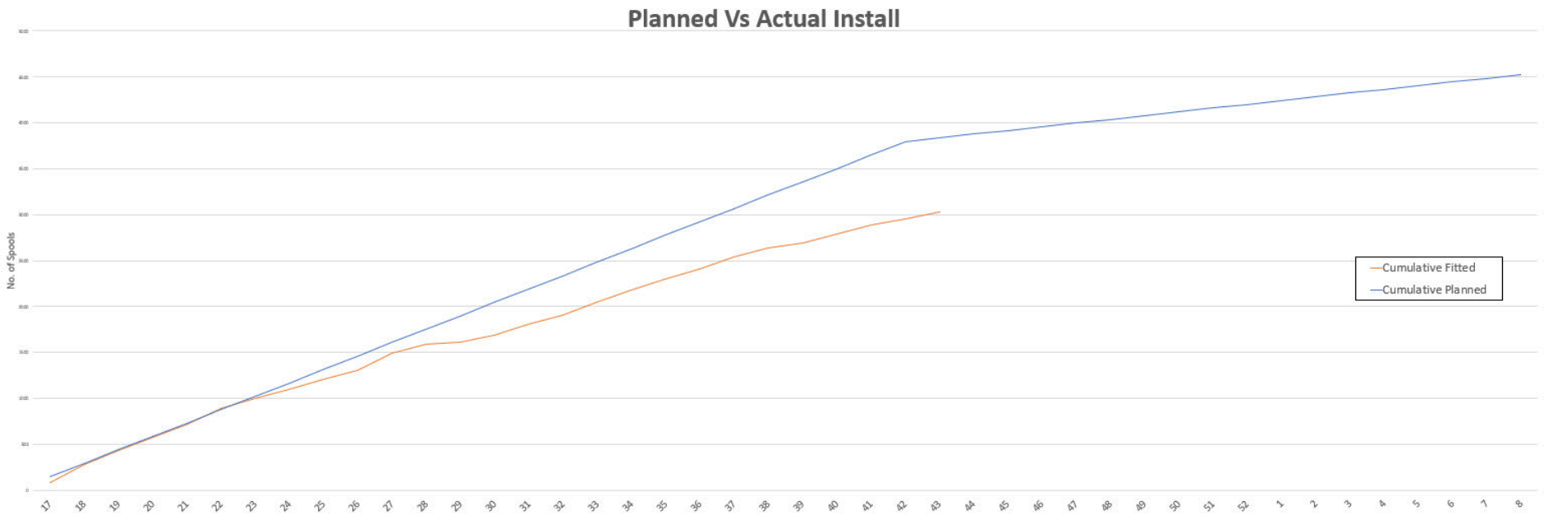
- Slide will now be included on Change & Rework moving forward.
- Highlights works being carried out above normal scope.
- Last week 9 change & rework packs were closed out.



Pipework Installation

[Redacted]

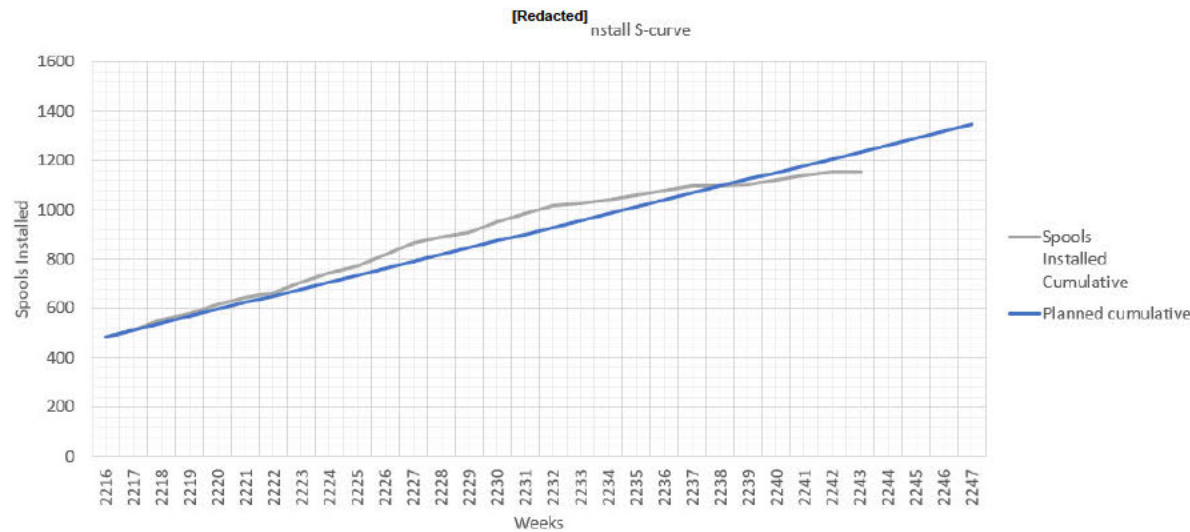
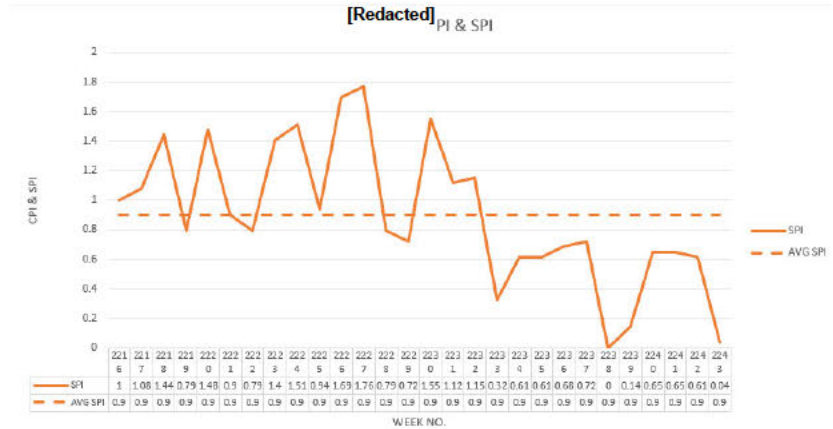
- Original scope completion date planned for week 47 (3314 spool) is currently on track.
- Graph had been extended to include engineering change/Site instructions(Circa 12,353man hours) which is planned for 24th February.
- Will be split into 2 S Curves moving forward, original scope and Site instructions/VOS.
- Constantly monitoring level of change being issued, design engineering being asked to conduct impact assessment on each change.



801 [Redacted] Hydraulic Pipework Installation

[Redacted]

- Man-power on site reduced throughout October due to sickness and holidays which slowed progress.
- Additional Manpower to be back onsite week 45.
- Rework on bow doors to commence week 45.
- Currently no major concerns.



Total planned spools to completion: 1346

Week 44:
 Cumulative planned 1234 (92%)
 Cumulative installed 1156 (86%)

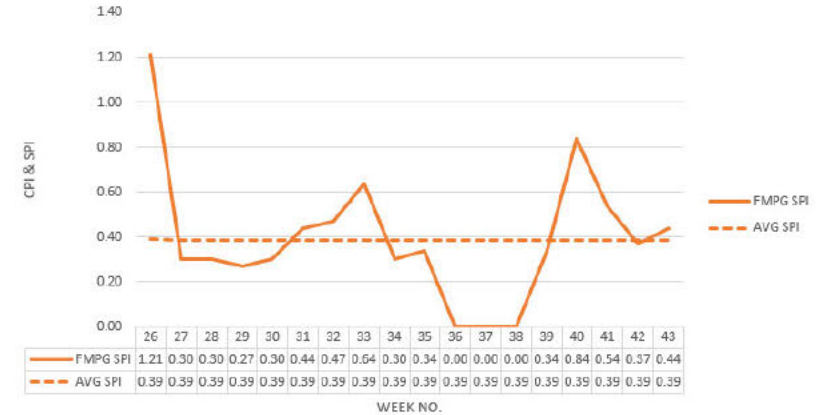
SPI in week: 0.04
 Average SPI: 0.9

FMPG Pipework Installation

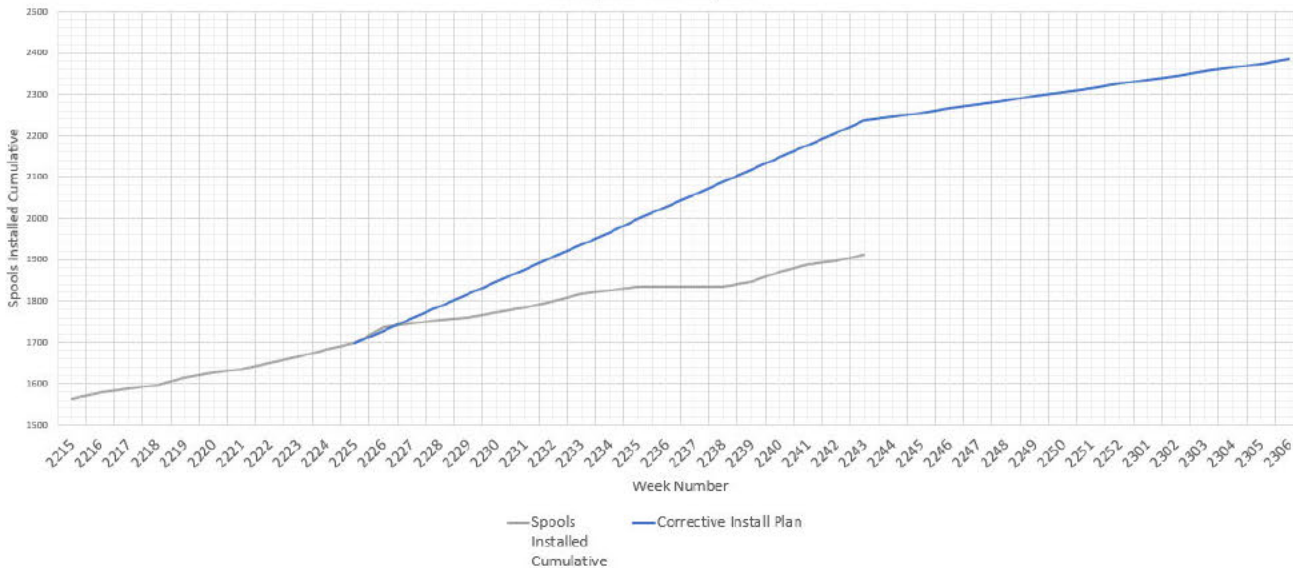
FMPG

- Current manpower levels not meeting demand.
- ~~Redacted~~ to provide additional manpower support.
- High level of change requests and modification work still ongoing.
- Revised date in place now 17th February for completion, including change/modifications.
- Next month report will include 2 S Curves, original scope and Modifications/Change.

FMPG CPI & SPI



FMPG Spools Installed by Week



Total planned spools: 2384

Cumulative planned: 2235 (94%)

Cumulative installed: 1911 (80%)

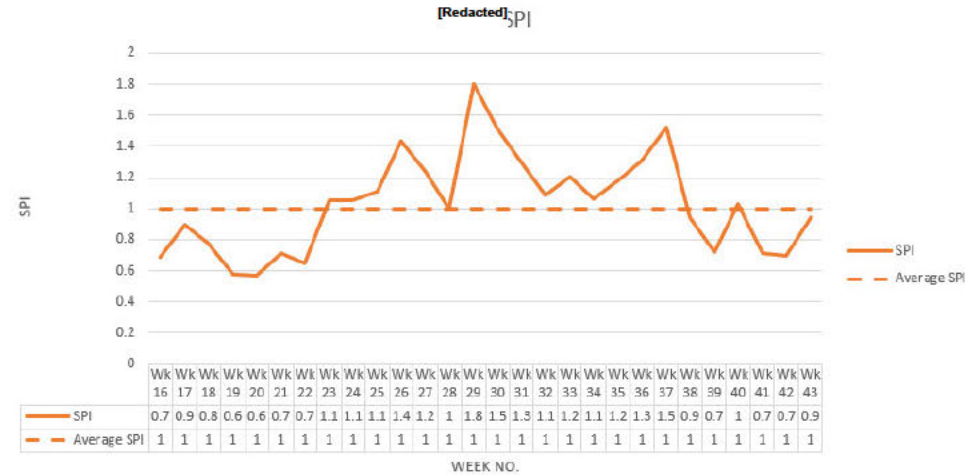
SPI in week: 0.44

801 [Redacted] Cable Install

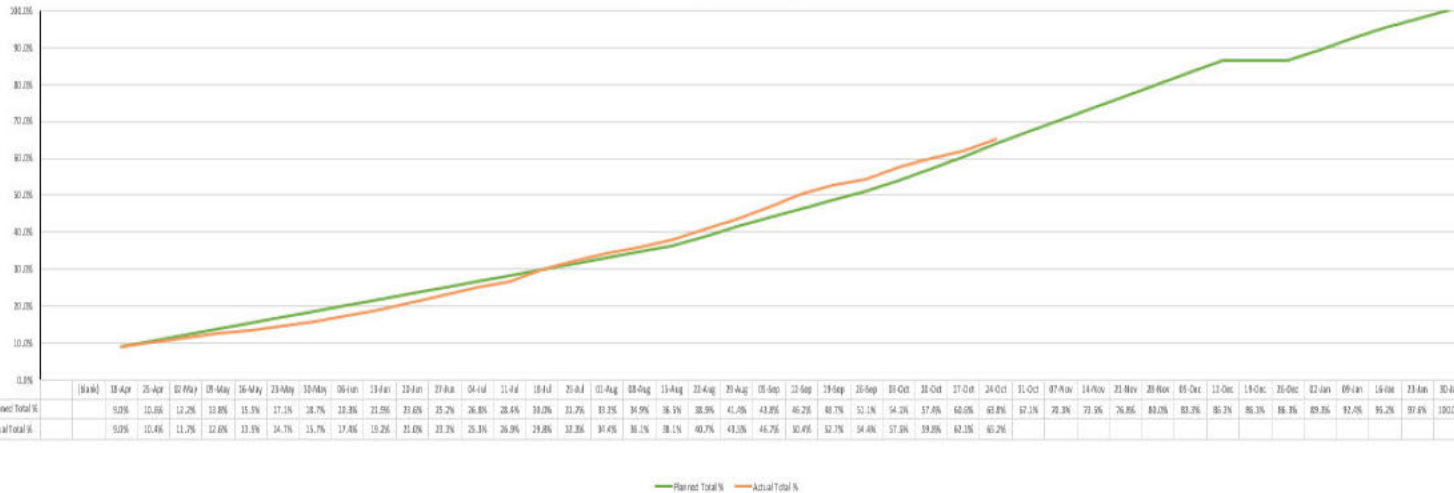
FMPG and [Redacted] have established on-going lines of communication, weekly meetings in place.

[Redacted] are currently liaising with FMPG Commissioning Manager regarding the installation/glanding/terminating & testing of Priority System cables. The approach to installation of cables is now being monitored with greater depth.

[Redacted] and FMPG have struck a new version of the baseline for ship 801. This incorporates a 52-hour a week resource schedule to aid acceleration. [Redacted] will now formally update and record against this baseline. Three S Curves now provided for cable install, Glanding/Terminating and testing. As can be seen from the graphs, significant challenges regarding volume still lying ahead. **Currently progressing to revised plan, hence moving to Amber.**



[Redacted] Ship 801 Cable Pulling



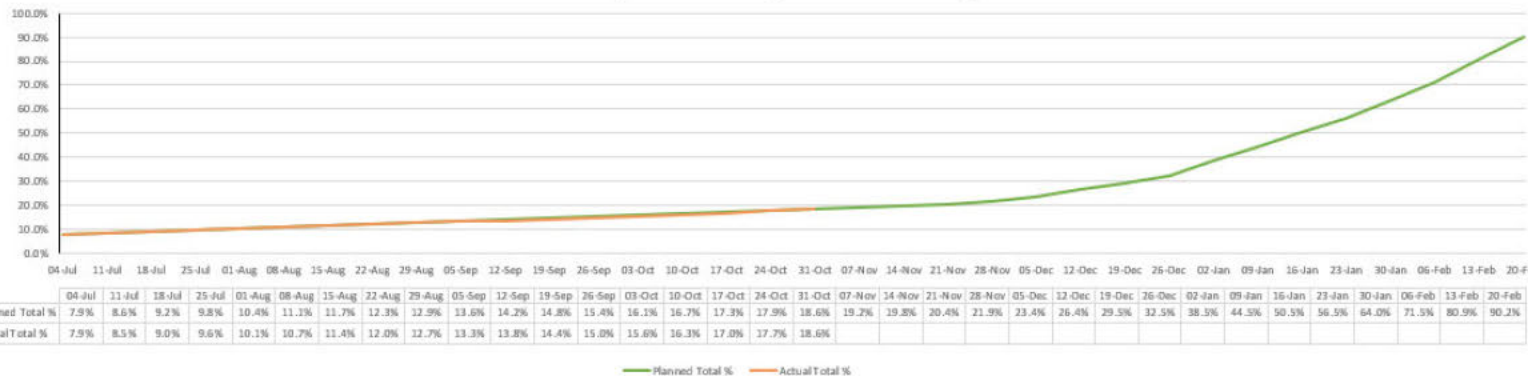
Install to week 43:

Total cable to install: 246,093 metre
 Cumulative planned week 43: 157,699 metre (63.7%)
 Cumulative actual week 43: 160,972 metre (65.2%)
 SPI in week: 0.95
 Average SPI: 1

[Redacted] Testing, Glanding and Terminating

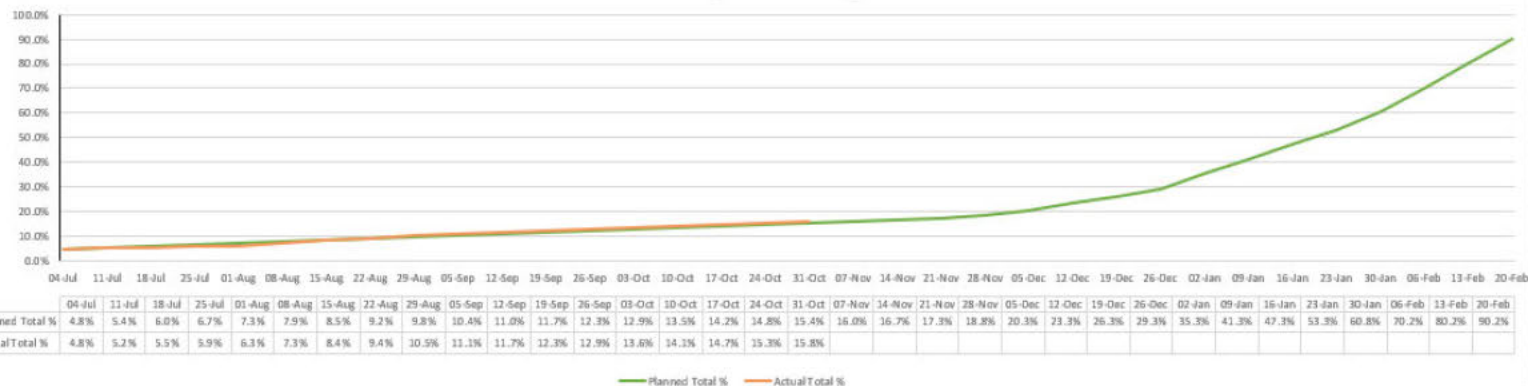
[Redacted] Ship 801 Glanding and Terminating

Planned G and T: 18.6%
Actual G and T: 18.6



[Redacted] Ship 801 Testing

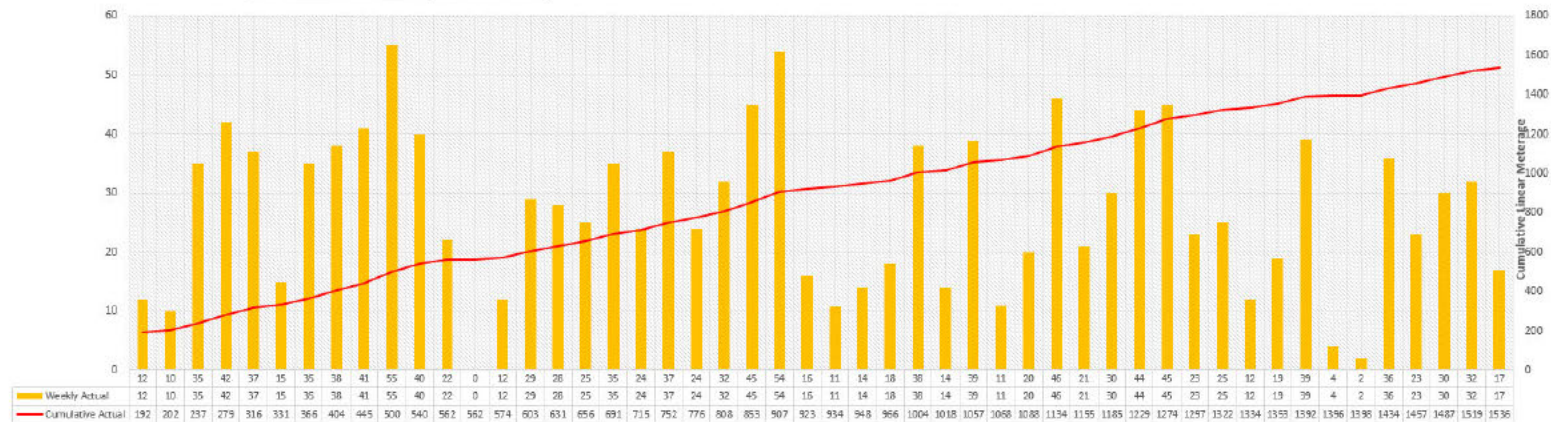
Planned Testing: 15.4%
Actual Testing: 15.8%



- Supply duct installation in galley now being progressed.
- [Redacted] have been affected by the large volume of change across 801 however the design is in progress to be finalised which should address this.
- Currently no major concerns.

Zone	Total Metreage	Installed Metreage	%age Complete
1	32	23	71.9%
2	35	26	74.3%
3	113	63	55.8%
4	94	60	63.8%
5	14	0	0.0%
6	378	80	21.2%
7	0	0	#DIV/0!
8	280	250	89.3%
9	1096	803	73.2%
10	198	183	92.4%
11	115	115	100.0%
Totals	2355	1603	68.1%

HVAC Installation Progress 'S' Curve



Engineering & Steelwork

[Redacted] Scope

- Build of specialist scaffolding starting 01/11/2022 to facilitate install of seats/breastplates and faring.
- Work now begun on changing black steel pipes to stainless steel.

Steelwork

- Dealing with last snags in Steering Gear which encompasses OORs as well
- Engineers Workshop focus now in with sub-contractors and Engineering
- STP hotwork complete excluding Pipework (FMPG Scope being worked on)
- STBD Stabiliser hotwork now complete excluding Pipework (FMPG Scope being worked on)
- 7 Deck AHU hotwork now complete and to be reviewed
- Major foundations complete in 6 deck AHU
- Focus on finishing out Lift Shafts hotwork and also LNG vent spaces for sub-contractor visits

Specialist Subcontractors

- [Redacted] returned onsite 28/10/2022 to continue LNG system install. General concern has been raised over sub-contractors poor organisation and timekeeping-potential risk.
- [Redacted] planned onsite mid November to support Clam Shell doors & Mezzanine decks.
- [Redacted] (elevator contractor) returning onsite 02/11/2022

Electrical

- Senior management meeting has now been arranged to be undertaken on a bi-weekly basis to discuss matters that are pertinent and require immediate action.
- [Redacted] have up-manned FBT's workforce on Nightshift to increase cable installation.
- [Redacted] are still encountering issues with Wheelhouse Cabling Consoles terminations

Pipework

- Steering gear installation progressed
- Removal of redundant FF pipework
- Harbour generator drain line
- Areas prepared for [Redacted] to return on site to facilitate LNG system install
- [Redac] progressed Axi-lock change.
- Partial test and flush of fuel system
- Potential blocker to [Redac] equipment to be installed by FMPG

Commissioning:

- HTLT System has been successfully tested and is now being filled with water.
- Additional level switches being added to MGO storage, daily service, and heeling tanks port and stbd for each.
- New vent line required for harbour generator pilot tank.
- Load test on emergency generator to commence 17/10/22.

801 Issues, Challenges & Successes



- Issues

- Turbo chargers to refurbish prior to running (circa 6 weeks for parts).
- Clarify hazardous zone plan, currently being led by ^[Redacted].
- Vacuum sensors for installation into LNG bunkering line.

- Challenges

- Clam shell door external scaffold to be deigned.
- Fire main and accommodation to resolve.
- Level of change being managed.
- Material availability.
- Driving OORs to closure.
- Cable installation & termination.
- Production drawings closeout.

- Successes

- LR load test of Emergency Generator.
- First run of Harbour Generator.

802 Level 0 Programme



802 Level 0 Programme	Ship Construction																								Ship Delivery into Service				
	2022												2023												2024				
Year																													
Month	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May		
Engineering/Design ^[Redacted]																													
^[Redacted] Workpack Release																													
Structure (Unit Construction)																													
Structure (Unit Erection)																													
Structure (Unit Consolidation)																													
Hotwork Installation																													
Clam Shell Doors/Ramps (TTS/FM)																													
Mezzanine Decks																													
Pipe Manufacture																													
Pipework Installation																													
HVAC																													
Electrical Installation																													
Outfit																													
Launch Prep & Launch																													
Commissioning																													
Dry Dock																													
Sea Trial																													
Snagging/ Delivery/ In Service																													

Several changes made to the 802 Level 0 Programme:

- New line item added: ^[Redacted] Workpack Release”
- Structure – Construction, Erection and Consolidation timeframes extended by 2 months for each line item.
- Hotwork installation extended by 1 month to August.
- Clamshell doors and Mezzanine decks extended.

Manufacturing Sheds

- Units completed awaiting dry survey: A7/6, A8/6, A9/6.
- Following 6 and 7 deck units in progress: A10/6, A11/6, A4/7, A7/7.
- Preparation of wheelhouse manufacture ongoing, on track with manufacturing plan as of week 42.
- Units remaining to be manufactured: A8/7, A9/7, Wheelhouse (A10/7) and masts.

Erection and Consolidation

Units 97 and 98 were erected onto ship in October.

Consolidation of 5 and 6 deck units underway:

- Consolidation of several units in progress: A7/5, A8/5, A9/5, A10/5, A11/5, A4/6, A5/6, U85, U86, U89, U90, U97, U98

Outfitting

In October the main focus was structural hotwork in the lift shafts, fabrication and installation of AMS platforms, installation of manholes, lashing pots, embarkation doors and pilot doors are also in progress. Various work packs are on hold due to the ongoing design review by [Redacted] on 802.

Pipework Installation

QC sign off of over boards is in progress, penetrations still being burned and fitted. Pipe fitting will commence after QC sign off.

- Total amount of spools ship wide: 12021.
- Total amount of spools manufactured/procured: 3905.
- Total amount of spools installed on ship: 302.

Launch

Meeting in diary for Tuesday 11th of Oct.

Electrical

- Contract to be re-tendered.

HVAC

- Commencing September.

Specialist Contractors

- Currently reviewing opportunities and finalizing plan with specialist contractors.

802 Issues, Challenges & Successes



Issues

- Unit outfit in manufacturing sheds is minimal due to the lack of clean drawings.
- Purchase requisition process for material/required services proving to be time consuming.

Key Challenges

Key known challenges for Hull 802 to meet the programme:

- Manpower support. Lack of manpower available on 802.
- Change management. Changes made by ^[Redacted] are not reaching production in an effective manner.
- Material availability. A Min/Max process is in progress of being implemented which will reduce bottlenecking of work due to unavailable material.
- Delivery and completion of production drawings and accuracy of production drawings.

Successes

- Effective workforce – good progress for the limited manpower available.
- Unit A11/5 bonded window openings fixed.

Weight & Stability

- **Stability**

- Cross flooding pipe now incorporated in model and stability model. Operations to execute when planned.
- Semi-WT door solution for the aft lifts ^[Redacted] doors to comply with Water on Deck (WoD) regulations. Work with alternative vendors being discussed also option of WT buffer agreed in principle with ^[Redacted]. Discussions ongoing with ^[Redacted]. Bespoke WT buffer door (semi-WT) engineering is WIP with candidate manufacturers.
- Operating profile received from CMAL on 07Sep22 to incorporate finer details in the stability model. As of 24Oct22, we passed all stability criteria with the given vehicle, passenger, and operating fluids configuration. First results shared with CMAL on 25Oct22, and the second CMAL feedback received on 31Oct22 regarding 35000lt fuelling detail. It is doable and we are in process of generating new results based on CMAL's feedback. New results will be immediately shared with CMAL by 7Nov22.

- **Weight**

- From mid-March a new weight study started. Overall **[Redacted]** weights extracted from the 3D model.
 - This study has never been performed at any stage of initial or detail design. Model based study provided a better estimation covering the previous margin assumptions.
 - **All** 3D model items extracted for weight details and these items have provided a better reference for Centre of Gravity (CoG) values.
 - Current weight estimate is 3549.67t and 3.68t remained as margin. Targeted Lightweight is 3553.35t
 - Discussion with ^[Redacted] to support with cross check and verification of weigh list against Aveva model ongoing
- Interim inclining experiment Prior to Drydock confirmed actual light ship at Currently, 3267.25t is available onboard including scaffoldings etc. Interim inclining date shifted from 25Nov22 to 20Jan23 to meet more maturity in weight target. Final inclining will be undertaken after drydocking about 7Apr23.

Other docs to deliver

- 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
- [Redacted] 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.

[Redacted] and [Redacted] plan approval update

[Redacted]

Under Review with [Redacted]	Date sent to [Redacted]	Note
Anti Fouling Plan	15/09/2021	Part of the Eco notation, Shall be approved for ship completion hand over date as part of larger pack
Cargo Securing Manual	01/02/2022	CSM internal review completed based on [Redacted] comments. To be submitted on 2Nov22.
Damage Control Plan	20/04/2022	Part of Stability book. To be released after stability book approval

[Redacted]

Under Review with [Redacted]	Date sent to [Redacted]	Note
Emergency Towing Booklet	11/04/2022	Only for information but copy to be kept on board. (Not [Redacted] scope) [Redacted] examined the booklet on 04/07/2022. CMAL operator comments are to be incorporated and ongoing. (These comments are just operational comments and does not require any material or hardware changes.)
Accommodation Layouts	15/02/2022	
Accommodation Handrailing	31/01/2022	Will be finalized after Escape route approval
Crew Accommodation Plan	15/02/2022	
Fire Control Plan	20/04/2022	Updated in line with Structural Fire protection Plan, resubmitted on 29/06/2022. Approval status asked to [Redacted]
Structural Fire Protection Plan	20/04/2022	Structural Fire Protection Plan was submitted on 12Oct22. Under review at [Redacted]
Fixed Fire Extinguishing Syst. ECR & Pipes, Cables Transformer Room	04/11/2021	Provisionally agreed require new Type Approval Certificate from [Redacted] for system as current cert is out of date.

To Be submitted to [Redacted] (in Work)	Responsible	Note
Stability book	FMPG	Stability Book, to be submitted for preliminary approval in November 2022.
CALMAC Muster Lists (Mode 1-4)	CMAL	
CALMAC SAR Plan	CMAL	
801&802-LNGPac Operating & Maintenance Manual LNGPac-H149-D9	[Redacted]	[Redacted] Updating, Adam to confirm requirement
Emergency Low level lighting	FMPG	Submit after escape routes update (part of MSF 1261 application to [Redacted])
Fire & Deck Wash System	FMPG	Updating due to removal of hose reels and replacement of Hydrants in Accommodation areas.

CMAL Drawing Approval update

- 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 **[Redacted]** 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])

1st vessel in Q1/2023

- Week 2: 9th until 13th January 2023 Propulsion at [Redacted]
- Weeks 6-7: 6th until 17th February 2023 Engines W20DF and W34DF operation and practical at [Redacted]
- Week 8: 20th until 24th February 2023 Engine Control system at [Redacted]
- Week 10: 6th until 10th March 2023 LNGPac at [Redacted]

2nd vessel in Q1/2024

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

The following has been achieved since the previous meeting.

- Emergency Generator load testing complete and presented to [Redacted] / CMAL.
- First run of Harbour Generator and shutdowns witnessed by [Redacted] / CMAL.
- Alarm channel testing underway. 415V Swbd controls and indication checked as far as possible.
- Automation UPS's No 1 & No 2 now operational.
- HT/LT system filled to support running generators.

Planned activities for the next 3 weeks.

- Demonstrate Start Air system automatics.
- Energise the 690V switchboard via the Harbour generator.
- Continue with alarm channel testing. 240V & 690V Swbd & MCC controls and indication.
- Fuel supply to Aux/Main engines to pressure test and flush.
- Gearbox flushing.
- Ensure pre-requisites are complete to allow Wartsila to attend site for Aux Gen first runs.
- Test Quick Closing valves on fuel tanks and at engines.

[Redacted] Surveyed

- 801-Main Engine Room Harbour Generator Trips / Shutdowns
- 801-Steering Gear LO Storage Tanks x2

801 Fabrication Surveys with [Redacted]

- Deck 5 Port frame 71 welded butt survey & MPI.
- Deck 5 Galley frame 51-54 welded butt survey & MPI.
- Deck 5 Port frame 21-23 bulkhead insert door frame survey MPI.
- Deck 5 Port frame 82-83 bulkhead insert survey & MPI.
- Deck 2-3 lift shaft pit frame 76-79 deck insert survey & MPI.
- Deck 3 midships frame 51-54 deck insert survey & MPI.
- Deck 5 Starboard frame 67 welded butt survey & MPI.
- Deck 3-4 Starboard frames 03 – 99 L 11 -side shell survey report.
- Deck 5 Fairness Check Aft end to Forward end Port to Starboard checked by [Redacted] & Cmal.
- Deck 6 Bonded windows x 13 survey & hosed tested with [Redacted] & Cmal.
- Recesses x 7 Checked with [Redacted] No 02,08,31,40,60,61, & 70

802 Fabrication Surveys with [Redacted]

- Unit A7-6 Port, Starboard and Centre Survey + 10% Dye Pen & 100% Dye Pen Lifting Lugs.
- Unit A6-6 Starboard Survey + 10 % Dye Pen & 100% on Lifting Lugs.
- Unit A9-6 Port, Starboard and Centre Survey + 10% Dye Pen.
- Unit A8-6 Port and Starboard Survey + 10% Dye Pen & 100% on Lifting Lugs.
- Air Test & Survey Pilot Fuel Tank no leaks all good.
- Air Test & Survey Lube Oil Tank no leaks all good.

Pre-Insulation Surveys

- 1/ 5Dk galley IWO Sliding door / lift Shaft / Brackets (Insulation & Paint)
- 2/3Dk – 5Dk uptake Space Frames 36-39 IWO Silencer (Insulation & Paint)
- 3/ 5Dk insulation & paint below windows
- 4/ 6Dk servery / Pantry lift external
- 5/ 3Dk Coffin Store / & Patient Transfer Room & Dk Stores x 2 painted ready to insulate
- 6/ 5Dk Bulkheads @ shop / bar Area Insulated
- 7/ Behind linings inspections on 6Dk casings after [Redacted] Visit.

OORs

OOR status

	All categories	Category 1	Category 2	Category 3
Total Raised	607	366	228	13
Total Closed	473	280	187	6
Total committed	48	39	8	1
Total to close when work complete	49	38	9	2
Total still to resolve	37	9	24	4

Category 1 - Must be done before handover

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

Category 3 - Snagging

- 2 'Cat 1' OOR's closed since last report, focus on Engine room access and walkway modification following FMPG/CMAL CAT 1 review meeting – with agreement at ship this week on local modification to gain access to Engine crankcase doors and Engine head access.
- 49 CWWC and 48 committed OORs have seen little progress in period. Renewed urgency required to avoid impact to commissioning activity. Programme has actioned "hit team" to address the open issues, lead by Operations/QC.

CMAL Observation Log

	Raised	Closed	Ongoing/ Monitoring
Outfit	17	9	1
Pipework / Mechanical	18	4	2
Steelwork / Paint	12	7	
Electrical	13	7	
Totals	60	27	3

- Comments
- AOB