

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

Review Period: November 2022

<u>Name</u>	<u>Job Title</u>	
[Redacted]	CEO	
[Redacted]	Director of Shipbuilding	
[Redacted]	CFO	



Agenda

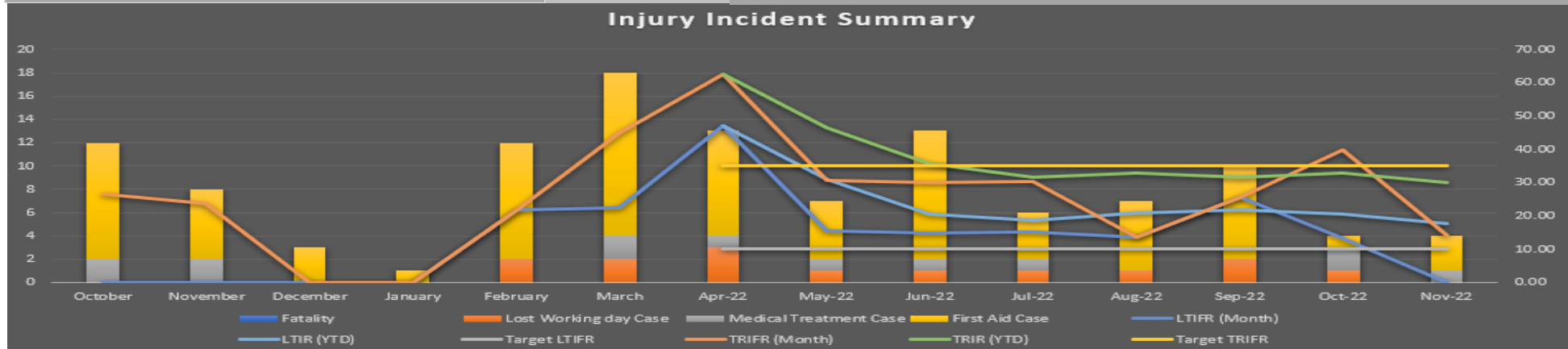
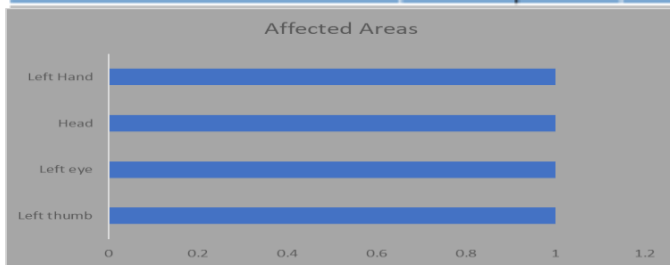


- **Health & Safety**
- **Programme**
- **LNG Update**
- **Production**
- **Engineering**
- **Commissioning**
- **Quality**
- **OOR's**
- **AOB**

HSE Dashboard November 2022

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

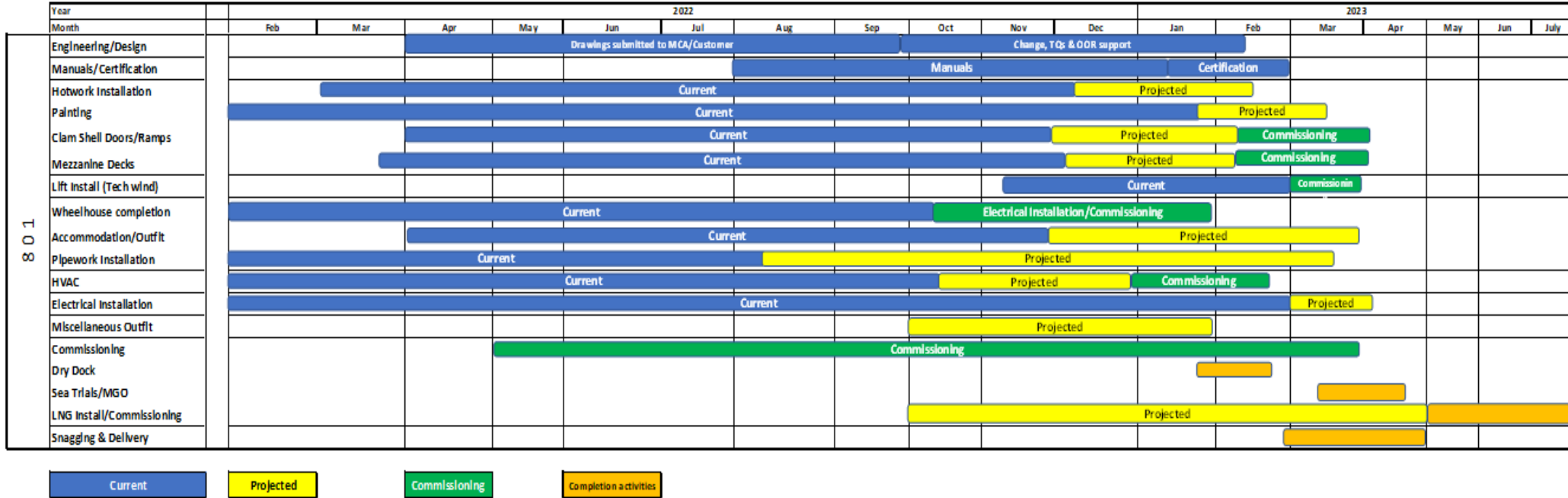
Incident Statistics	Target	Actual		Fatal	0	Fire	1	Proactive Statistics				
	2022	Month	YTD					Target		Actual		
								Month	2022	Month	YTD	
Number of Hours Worked**	870,000	70818	559422	RIDDOR	0	Damage	0	Number of YSYD Cards	>50	>600	75	52
Number of Lost Time Incidents (> 3 Days)	< 9	0	10	LTI (> 3days)	0	Environmental	0	Toolbox Talks Issued	2	24	2	14
Lost Time Incident Freq Rate*	< 10.14	0	17.64	Medical Treatment (MTC)	1	Serious Near Miss	0	Housekeeping Inspections	4	48	4	25
Number of Recordable Injury Incidents	< 30	2	15	First Aid	3	YSYD	52	Emergency Drills Completed	>4	>48	2	17
Total Recordable Injury Incident Rate*	< 35.0	14.12	29.99	Total Injuries	4	TOTAL Incidents	5	Vessel Compliance Checks	30	420	40	215



Progress Update:

- We had a better month with regards to incidents reported with – 1 MTC and 3 First Aids 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, the Subcontractor involvement will now be reviewed every Thursday morning at the Subcontractor meeting.
- HSE inspection - Visit focused on PTW, CSE, Scaffold, COSHH and general observations – Still awaiting report and requirements.
- 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.
- We are currently trying out new types of PPE (Gloves) for various types of worksopes following a recent wave of hand injuries in October, it is hoped following a successful trial these gloves will be introduced into circulation.

801 Level 0 Programme



Changes made to the 801 Level 0 Programme:

- Hotwork completion dates, not including change/rework.
- Line added for Lift install.
- Clamshell doors/Ramps install/completion now runs into April.
- Mezzanine Decks install/completion now runs into April.
- LNG install/Commissioning date updated.

Technical solution / setup is still at concept design stage ([Redacted]) with discussions ongoing with LR and suppliers. The following is [Redacted] outline proposal of anticipated timeline:

Projected timeline (lead time of overall skid is not confirmed, estimated 8 weeks after delivery of parts to skid maker)

Preliminary Plan, Pending Skid Approval from [Redacted]

	2022		2023						
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July
Plan Approval									
Equipment Order + Manufacture + Inbound Equipment									
Skid Manufacture									
Despach to Shipyard									
Installation at Shipyard									
Commissioning and Testing									

Specialised equipment has long lead times, that we are trying to mitigate:

- **3.2 pipe material with material certification = typically 3 months, sourcing stock**
- **Vacuum valves = 30 weeks, switching to alternative type now in design to get in 10 weeks**
- **Pressure relief valves = 36 weeks, using [Redacted] from 801 or [Redacted] looking at possibilities**
- **Vacuum plug = 16 / 20 weeks, under investigation**
- **Equipment and skids will be all manufactured in EU as opposed to China.**
- **Material certification requirements from [Redacted] are adding time to delivery everywhere in the procurement processes, this is a global issue.**
- **Design approval, equipment certification and overall skid tests and approval, Parallel activity.**

Although the skid will hopefully not be operated in the lifetime of the vessel, if it ruptures, the temperature through piping will be very low (-162 degree C) and all materials must comply with strict rules to ensure integrity of the system and safety of passengers.

801 RAG status

[Redacted]

Discipline	Overall Status					
	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22
Overall Status	R	A	A	A	A	A
Safety	R	R	A	A	A	A
Engineering- Design	R	R	R	R	R	R
Procurement	R	A	A	A	A	A
Hot-Work	R	A	A	A	A	A
Piping - FMFG	R	R	A	A	A	A
Piping [Redacted]	R	A	A	A	A	A
Piping [Redacted]	R	A	A	A	A	A
Mechanical	A	A	A	A	A	A
Electrical [Redacted]	R	R	R	R	A	R
HVAC [Redacted]	A	A	A	A	A	A
Commissioning	A	A	A	A	A	A
LNG	A	A	R	R	R	R
Lift Install	A	A	A	A	A	A
RO-RO Equipment						A

801 Critical Path



ID	Phase	Task Name	Start	Finish	RAG	% Work Comp	Comments	Sep '22	Oct '22	Nov '22	Dec '22	Jan '23	Feb '23	Mar '23	Apr '23	May '23
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.									
2		Review of P&IDs	Mon 17/10/22	Fri 31/03/23	Yellow	65%	Review of P&IDs uncovering potential major rework of piping systems, progress now									
3		LNG systems	Mon 14/11/22	Thu 22/12/22	Red	70%	Review of system uncovering additional design work. Installation & commissioning act									
4		Hazardous zone plan	Tue 15/11/22	Fri 27/01/23	Green	90%	Review of Hazardous zones re-submission to [Redacted] now actioned.									
5		Shipwide piping systems	Mon 03/10/22	Fri 31/03/23	Red	60%	Ongoing review of shipwide systems, identifying non compliant technical issues. This									
6	Phase 1	Hotwork Completion	Mon 12/09/22	Fri 10/02/23	Yellow	92%	108 Work Packs Remaining on original scope, 9 open for change/rework. Revised date									
7	Confidence level on delivery of the vessel	Switchboards / MCC's & UPS's	Sat 05/11/22	Fri 13/01/23	Yellow	85%	Switchboard cabling on priority systems progressing well with 70% of [Redacted] interface									
8		Emergency Generator Load Test	Tue 18/10/22	Thu 20/10/22	Green	100%	[Redacted] load testing successfully completed.									
9		HT/LT System	Mon 03/10/22	Fri 04/11/22	Green	99%	Operationally available and subject to refill. All Auxiliaries subject to re-circ.									
10		Harbour Generator	Tue 18/10/22	Fri 21/10/22	Green	100%	First run 18th Oct, load test to follow.									
11		Auxiliary Generators	Wed 07/12/22	Fri 16/12/22	Yellow	90%	Pipe systems completed, [Redacted] service team now onsite, pre-commissioning checks									
12		Main Engines	Sun 08/01/23	Fri 27/01/23	Yellow	60%	[Redacted] service team now onsite, modifications works ongoing. First run of 1 main en									
13		Gearbox & Propulsion Commissioning	Wed 23/11/22	Fri 27/01/23	Yellow	30%	[Redacted] service team now onsite, modifications works ongoing. Gearbox flushing cor									
14	Phase 2	Generator Load Test	Tue 13/12/22	Fri 17/02/23	Green	20%	Emergency Generator fully load tested									
15	Confidence level on delivery of the vessel	PMS Set Up	Sat 18/02/23	Tue 07/03/23	Red	50%	[Redacted] access codes required. Workaround solution now being implemen									
16		Preliminary Inclining Test	Fri 20/01/23	Fri 17/02/23	Yellow	0%	Currently under review to ascertain value.									
17		Fwd & Aft Thrusters	Tue 07/03/23	Fri 17/03/23	Green	70%	Final cables being installed, pitch pipework underway.									
18		Steering Gear	Tue 07/03/23	Mon 27/03/23	Green	70%	Final cables being installed.									
19		Stabilisers	Mon 27/03/23	Sat 08/04/23	Yellow	60%	Self contained stabiliser unit. Control cabling installation underway.									
20		Bilge / Ballast System	Sun 22/01/23	Thu 09/03/23	Yellow	85%	Install ongoing, modifications to carry out.									
21		Fuel Oil System & Purifiers	Mon 10/10/22	Sun 19/02/23	Yellow	98%	Install ongoing, modifications to carry out. Engineering/Design to clarify. Still remains									
22		Lub Oil System & Purifiers	Mon 17/10/22	Sun 19/02/23	Yellow	90%	Engineering/design mods now clarified and need to be addressed.									
23		Domestic Fresh Water	Wed 01/02/23	Thu 09/03/23	Yellow	85%	Install ongoing, modifications to carry out. Engineering/Design to clarify. Awaiting tar									
24		Black Water System	Mon 06/02/23	Sat 11/03/23	Red	50%	Design issues now being reviewed which may mean major rework.									
25		Accommodation Outfit	Mon 03/10/22	Tue 07/03/23	Green	75%	Now progressing well with minor changes.									

801 - Critical Path - Level 1
Issue : 05 December 2022



Ferguson Marine (Port Glasgow) Proprietary Information

The information contained in this document is the property of Ferguson Marine (Port Glasgow), and further dissemination is prohibited without written permission of Ferguson Marine (Port Glasgow)

IN STRICT CONFIDENCE

801 Critical Path Continued



ID	Phase	Task Name	Start	Finish	RAG	% Work Comp	Comments	Sep '22	Oct '22	Nov '22	Dec '22	Jan '23	Feb '23	Mar '23	Apr '23	May '23
26	Phase 3	Galley, Servery & Bar	Mon 07/11/22	Fri 03/03/23	Green	60%	Awaiting delivery of specialised equipment, rescheduled completion date.									
27	Confidence level on delivery of the vessel	Navigation Systems & External Comms	Fri 06/01/23	Fri 14/04/23	Yellow	30%	Installation of cabling ongoing.									
28		Internal Comms & Entertainment System	Fri 20/01/23	Fri 28/04/23	Yellow	20%	Installation of cabling ongoing.									
29		HVAC & Cold Stores	Mon 12/12/22	Fri 24/03/23	Yellow	68%	Major rework required above cold stores.									
30		Safety Systems	Mon 14/11/22	Fri 21/04/23	Red	10%	Electrical design clarifications affecting progress.									
31		Passenger & Crew Lifts	Sat 17/12/22	Fri 24/03/23	Yellow	20%	Techwind now onsite, initial survey work undertaken and installation now ongoing.									
32		Fire Fighting & Detection	Mon 16/01/23	Fri 21/04/23	Yellow	40%	Now identified missing components, baskets, brackets, fixtures and fittings.									
33		Shell Side Doors	Mon 05/12/22	Fri 31/03/23	Red	50%	Hydraulic pipework requires stripout as consequence of LNG vacuum skid.									
34		Clam Shell Doors	Mon 14/11/22	Fri 17/02/23	Red	80%	Legacy work still being addressed, major scaffold required on bow.									
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. Discussions ongoing with [Redacted] to attend site mid January.									
36	Confidence level on delivery of the vessel	Deck Machinery (Windlas & Bollards)	Mon 06/02/23	Fri 31/03/23	Yellow	60%	All machinery now installed with cabling underway, commissioning will follow dry dock									
37		Basin Trials (Propulsion)	Mon 20/02/23	Thu 16/08/23	Yellow	0%	Complete after drydock. Driven by repair work to stern tubes.									
38		Drydock	Mon 20/02/23	Thu 02/08/23	Yellow	10%	Now planned for 20th Feb until 2nd March.									
39		MES Deployment	Fri 03/03/23	Fri 03/03/23	Yellow	0%	Installation to be completed. Subject to availability of ships crew.									
40		Mezz Deck Load Test	Mon 03/04/23	Fri 07/04/23	Yellow	0%	Dependant on drydock and basin trials.									
41		Dock Trial (Pre-Sea Trial)	Mon 03/04/23	Fri 07/04/23	Yellow	0%	Dependant on drydock and basin trials.									
42		Inclining Test	Sun 09/04/23	Sun 09/04/23	Green	0%	Postponed due to new preliminary inclining test date.									
43		Builder Sea Trials	Tue 11/04/23	Fri 14/04/23	Yellow	0%	Dependant on plan.									
44		Owners Sea Trials	Tue 25/04/23	Fri 28/04/23	Yellow	0%	Dependant on builders sea trials.									
45		LNG Bunkering & Commissioning	Mon 24/07/23	Sat 12/08/23	Red	0%	Major modifications to incorporate vacuum sensing module.									
46		LNG Dock Trial	Sun 13/08/23	Sun 13/08/23	Red	0%	To be discussed, [Redacted]									
47		LNG Sea Trials	Mon 14/08/23	Tue 22/08/23	Red	0%	To be discussed, [Redacted]									

801 - Critical Path - Level 1
Issue : 05 December 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		

Ferguson Marine (Port Glasgow) Proprietary Information

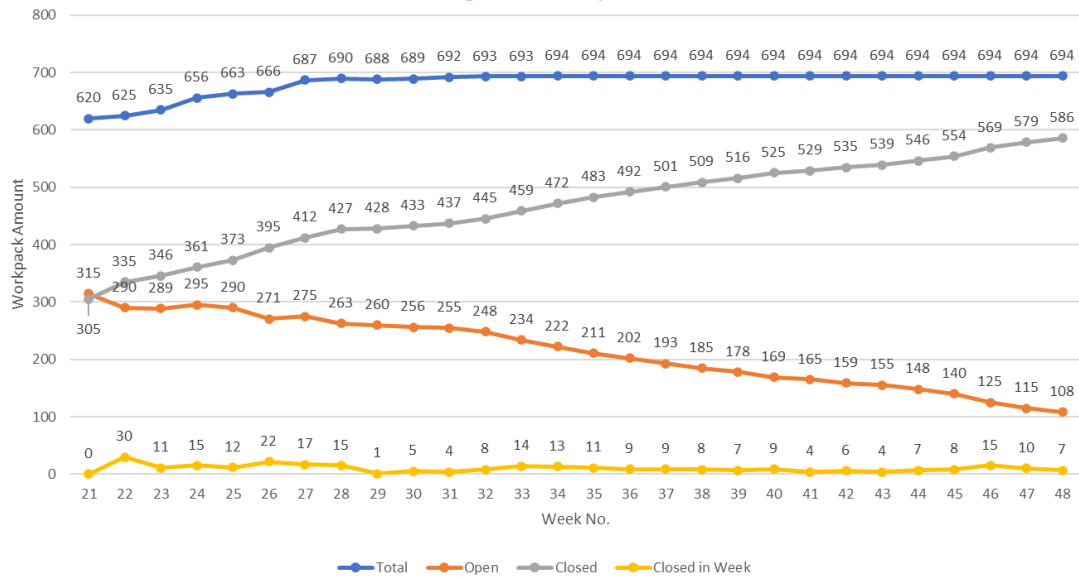
The information contained in this document is the property of Ferguson Marine (Port Glasgow) and further dissemination is prohibited without written permission of Ferguson Marine (Port Glasgow)

IN STRICT CONFIDENCE

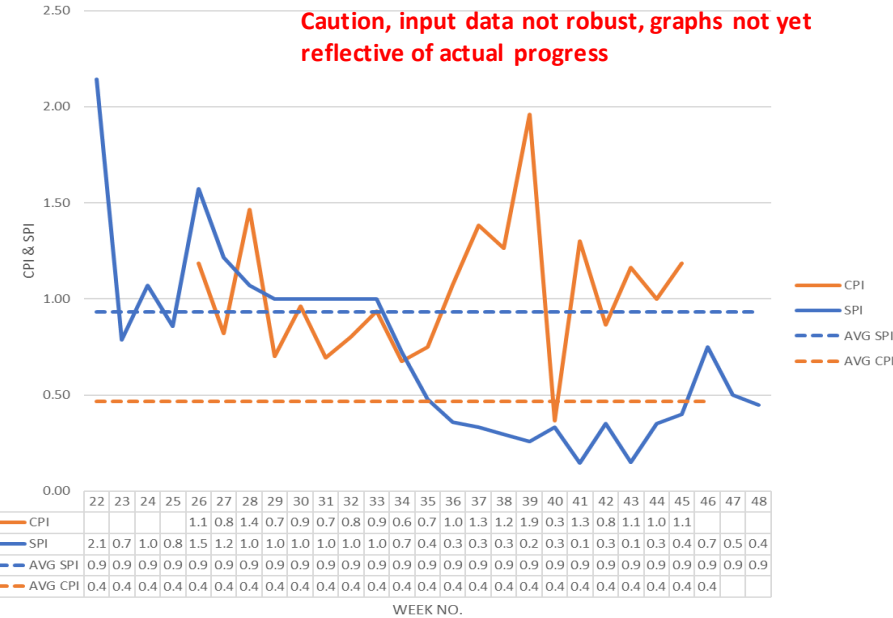
801 Hotwork Work Packs

- Currently 108 remaining to completion.
- Full nightshift now being facilitated with drawings and materials to close out zone 6 continuing
- Day shift continuing Changes & rework on top of original scope.
- 7 work packs closed last week on original scope, 9 rework work packs closed, 16 total.

Progress of Workpacks



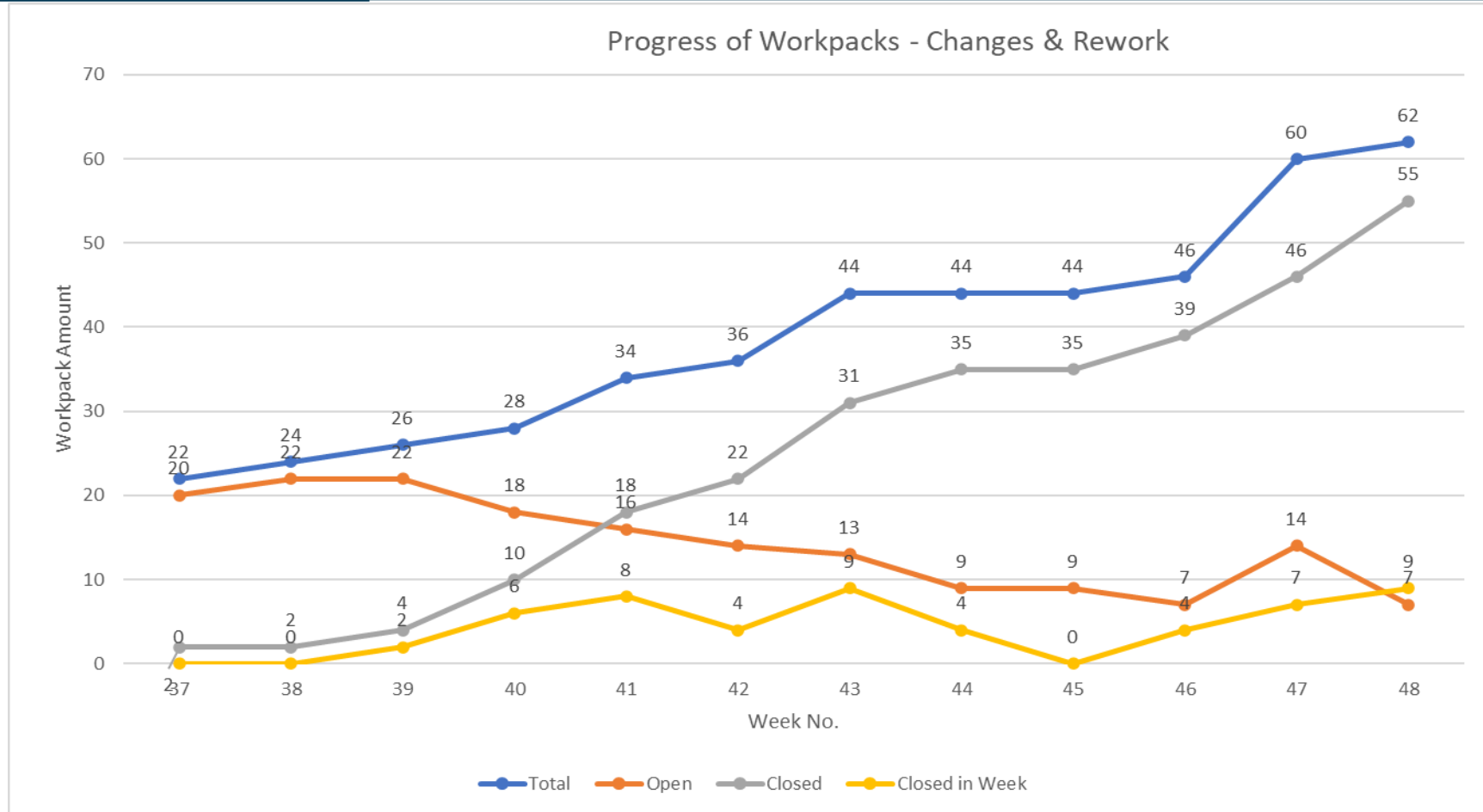
CPI & SPI



Average SPI: 0.93

Average CPI: 1.26

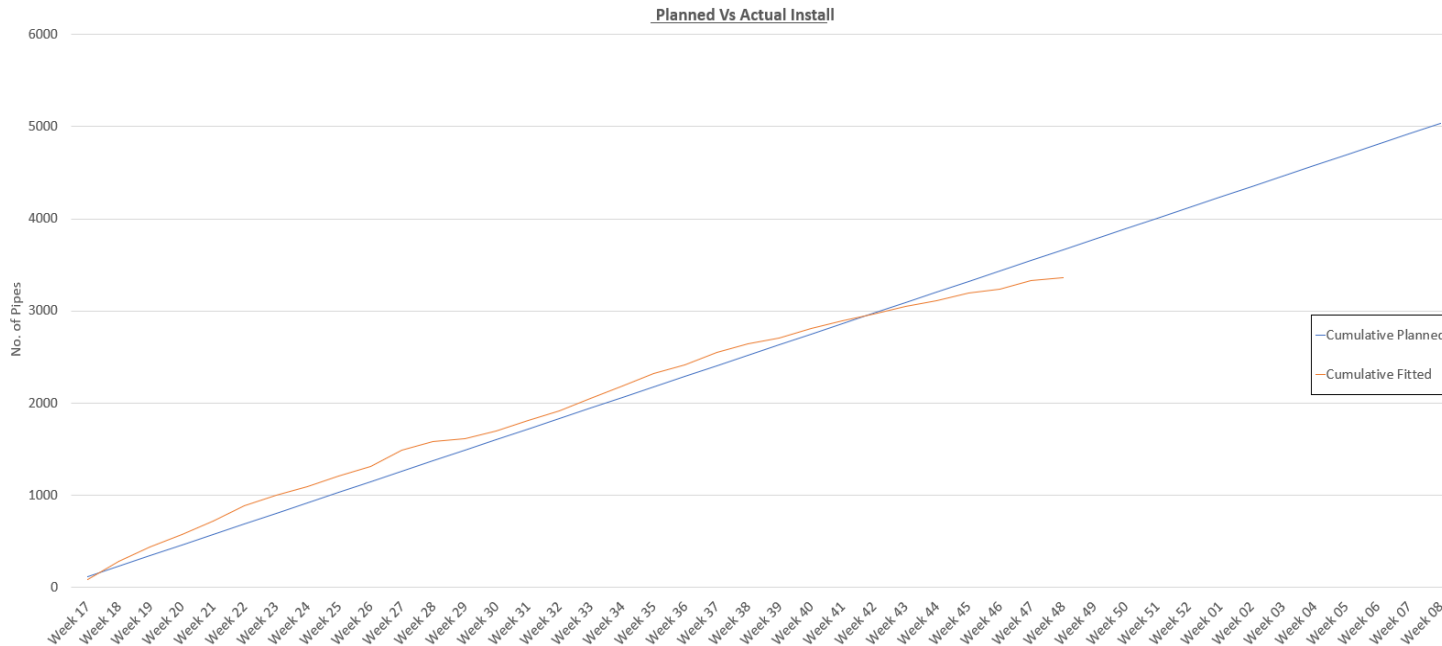
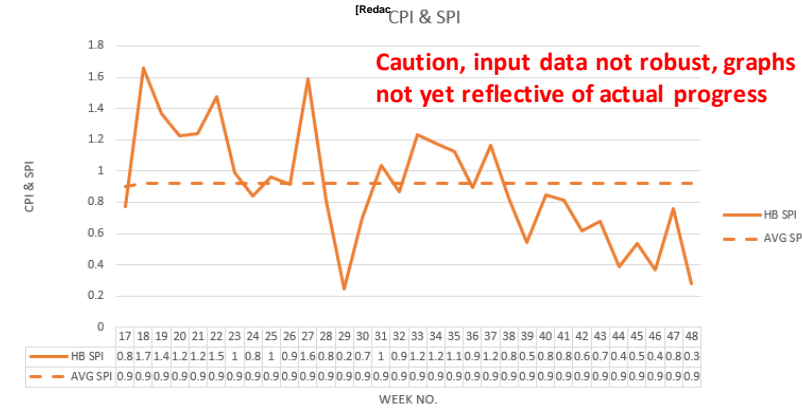
801 Hotwork Changes & Rework



- 9 completed in week 48

[Redacted] Pipework Installation

- Graph had been extended to include engineering change/Site instructions(Circa 12,353man hours) which is planned for 24th February. On Track.
- Constantly monitoring level of change being issued, design engineering being asked to conduct impact assessment on each change.



Total spoils to install:
4526

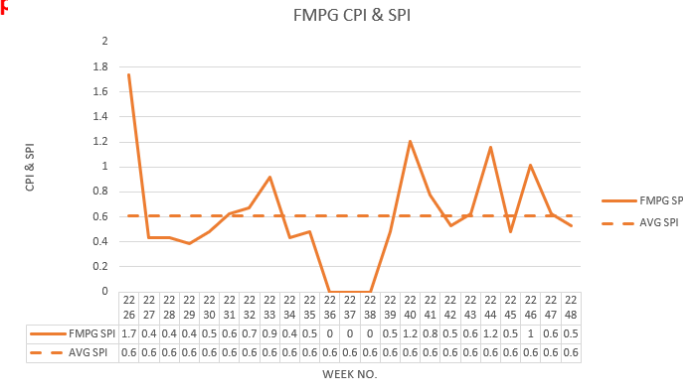
Week 48:
Cumulative planned:
3664 (81%)
Cumulative installed:
3362 (74%)

Average SPI: 0.90

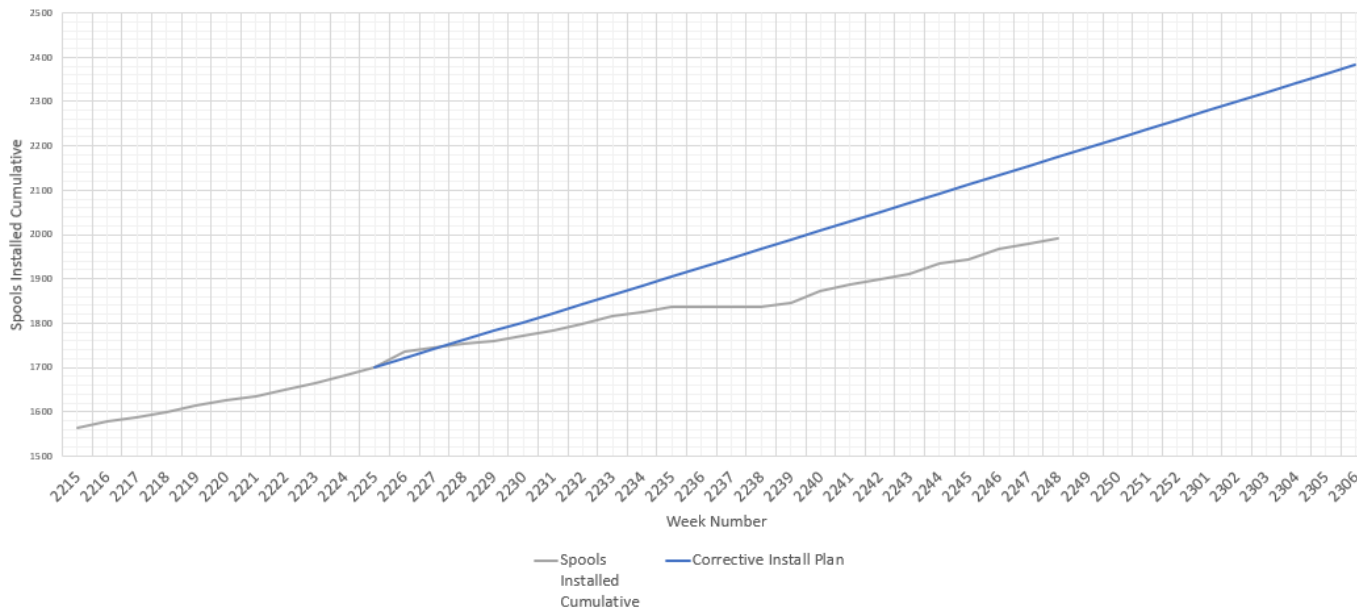
FMPG- Pipework Installation

- 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.

Caution, input data not robust, graphs not yet reflective of actual performance



FMPG Spools Installed by Week



Total planned spools: 2384

Week 48:

Cumulative planned: 2176 (91%)

Cumulative installed 1979 (84%)

Average SPI 0.61

801 [Redacted] Cable Install

[Redacted] are currently working to Rev-34 of Cable Schedule.

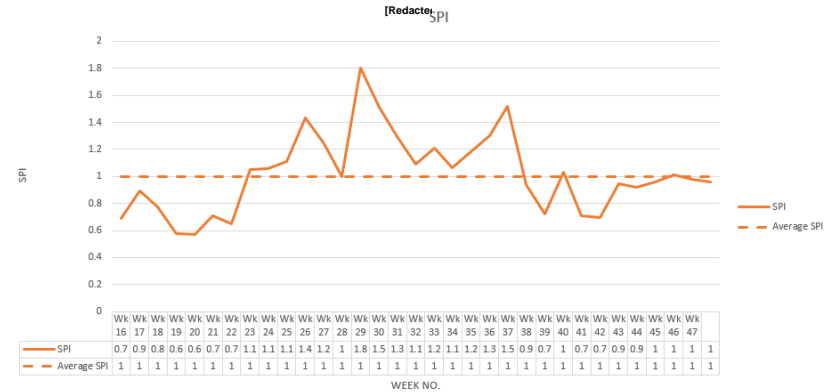
FM and [Redacted] have established on-going lines of communication, both continue to be present at the weekly progress meeting to ensure we are working in a collaborative manner.

Currently progressing well to revised plan, challenges still remain as can be seen in rapid incline within S curves and are monitored daily.

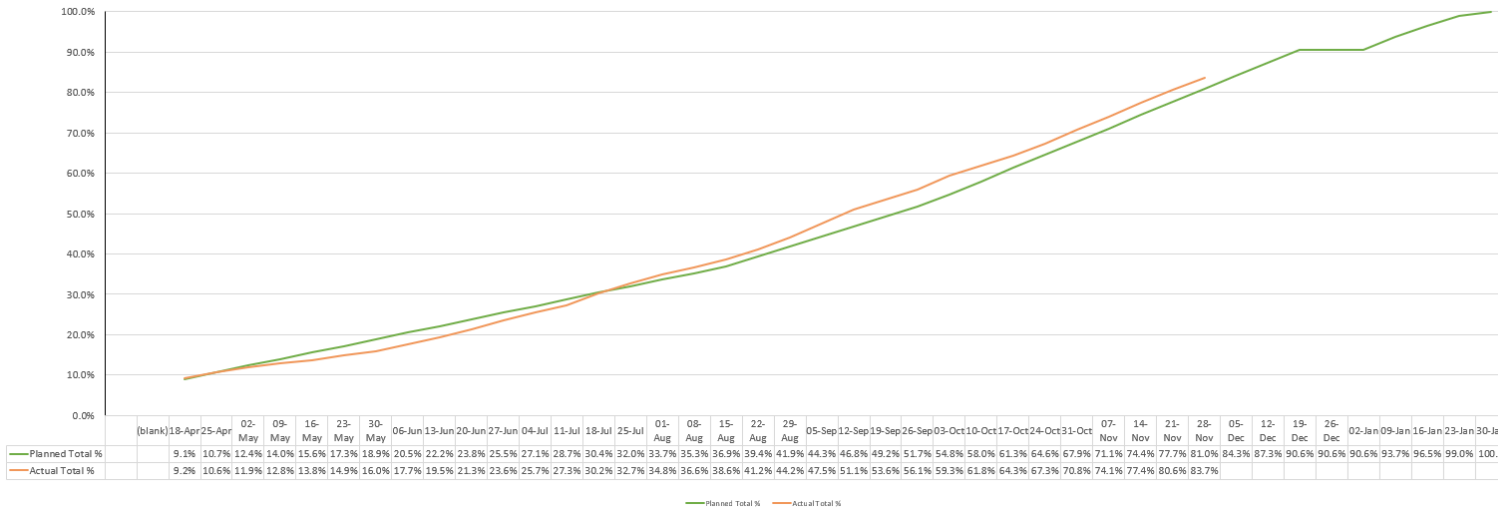
Installation of Priority Cabling for Systems & Gland/Terminate and Test Cables:

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

Caution, input data not robust, graphs not yet reflective of actual progress



[Redacted]_ship 801 Cable Pulling

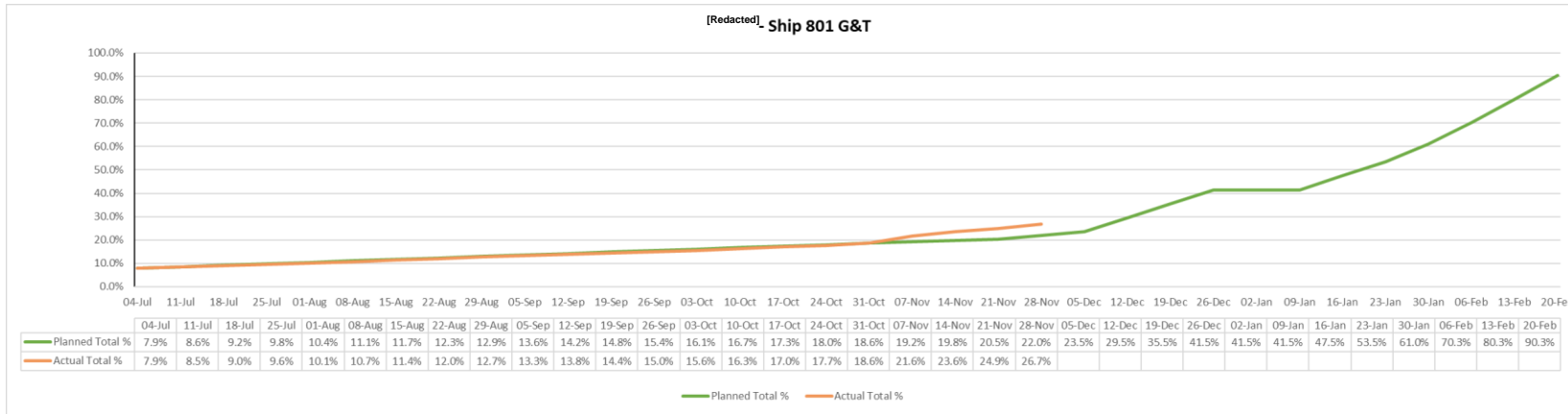


Install to week 48:

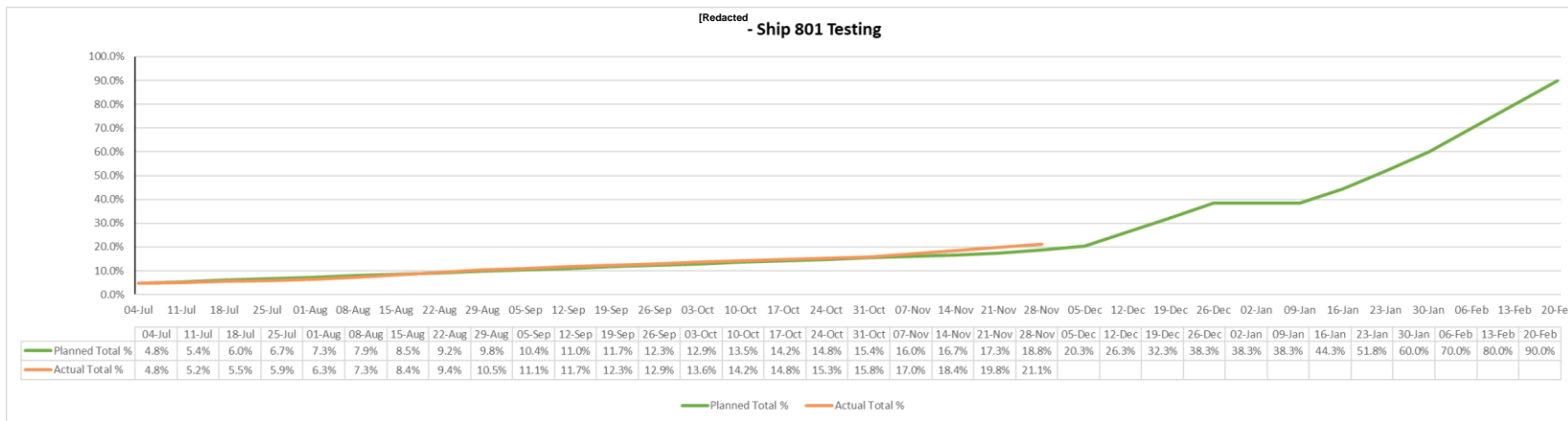
Total cable to install: 244,088 metre
 Cumulative actual: 204,358 metre (83.7%)
 Cumulative Planned: 197,651 metre (81%)

Average SPI: 1

[Redacted] Glanding/Terminating and Testing



Planned G and T: 23.5%
Actual G and T: 28.8%



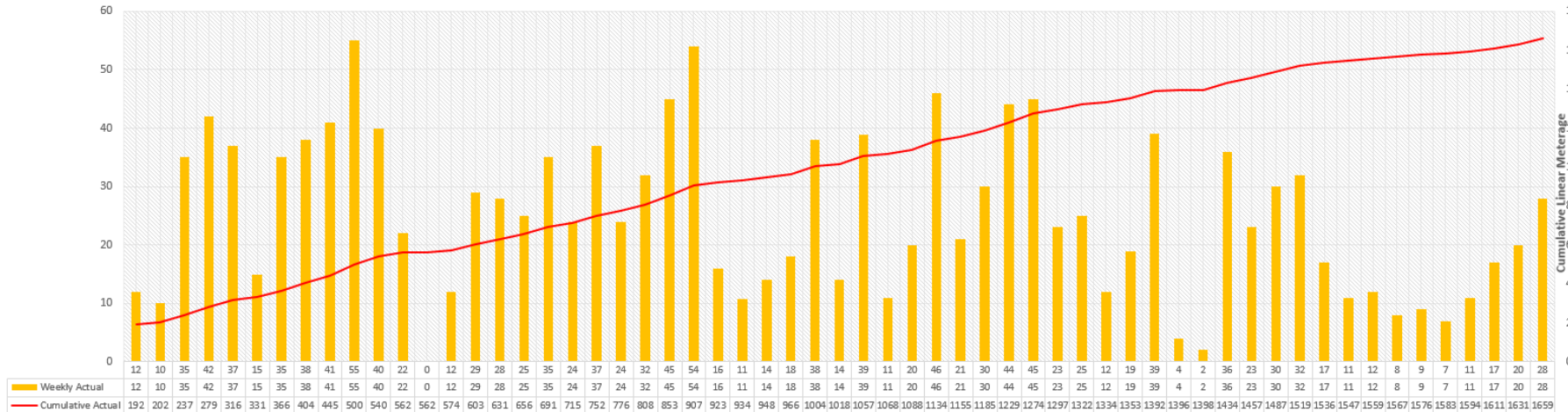
Planned Testing: 20.3%
Actual Testing: 21.1%

Week 48:

- Continue works in the bow thruster compartment.
- Continuing work in Galley exhaust ducting.

Zone	Total Metreage	Installed Metreage	%age Complete
1	32	23	71.9%
2	35	26	74.3%
3	113	80	70.8%
4	94	64	68.1%
5	14	6	42.9%
6	378	109	28.8%
7	0	0	#DIV/0!
8	280	274	97.9%
9	1096	803	73.2%
10	198	196	99.0%
11	115	115	100.0%
Totals	2355	1696	72.0%

[Redacted] Installation Progress 'S' Curve



801 Status

Engineering & Steelwork

[Redacted] Scope

The remaining scope for [Redacted] on Hull 801 includes the installation of lifting wires on Mezzanine decks and commissioning of Mezz decks. In addition, we will also need support for the commissioning of the bow ramp which has yet to be installed.

- As below nightshift fabricating and fitting pipe manifolds which is TTS scope

Steelwork

- Continuing support for [Redacted] in the lift shafts
- New foundations for Electrical system have been manufactured and now being fitted on ship
- Hotwork scope complete in zone 904
- Chain lockers being progressed and surrounding areas around bow ramp space (jalousie cut-outs for [Redacted], inserts, recesses and stiffening)
- Silencer dropped in and shipping route plate now being re-instated
- Nightshift fabricated pipe manifolds for bow ramp door hydraulics

Specialist Subcontractors

- [Redacted] continuing with bow scaffold, completion date mid December.
- Lift installation: [Redacted] installation progressing well. Additional technician to come when [Redacted] return from Xmas break allowing 2 teams to work independently.
- Currently awaiting [Redacted] completion programme.
- [Redacted] returned to site to progress liquid phase pipe installation.

Electrical

- **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

- [Redacted] on site working on TCS unit upgrade
- [Redacted] progressing fixed fire fighting change on upper decks
- FMPG working on compartment completion as set out by [Redacted] .
- FMPG began working on fuel modification to both stabilizers
- [Redacted] completed part 1 of bow area change to stainless
- FMPG began installing LNG System in tank space

801 Status Continued

Engineering:

In Engineering we continue to try and stabilise the team and integrate additional resource from [Redacted] to speed up output.

We are making steady progress in each of the disciplines with focus on closing out TQs, ICRs and OORs all of which are now reducing. TQs are down to 13 outstanding with CMAL observations being closed out directly before being formally raised. ICRs down to [Redacted] to update. In addition a number of actions on the [Redacted] Action Tracker were also closed out last week.

Outfitting (Engineering) - The major concern is with procuring doors for lifts and stairwells on the car deck. These could come with a long lead time and we're struggling to find a reliable supplier, these are not off the shelf products. The other concern for outfitting was the need to include floating floors in way of the freeing port compartments to provide suitable A60 fire insulation.

[Redacted] Actions (Engineering): 4 outstanding, 3 new since 01/12, 1 updated with comments on 01/12 which will hopefully be closed by the end of this week. The remaining 3 to be reviewed this week. 1 responded to last week and now sitting with [Redacted].

ICRs: 2 open, both updated with comments. 8 closed.

CRs: 3 actions closed. One raised, awaiting [Redacted] review as [Redacted] was off. 2 still open, will aim to resolve by the end of this week.

[Redacted] submissions: Zero sent/received last week. [Redacted] is looking at these for about 50% of his week.

[Redacted] submissions: Zero sent last week. Still awaiting response on insulated manholes from 2 weeks ago. Will send 4 this week.

A proposal for a sliding SWT door for the car deck came through from [Redacted] that is only 180mm deep. Full review required. This is one of our biggest concerns given a potential lead time of 20 weeks, we will be aiming to close this out WE 09/12 depending on VFI.

Electrical (Engineering) – Main concern is with the [Redacted] plan and the potential knock-on effects from the determined Hazardous zone bubbles and the instrumentation within these bubbles as these may need to be [Redacted] rated.

The Hazardous Zone plan was discussed with [Redacted] last week and the way forward agreed. The revised plan has been submitted and should be formally reviewed by 16/12. Issues with control panels in airlock have been identified regarding their IP rating, solutions have been proposed but are pending [Redacted] feedback.

[Redacted] have been instructed to include HZ bubbles in model and identify the rating of all equipment early indications are that this may not be as problematic as originally thought.

[Redacted] submissions – 7 made last week.

801 Status Continued



Mechanical and Piping (Engineering) – We continue to review system P&IDs and resolve issues. The biggest concern in this discipline is also the Hazardous Zone plan, now resubmitted for approval, however in line with the [Redacted] contract FMPG will have an additional fee to pay, quote from [Redacted] at [Redacted] is pending. [Redacted] for vacuum monitoring skid has been sent to commercial for actioning 172k. Remote access to [Redacted] analysis software is required for [Redacted] this is holding up progress. [Redacted] for updated [Redacted] drawings for [Redacted] submission approved and sent to procurement.

Gas detection monitors to be reviewed with CMAL to find a way forward with the 44 identified missing detectors. 3 further oxygen monitors identified.

ICRs: Awaiting feedback from CMAL to close ICR 1889.

Most open piping ICRs are for ship 802.

CRs closed out

- 198
- 232
- 241
- 247
- 255
- 283
- 297
- 506

Structures (Engineering) – Continue to make good progress with 802 seats and have completed the freeing port designs for 801 and 802. All structures reviews are up to date with work also ongoing with as built drawings. Lifting arrangements for in build units continue with the wheelhouse to follow after Christmas. [Redacted] software purchased.

801 Issues, Challenges & Successes

- Issues
 - Vacuum sensors for installation into LNG bunkering line.
 - Engineering/Design, still seeing large amounts of change.
- Challenges
 - Clam shell door install.
 - Man power educating on lead up to holidays.
 - Cable install/termination/glanding and testing.
 - Hotwork completion unknowns.
 - Fire main and accommodation to resolve.
 - Level of change being managed.
 - Material availability.
 - Driving OORs to closure.
 - Cable installation & termination.
 - Production drawings closeout.
- Successes
 - Hazardous zone plan now agreed.

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)				[Blue bar]																														
^(Redacted) Workpack Release																																		
Structure (Unit Construction)	[Blue bar]																																	
Structure (Unit Erection)	[Blue bar]																																	
Structure (Unit Consolidation)	[Blue bar]																																	
Hotwork Manufacturing																																		
Hotwork Installation																																		
Clam Shell Doors/Ramps ^(Redacted)																																		
Mezzanine Decks																																		
Pipe Manufacture																																		
Pipework Installation																																		
HVAC																																		
Electrical Installation																																		
Outfit																																		
Launch Prep & Launch				[Blue bar]																														
Commissioning																																		
Dry Dock																																		
Sea Trial																																		
Snagging/ Delivery/ In Service																																		

Changes made to the 802 Level 0 Programme, refer to 802 Issues/Challenges slide:

- New line item added: "Hotwork Manufacture".
- Pipework completion date.
- Outfit completion.

802 Status

Manufacturing Sheds

- Units A7/6, A8/6, A9/6, U99, U100 awaiting erection.
- Following 6 and 7 deck units in progress: A10/6, A11/6, A4/7, A7/7, A8/7, A9/7, A10/7 (Wheelhouse)
- Units remaining to be manufactured: Masts.

Erection and Consolidation

No units erected on board in week 48. Consolidation of 5 and 6 deck units underway:

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

Outfitting

In November the main focus was structural hotwork in the lift shafts placed on hold due to scaffolding support, fabrication of [Redacted] platforms complete, installation in progress. Installation of manholes, lashing pots, embarkation doors and pilot doors, and closing plates are also in progress. Ongoing structural modifications in zone 4. Lack of ship wide scaffolding support. Installation of link up widows in 5 deck started. Various work packs are on hold due to the ongoing design review by [Redacted] on 802.

Pipework Installation

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

- There are 61 spools in the overboards, 23 spools fitted and signed off by [Redacted].
- Total amount of spools ship wide: 12021.
- Total amount of spools manufactured/procured: 4003.
- Total amount of spools installed on ship: 325.

Launch

- Launch agreed to take place in August. Meeting postponed. In diary for Wednesday 18th of Jan.

Electrical

- Contract to be re-tendered.

HVAC

- Nothing to report.

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.
- ^[Redacted] delivery of Workpacks and new ^[Redacted] has started.

Weight & Stability

- Stability

- Stability book to be submitted on 9th Dec to the [Redacted].
- Bespoke [Redacted] buffer door (semi-[Redacted]) engineering is [Redacted] with candidate manufacturers
- Draught Marks report 2022005380 Dated 1 Dec 2022 is approved by [Redacted] to satisfy 1966 International Load Line Convention.

- Weight

- Interim inclining date is planned on 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[Redacted] access for crew training/familiarization prior to delivery of document pack.

[Redacted] /LR submission update

Under Review with [Redacted]	Date sent to LR	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	All actions were addressed except CMAL furnished equipment (loose lashing type and certification) details are awaited to satisfy [Redacted] comments dated 18 Nov2022. In progress by CMAL since 29Nov2022
Damage Control Plan	20/04/2022	Part of Stability book. To be released after stability book approval

[Redacted] 'Copy' Approval by LR Status

Count of Approval Status							
Row Labels	Outfit		Struct. Total	Mech. Total	Elec. Cc.	Naval Arch. Total	
	Cc.					Cc.	
1. Awaiting Submission	1	1		9	20	1	1
16. LNG				6		1	1
2. Load Line	1	1					
3. Boilers and Machinery				3			
4. Electrical Equipment & Installations					20		
3. Conditionally Approved				2			
3. Boilers and Machinery				1			
5. Bilge Pumping Arrangements				1			
4. FMPG submitted to MCA awaiting feedback			19			6	6
1. Hull			16				
16. LNG			2				
6. Anchor Handling Equipment, Anchors & Chain Cables			1			5	5
9. Passenger and Crew Accommodation						1	1
6. Noted as Supporting Info			2				
16. LNG			1				
5. Bilge Pumping Arrangements			1				
Grand Total	1	1	19	13	20	7	7

[Redacted] Approval status

Count of Approval Status									
Row Labels	Outfit		Mech. Total	Elec. Total	Naval Arch. Total		CMAL Deliverable	Grand Total	
	Yes				Yes				
1. Awaiting Submission	4	4	5	9	5	4		27	
10. Stability					4			4	
11. Structural Fire Protection Plan	2	2	1					3	
12. Fire Extinguishing			2					2	
13. Marpol			2			1		3	
15. Lifting Plant/ Use of Work Equipment	1	1						1	
17. Other					1			1	
4. Electrical Equipment & Installations				3				3	
6. Anchor Handling Equipment, Anchors & Chain Cables	1	1						1	
7. LSA and Navigation						3		3	
8. Radio				2				2	
9. Passenger and Crew Accommodation				4				4	
2. Resubmission required (rejected)			2		1			3	
11. Structural Fire Protection Plan				1				1	
12. Fire Extinguishing				1				1	
7. LSA and Navigation						1		1	
3. Conditionally Approved	6	6	9	4	1			20	
12. Fire Extinguishing			4	1				5	
4. Electrical Equipment & Installations				2				2	
5. Bilge Pumping Arrangements			1					1	
6. Anchor Handling Equipment, Anchors & Chain Cables	2	2						2	
7. LSA and Navigation	1	1				1		2	
9. Passenger and Crew Accommodation	3	3	4	1				8	
4. FMPG submitted to MCA awaiting feedback	4	4	21	4	8			37	
10. Stability					2			2	
11. Structural Fire Protection Plan	1	1			2			3	
12. Fire Extinguishing	1	1	18	4				23	
13. Marpol			2					2	
16. LNG			1					1	
7. LSA and Navigation						3		3	
9. Passenger and Crew Accommodation	2	2			1			3	
5. Approved			4					4	
12. Fire Extinguishing			3					3	
9. Passenger and Crew Accommodation			1					1	
6. Noted as Supporting Info	6	3	4					13	
11. Structural Fire Protection Plan			1					1	
12. Fire Extinguishing			4	1				5	
13. Marpol			1					1	
5. Bilge Pumping Arrangements			1					1	
7. LSA and Navigation				1	3			4	
9. Passenger and Crew Accommodation					1			1	
7. N/A	1	1		3				4	
11. Structural Fire Protection Plan	1	1						1	
7. LSA and Navigation				3				3	
Grand Total	15	15	47	23	19	4		108	

- Balance of [Redacted] mechanical submissions are subject to Tyco drawing updates and commercial signoff requisition now approved awaiting PO to forecast submission date.
- Review of contract deliverables with CMAL concluded and CMAL now responsible for 4 in number [Redacted] submissions (also Tracked on master FMPG)
- Electrical submissions to [Redacted] now started as forecasted.
- **LR updates:** Hazardous Zones Designation plan formally submitted for approval following LR/FMPG working group review to expedite closure of outstanding issues complete with Dangerous Goods/ Hazardous Cargo Arrangement plans.
- LNG pipework chemical analysis for upscale equivalence to 3.2 certification nearing conclusion – Req for additional testing received awaiting final approval by LR. Agreement in principle with LR senior management.

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 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])

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.

- [Redacted] on site carrying out service bulletin works and pre-commissioning checks on the auxiliary generators.
- Auxiliary Generator turbo chargers have been removed from ship and had bearings changed.
- HT/LT system has been run with mesh in place to remove any grit.
- Cummins have commissioned the serial connections for the alarm system.
- Alarm channel testing underway. All switchboards & MCC's signals checked as far as possible.
- Aux Engines have been filled with oil, priming pumps run and [Redacted] have checked engines internally.
- Demonstrated Start Air system automatics.

Planned activities for the next 3 weeks.

- Aux Engine turbo chargers to be re-fitted.
- [Redacted] to continue with commissioning and service work on main engines.
- Fuel supply to Aux/Main engines to pressure test and flush.
- Gearbox flushing will start Thursday.
- First run of Auxiliary and Main Engines.

801 NDT Activity

- 25 MPI
- 1 DPI
- 2 UT

801 Fabrication Surveys with [Redacted]

- Port Chain Locker
- Stbd Chain Locker, Tank 36 no2 void
- Deck 7 entry to passageway.
- Deck 7 entry to locker
- Deck 7 entry to battery locker
- Deck 6 entry to rescue boat area
- Deck 6 entry into F1 store
- Deck 6 entry into FRC store
- Unit 50 additional underdeck stiffening
- Unit 51 additional underdeck stiffening
- Chain locker ladders and flooring (Port and Stbd)
- Air test pipe pens, tank 6 no 3, MGO drain overflow tank

Pre-Insulation Surveys complete with [Redacted]

- Deck 5 Understairs Fwd Frm 114 to Frm 123
- Deck 5 Bulkhead 67 both sides
- Deck 5 Portside escape Frm 67 to Frm 71
- Deck 7 Wheelhouse Aft Bulkhead
- Deck 7 Wheelhouse Stair
- Deck 5 Galley
- Deck 5 Galley deckhead
- Deck 5 Galley Bkhd, Internal and External
- Deck 6 Bhd 107 Stbd
- Deck 6 male toilet and behind stair / service duct
- Deck 6 Bhd 101 -103 both sides
- Deck 6 servery bhd frm 90 – 101 Stbd
- Deck 6 – Dk7 passenger stair
- Deck 3 coffin store
- Deck 3 Compartments 3505, 3504, 3506 deck heads

802 NDT Activity

- 3 MPI
- 3 DPI
- 2 UT

802 Fabrication Surveys with [Redacted]

- A7/6 Port
- A4/7 Stbd
- Stabiliser Lube Oil Storage Tank, Port
- Stabiliser Lube Oil Storage Tank, Stbd
- Embarkation Pilot Door x3, 3 deck level, Stbd and Port
- Stairwells 19 and 35, infill inserts.
- A7/7 Port and Stbd

OORs/CMAL Priority OORs

	Cat 1	Cat 2	Cat 3	Overall
Total Committed	27	7	1	35
Close when work complete	30	7	2	39
Still to resolve	0	13	3	16
CMAL Priority	18	5	0	23
Totals	75	32	6	113

Category 1 - Must be done before handover

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

Category 3 - Snagging

CMAL Snagging List Summary

	Open	Ongoing / Monitoring
Outfit	9	1
Pipework / Mechanical	50	1
Steelwork / Paint	11	
Electrical	11	
Totals	81	2

Road map to completion for OORs

- 23 "CMAL Priority" OORs reviewed with detailed Who/What/When in order to progress to closure now via PotD,
- Next priority review on same format Who/What/When focused on 16 Still to resolve followed by 27 committed (Change Request in place) Cat 1
- Operations "hit team" to focus on CWWC Cat 1/Cat2/Cat 3 priority order

Snag list

- Weekly stakeholder progress review led by QA manager.

- Comments
- AOB