

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

Programme Director: [Redacted]

Review Period:

#### September 2021

Name	Job Title	
[Redacted	Programme Director	
[Redacted	CFO	
[Redacted	Head of Planning	



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# **Contract Summary**



Customer	Scottish Government	Contract Start	Contract Effective Date - 1st April 2020
Agreed Contract value	£110.3M - £114M	Contract Finish	801: 25 July 2022 – 25 September 2022 802: 3 April 2023 - 3 July 2023
Project Type	Design and Build	Forecast Finish	801 25 July 2022 (under review) / 802 3 April 2023
Programme Director	[Redact]	Contract Type	Fixed Price

Project Scope	Design, build and commission 2 off LNG dual fuel ferries, including training and provision of spares and handbooks. The scope of this project is to complete the design and build etc. from the date of 16 <sup>th</sup> August 2019, being the date of Administration of FMEL
Significant Project Changes	None (in this phase).
Acceptance Criteria	As per the specification.
Payment Terms	Monthly payment application for Actual costs incurred in the previous calendar month
Warranty	The warranty for both vessels is 12 months from delivery. No allowance has been made financially for either shipyard support or suppliers' warranties that have lapsed during this period.
Liquidated Damages	No allowance has been made for late delivery. Performance penalty for weight – the maximum allowance of £250k per vessel has been included, if the allowance is exceeded the buyer has a contractual right to terminate. Performance penalty for speed - the maximum allowance of £150k per vessel has been included, if the allowance is exceeded the buyer has a contractual right to terminate. Performance penalty for speed - the maximum allowance of £150k per vessel has been included, if the allowance is exceeded the buyer has a contractual right to terminate. Performance penalty for fuel consumption – no allowance has been made.
Special Conditions	

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# Health & Safety



#### Highlights

- Permanent candidate, for the role of Head of HSE has been agreed and will commence in post from 1st week of January 2022, following a handover with MA, mid-Dec 2021.
- External candidate, appointed to take on the role of Lifting Manager, agreed to commence mid-Nov 2021.
- We have seen a slight increase in the number of personnel testing positive for Covid-19. We continue to monitor through our weekly Covid Control meeting. Number of cases of in-yard transmission remain at two (since Pandemic started).
- Data entry currently underway, to provide us with ongoing accident trend analysis.

Title	This Month	Cumulative
RIDDORS	0	0
Fatality	0	0
Lost Working day Case	0	5
Medical Treatment Case	5	20
First Aid Case	15	66
Property Damage	0	0
High Potential Near Miss	0	1
Near Miss	0	0
Fire Incident	0	0
Environmental Incident	0	0
<b>Total Number of Recordable Injuries</b>	0	1
Total Number of Days Lost	1	48





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# Traffic Light Report



		Overa	II Status		Future	Comments
	Jun 21	Jul 21	Aug 21	Sept 21	Trend	Comments
Overall Status	G	А	A	A	$\leftrightarrow$	<ul> <li>Recovery plan actions identified to recover schedule, includes ship survey activity (now complete) / stock count and implementation of [<sup>[Redacted]</sup> and material control to have robust process to issue Workpacks and materials.</li> <li>QLA will be aligned to these outputs to maximise efficient working</li> </ul>
Safety	G	G	G	0	$\leftrightarrow$	Permanent Head of HSE agreed and commences week 1, 2022. Lifting Manager will commence from mid-Nov 2021. Priority H&S actions continue to receive attention.
Cost	G	G	G	G	$\leftrightarrow$	<ul> <li>Project Cost EAC remains within target at £110m - 114m. Cost forecast is being continuously monitored and we are still within the window 110M – 114M.</li> </ul>
Schedule	G	A	A	A	$\leftrightarrow$	<ul> <li>Detailed plans for completion of hotwork, pipe installation and cable installation to support commissioning start now available and subject to daily / weekly review</li> <li>[Redact additional resource has started to arrive on site to support hotwork completion on 801. a dayshift / nightshift pattern will commence week 42</li> </ul>
Quality	G	G	G	G	$\leftrightarrow$	<ul> <li>ISO 9001 LRQA surveillance audit passed with no new non-conformities noted. Closed all four open findings from previous audit.</li> <li>Closed all open defects on 802 and remaining defects on 801 being reviewed and closed on an ongoing basis.</li> </ul>
Customer Relationship	G	A	A	G	$\leftrightarrow$	<ul> <li>Rules of Engagement discussions in progress. A meeting was held on 14/10 and another meeting arranged 21/10.</li> <li>OOR process defined and both parties working together to close OOR's.</li> <li>Formal appointment of CMAL as Buyer's Representative is still to be confirmed.</li> </ul>
Technical	A	A	A	A	$\leftrightarrow$	<ul> <li>LR / MCA approvals is progressing well.</li> <li>P&amp;IDs being updated to remove legacy issues and will be sent to CMAL for resubmission / Approval.</li> <li>Weight Calculations continue to make good progress against lightship weight validation.</li> </ul>
Supply Chain	G	G	G	G	$\leftrightarrow$	<ul> <li>Pipe Installation for Zone 1 (801)) has been awarded, 802 Zone 4 review complete to be awarded in wk41.</li> <li>Steelwork Services ITT has been released on PCS.</li> <li>Multiple packages of fabricated seats have been outsourced via PCS Quick Quote.</li> <li>Senior level meeting with [Redact UK scheduled for 25/10 to improve relationship.</li> </ul>
Operations	A	A	A	A	↑	<ul> <li>Additional [<sup>Reducted]</sup> &gt;mployees now on site (additional 30+) further additions being progressed - making a positive impact on progress of hotwork packages.</li> <li>Focus is on completing 801 hotwork packages</li> </ul>
Commissioning				0	$\leftrightarrow$	<ul> <li>Commissioning is scheduled to start on time and commissioning activities now linked to production plan.</li> <li>Test forms are in progress.</li> </ul>
Risk Management	R	R	R	R	1	<ul> <li>The risk register and risk review process have been identified for Process Review and Improvement – in progress – first review of register has been undertaken with a plan to have full review mid Q4</li> </ul>

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# SOFT Report



Successes	Opportunities						
<ul> <li>Cryodiffusion - The last batch of 801, and first batch of 802 spools have arrived on site.</li> <li>Change management process agreed and rolled out and is now being monitored for efficiency and effectiveness.</li> <li>LRQA ISO 9001:2015 Surveillance Audit conducted on 29th / 30th Sept. 4 previously opened NC's closed. No new NC's reported.</li> <li>Lokring demonstrated to replace axilocks in 0201 tank spaces.</li> <li>Additional <sup>[Redacted]</sup> resource now on site</li> <li>802 U-48 (bulbous Bow) Faired, Lloyds surveyed with no defects</li> <li>802 U-45 &amp; 46 built and Lloyds signed off with no defects</li> </ul>	<ul> <li>Build strategy review for 802 to build as blocks for wheelhouse and bow units prior to erection at ship</li> <li>Completion of 802 clam shell doors on slip before launch</li> <li>Continuous employee improvement up-skill of re-coding of several welders throughout the business.</li> <li>Progress reporting improvements</li> <li>Design changes close to completion</li> <li>Sign off on Rules of Engagement</li> <li>QPulse QMS to be rolled out.</li> <li>WP / Material <sup>[Redacted]</sup> implementation.</li> <li>Dimensional Control Surveys are ongoing on 802 Ducktail to enhance the fit up to the vessel, Fitment planned for week 43.</li> <li>Transition of planning capability to FMPG team as APC contract closes in Q4</li> </ul>						
Failures	Threats						
<ul> <li>Failures</li> <li>Risk Management process needs to be re-established and brought up to date. The review of this process and risk register has commenced, a refreshed risk register will be available for agreement mid Q4</li> <li>Permanent Mechanical Inspector failed to start on 27/9/21, alternative candidates identified and interviews are booked for 25 October 2021</li> </ul>	<ul> <li>Threats</li> <li>COVID 19 impact to programme– remains a threat to the programme. PO for additional [Redact] resource in place.</li> <li>Weight report – Risk is diminishing. Due to provide updated prediction in October.</li> <li>Stability – small delay (2 weeks) due to additional errors found in the original model. Intact stability outputs due w/c 18th October.</li> <li>Level of change arriving as a result of field engineering review. This is impacting major pipe systems. Work is ongoing to minimise risk, first materials have been received.</li> <li>Resolution of issues with 802 Pipe Spools for Zone 2, 3 and 4 has taken longer than originally anticipated which is impacting the start of installation.</li> <li>801 valve delivery forecast threaten completion of some pipe systems.</li> </ul>						

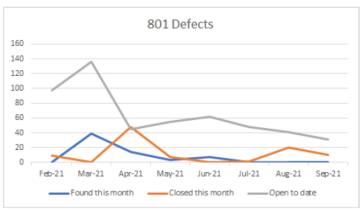
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## Quality



## 5. Quality 801 & 802



802 Defects 45 40 35 30 25 20 15 10 Feb-2 Apr-21 Jun-21 Jul-21 Aug-21 Sep-21 Found this month Closed this month Open to date

801 - This month's report shows no new defects open from last month on 801, 10 defects were closed out this month including several care & protections

Panama Eyes are now being replaced. This will close a long-standing defect

801 has continued well with insulation inspections between ourselves and client on aluminium decks.

Fast Rescue Craft Davit modified stiffening arrangements were also put through for fabrication and welding surveys.

802 - There has been 19 defects closed out this month leaving us with 0 currently open. Although we have several classification comments to add over the coming days from dry surveys which are awaiting remedial action proposals.

802 surveys have included Units 80, 81, 93 45, 46 & Ducktail which are all progressing well and have been presented to us in immaculate condition from [Reducted] where only minor defects have been picked up.

Port side UT points have been carried out in accordance with the NDT Testing Plan also from tank top to deck 5 frames 38.5 - 124.5 with no defects found showing the quality of welding standard.

Skeg unit connections has also been surveyed with class where frames where misaligned in accordance with IACS standard but has since been approved for remedial work before sign off.

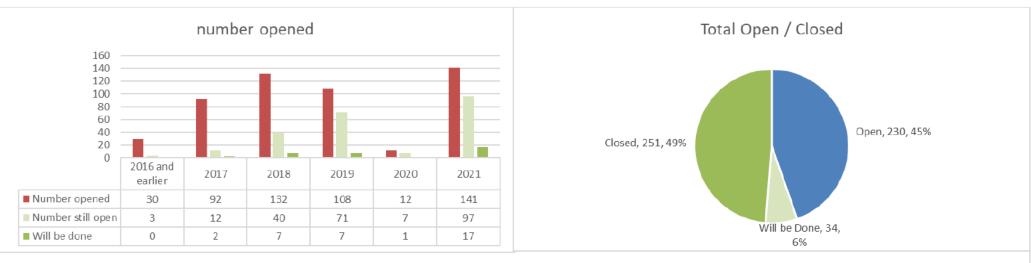
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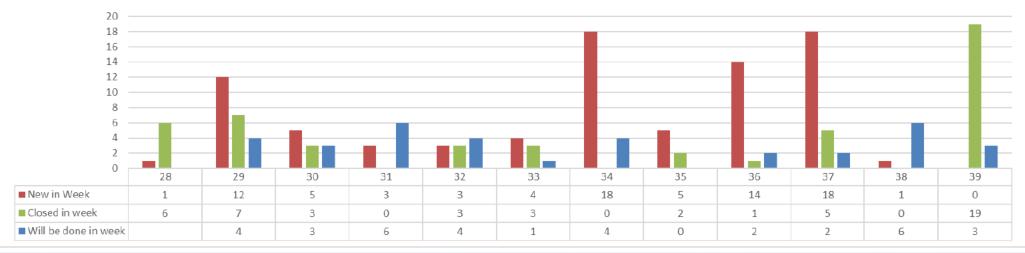


# **OOR Reviews**





#### KPIs Opened / Closed in week

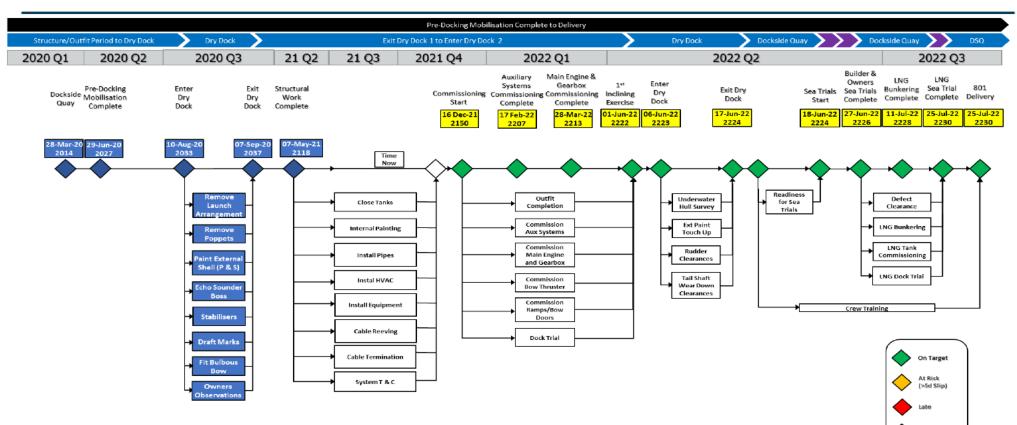


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## 801 Milestones





Updated 30th Sept 2021

Complete

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[Redacted]

# 801 Trades



	Status		
	Quality	Schedule	Comments
Steelwork	G	A	<ul> <li>Forward Mast is available for erection – some hotwork to complete once erected</li> <li>HO steelwork &amp; Pipe spool manufacture being progressed through Manufacturing &amp; Subcontract facilities</li> <li>HO steelwork plan in place to complete priority zones by end November</li> </ul>
Pipe Installation	G	A	<ul> <li>Volume of change from Zone 2 modifications sheets understood and materials available, level of change has impacted major systems for start of commissioning</li> <li>Plan for system completion for commissioning is in place</li> <li>Quality - In situ flushing quotations have been received for FMPG agreement and sign off</li> <li><sup>(Pedacted)</sup> ave been contracted to complete Zone 1 pipe installation</li> </ul>
Electrical Installation	G	A	<ul> <li>Looking to open up more workfaces – Decks 4 – 8</li> <li>Deck 5 penetrations now complete which allows main cable runs to commence to bridge and emergency generator (due to commence cabling week 43)</li> </ul>
Upper Decks Insulation & Outfit	G	G	<ul> <li>[Redacted have submitted their plan in support of the programme. Planning to incorporate minor changes and confirm.</li> <li>Some additional costs expected to complete rework activities</li> <li>Pinning and Insulation of wheelhouse, and bridling of doors have been added to [Redact scope</li> <li>Change to AHU insulation being progressed</li> <li>Bonding of windows Deck 6 windows under review with subcontractors</li> </ul>
HVAC installation	G	A	<ul> <li>Deck 5 installation now underway</li> <li>Tapping straps for aluminium decks have arrived and now being installed</li> <li>Built in Duct installation now underway</li> </ul>
Hydraulic Pipe manufacture & install	G	O	Redacted progressing zone 3 installation     Additional materials now on order with [Redact
Structural Insulation	G	G	<ul> <li>[Redacted] have commenced work</li> <li>Additional requisitions now raised for materials</li> <li>Access to areas has been slow to ramp up due to prioritising hotwork packages</li> </ul>
LNG Installation	G	A	<ul> <li>Pricing submitted is higher than anticipated due to increase in scope from original PO with FMEL</li> <li>Await 3<sup>rd</sup> batch – due week 39</li> <li>Cryodiffusion / Express Pipework team have started preparation work</li> </ul>

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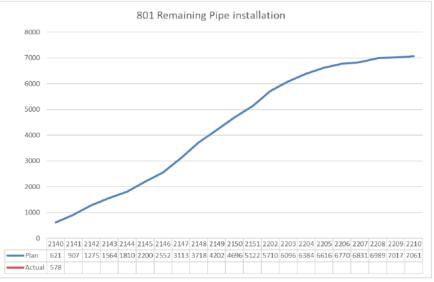
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#### 801 Pipe Installation



#### **Overall**

- Pipe Installation in Zone 02, 03, 04, 05, 07 & 10 is underway using FMPG & [Redact] resource
- [Redacted] installation of SFI 309 system now underway in Zone 3
- Cryodiffusion return to site in week 41 to complete installation of their scope on 801
- Overall pipe installation curve shown for 801 for remaining spools
- Issues around penetrations have hampered progress for pipe installation teams
- extended to complete Zone 1, Zone 2 & Zone 4 on 801, and Zone 2 on 802. Additional resource is being added, and will bring team size to c. 52
- Zone 4 for 802 contract will be let in week 41



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#### [Redacted]



### 801 Pipe Installation

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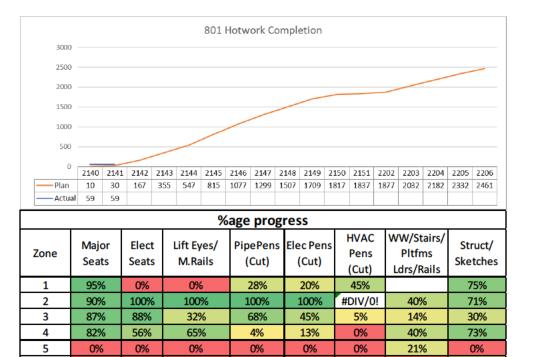
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#### 801 Hotwork



#### **Overall**

- Hotwork schedule to completion in place
- Additional [Redacted] resource now in place to support completion.
- Additional subcontract manufacture has been used to accelerate provision of major and electrical seats.



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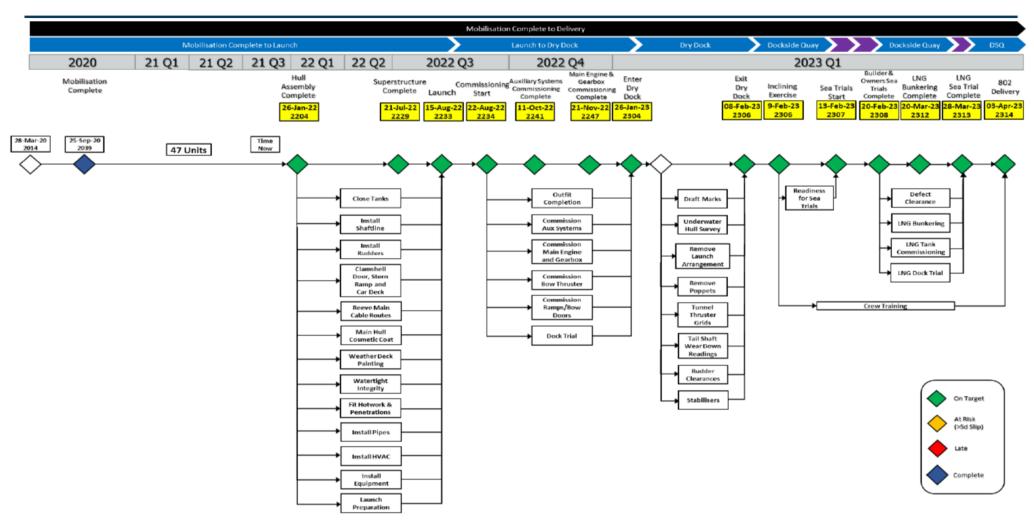
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# FERGUSON

#### 802 Milestones



Updated 30th Sept 2021

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[Redacted]

# 802 Trades



	Status		
	Quality	Schedule	Comments
Steelwork	G	A	<ul> <li>HO steelwork being progressed through Manufacturing &amp; Subcontract facilities</li> <li>Bulbous bow now erected</li> <li>Ducktail planned to be erected week 43. [Redacted]</li> <li>Resource has been constraint, additional 20 tradesmen arrived onsite 04/10/21 allocated to 802.</li> </ul>
Pipe Installation	G	A	<ul> <li>Contract let with or Zone 2 installation.</li> <li>Volume of change from Zones 2 Pipe Spool Modifications sheets are a risk to programme and will have a cost associated (material and labour to rework).</li> </ul>
Electrical Installation	G	G	No current issues impacting cost, schedule or quality.
Upper Decks Insulation & Outfit	G	G	No current issues impacting cost, schedule or quality.
HVAC installation	G	G	No current issues impacting cost, schedule or quality
Hydraulic Pipe manufacture & install	G	G	No current issues impacting cost, schedule or quality
Structural Insulation	G	G	Initial pinning has commenced
LNG Installation	G	G	<ul> <li>Pricing submitted is higher than anticipated due to increase in scope from original PO with FMEL</li> <li>Cryodiffusion tracking for delivery of Spools in early October</li> </ul>

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#### Lessons Learnt

We are now holding a weekly meeting looking at lessons learnt from 801 and opportunities improving 802 moving forward. Some opportunities raised to date:

	Lessons Lear	nt 801 v 802
	801	802
1	Mezzanine decks fitted too early in the build sequence, creating weld access issues.	All L11 bulkheads to be complete before installing the Mezzanine Decks after launch.
2	Funnels not consolidated before launch, Had to be removed to allow silencers to be dropped in.	Silencers to be dropped into position and funnels consolidated before Launch.
3	Masts not fitted before launch or outfitted to correct sequence.	Full details of LNG scope now available to integrate onto 802 masts before erection to ship.
4	Wheelhouse windows not fitted before launch.	Windows to be fitted before Wheelhouse is erected onto Ship.
5	Exterior shell not surveyed or signed off before launch.	Exterior shell to be surveyed and signed off, reducing the need for welding at quay side on exterior shell.
6	External walkways and handrails not fitted before launch.	All to be fitted before launch reducing costs and improving safety.
7	Clamshell door's main structure work did not commence before Launch.	All internal clam shell structures to be complete before launch, reducing cost and man hours.
8	Switchboards dropped into position before all hot work was complete, causing damage to switchboards.	All hot work to be complete and signed off in the area before switchboards are dropped into position.
9	Hot work in zones 1, 2, 3 & 4 not complete for launch.	PO1 programme introduced to plan and track hot work progress completing all hot work in these zones before launch.

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## Weight



	Sept (REV28)	Oct Rev 29	Difference	Margin remaining	Remaining to validate	Comments/Highlights
Group 1-1 Hull Steel	1537.38	1537.38	0			
Group 1-2 Misc. Steel	124.7	124.7	0			
Total Steel	1662.09	1662.09	0	18	25	
Group 2 S/S Aluminium	158.81	158.81	0			
Total S/S Aluminium	158.81	158.81	0			
		_	-	_		
2-4 Paint	35.34	35.34	0			
			•			
Group 3 Cargo Equipment	201.46	201.46	0		4	4t of small items to be validated
Group 4 Ship Equipment	188.54	187.67	-0.87		33	7t of items validated
Group 5 Accom. Outfit	580.90	565.59	-15.31	28	61	33t of items validated in month, deck covering recalculated
Total Outfit	970.91	954.72	-16.18			
Group 6 Main Machinery	295.34	295.34	0	14	25	
Group 7 Machinery Systems	210.08	210.08	0	6	36	
Group 8 Ships Common Systems	263.6	262.31	-1.29	9.9	52	56t of items validated - SFI 803-804-815-819 (Bilge, scupper, firefighting-watermist) piping and equipment updates
Total Machinery & Electrical	769.03	767.74	-1.29			
Predicted Lightship	3596.17	3578.7	-17.47			95.85 tonnes validated since last month, 236 tonnes
Excess weight	42.82	25.35		76.41	220	remaining to validate.
Target Weight of the Lightship	3553.35	3553.35		76.41	236	Predicted Weight has reduced by 17t since last month

Green is at least 90% validated Yellow is at least 80% validated Orange is at least 60% validated

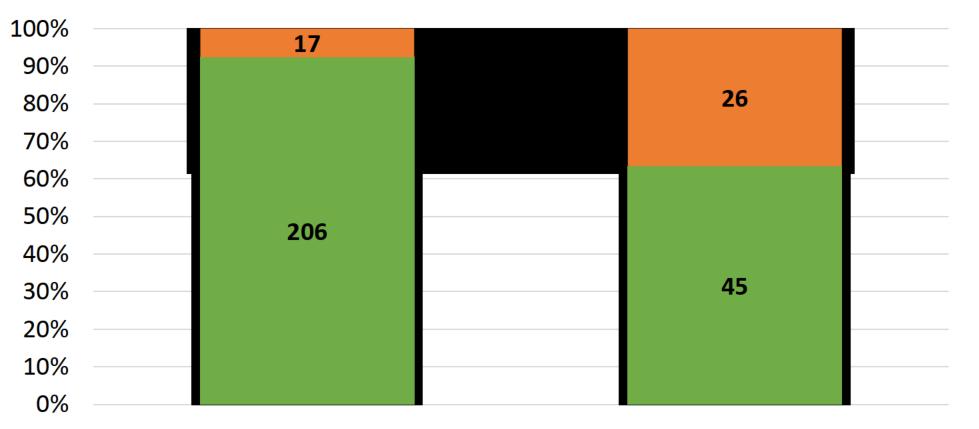
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# Engineering – Basic Design Status

Green are approved.





LR

MCA

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#### Engineering – Basic Design Status



MCA approvals	
Volume Sheets (HVAC)	
HVAC schematic	09/08/2021
Location Drawing Emergency Light System	22/06/2021
Layout Drawing - Wheelhouse console	
CALCULATION - GMDSS BATTERY	
PROGRAMMING LIST - PAGA SYSTEM	
CERTIFICATE - PAGA SYSTEM	
Location Layout Drawing PAGA System	
BLOCK DIAGRAM PAGA SYSTEM	
BLOCK DIAGRAM GMDSS SYSTEM	
Tank & Capacity Plan	
Modifications Around Bow Door Hinges	
Aft Mezz Dk & Bulwark Port – Add. Work. Construct	
Life Saving arrangement	
Fire Control Plan	
Escape Route Plan	
Accommodation Layouts	
Hazardous Zones Designation	
Quick Closing Valve System	
Machinery & Save all Drains	
Machinery & Save all Drains	
Sludge & Waste Oil System	
Fire and Deck Wash System	
801 - Basic Intact Stability Information	
Preliminary Trim & Stability Book incl. Longitudinal Strength	
Preliminary Damage Stability Book	

MCA approvals	
Keel Readings	
Fire Door, Damper & Patrol Point Monitoring Dk.7 to Dk. 1 Gen. Arrgt	
Fire Detection General Arrangement	
Fixed Fire Extinguishing Syst. Emergency Diesel Generator room	
Fixed Fire Extinguishing Syst. Server Equip. Rm - Deck 7	
Fixed Fire Extinguishing Syst. ECR & Pipes, Cables Transformer Room	
801&802-LNGPac Operating & Maintenance Manual	
LR approvals	
Tank & Capacity Plan	
Freeboard / External Watertight Integrity Plan	Waiting on stability
Cargo Securing Manual	
Nitrogen System	
Glycol System	
Compressed Air & Instrumentation system	
Drencher Lines Penetrations below Upper Deck	
Steelwork Standards	
Damage control plan	
LNG System For ME & DF Gen Sets	
TYCO submissions	

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#### [R]

## Commissioning



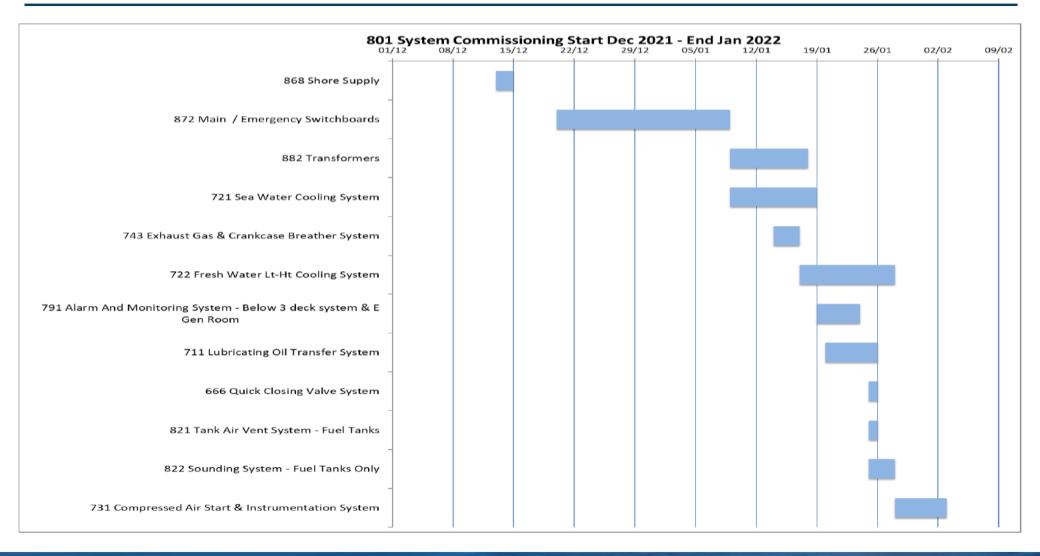
- Test Packs are being created and sent to CMAL/LR when they are ready for review and approval.
  - 30% submitted for approval
  - 0% Approved
- The commissioning plans are being integrated into the main production plan.
- The system completions essential to achieve first run of the engines have been identified and progress on these activities is being tracked at a detail level on a weekly basis.

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[Redact]

# 801 System Commissioning





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### Variations to Contract



Description	Additional Cost 801	Additional Cost 802	Programme Allowance 801	Programme Allowance 802	Weight Allowance 801	Weight Allowance 802	Status
Removal of Oily Water Separator	-	-	-	-	-1.88 T	-1.88 T	Closed
Removal of 1 air compressor, 1 air receiver, and 1 air dryer	-	-	-	-	-1.1 T	-1.1 T	Closed
Removal of 2 LO purifiers for Diesel Gen	-	-	-	-	-1T	-1T	Closed
Removal of Vapour Return Line	-	-	-	-	-	-	Closed
Supply of Window Washing Equipment	[Redact] [	[Redact]	-	-	-	-	Closed
Removal of Condition Monitoring System	-	-	-	-	-	-	Closed
Change of Supplier from Kongsberg to Wartsila	-	-	-	-	-	-	Closed
Removal of 24V AC system	-	-	-	-	-	-	Closed
Raindrop Ventilation Change	-	-	-	-	-	-	Closed
Panama Eye Removal	-	-	-	-	-	-	Closed
802 Thermostatic Valves	-	[Redact]	-	-	-	-	Closed
Provision of Workshop Tools	[Redact]	[Redact	-	-	-	-	[Redact]
Accommodation Fresh Water Fire Main							FM to send VTC
Sliding Weathertight Doors Deck 7							FM to send VTC
Additional Shore Supply Connection 802							FM to send VTC

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CMAL Comments to the Monthly Report



**CMAL Comments:** 

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