

## Glen Sannox & Hull 802 Monthly Report – [January 2023]

### 1.0 General

#### Executive Summary

This assessment of the overall progress for each vessel is made against the programme dates and building sequence set out within the FMPG letter to the NZET committee on the 28th of September 2022 and the FMPG update given on the 22<sup>nd</sup> of December 2022. The target for completion of Glen Sannox (Hull 801), without the LNG system is end of May 2023 and a target handover date end March 2024 for Hull 802. Hull 801 and 802 programmes continue to remain under review of the Fergusons senior management team and will be reassessed when Hull 801 departs from dry dock late February 2023.

The main themes for Glen Sannox (Hull 801) continue with the main drive for work onboard remains being both the hotwork completion and main equipment commissioning. The level of rework and legacy issues both with design and poor practice continues to increase the scope of work. As a result, labour is not being freed up to move over onto Hull 802, thus resulting in impacts to planning dates.

Outstanding owners' observation issues (CMAL issues raised), technical queries (Fergusons issues raised) as well as change notices (Fergusons design issues raised) remain under the scrutiny of senior management. There has been agreement to close a number of OORs, however there are still a significant number to resolve at this stage in the build. Timescales and dates for carrying out the works have still to be established and how the execution of the works fit in with the rest of the build activities, particularly in the Engine Room and Generator Room where commissioning activities are priority. The legacy of pipework changes agreed by the previous management and their failure to implement, continue to raise challenges with regard to operational constraints. Further discussions have taken place since new year due to the lack of progress; [REDACTED]

Commissioning on Glen Sannox continues on all areas listed as critical path. Engineers from the supplier of the propulsion machinery equipment are on site carrying out pre-commissioning checks on Main Engines, Auxiliary Engines/Generators, Gearboxes and Thrusters, this work is progressing well. However, there is further slippage in the overall commissioning programme, the target was to commission said equipment/systems before end 2022, this has not happened and looks to slip at least 2 months to the right. The slippage in general as a result of additional modification works associated with failure in design of pipework only evident as commissioning is progressed. An updated commissioning plan was due to be issued in the new year, this will now be provided after Glen Sannox leaves the dry dock.

The capacity for main equipment suppliers to mobilise resources to meet the yard planning dates for commissioning activities is on the critical path. The yard's commissioning department is closely monitoring the situation. Most of the upcoming contractors are booked and should be in line with the yards plan to completion.

Due to the missed deadlines before the new year, the quickly approaching dry-docking period, the missed milestones of running engines, and coupled with the continuation of hotwork and the non-completion of outfit zones mean, the target delivery date of May 2023 for 801 is at risk, this is under review by FMPG and will be updated after dry dock.

Hull 802, plan to completion is still under review with senior management. Engineering activities for Hull 802 has not yet reached the required level of engineering maturity from the learnings of 801 and hence 802 is at risk of slipping. With currently no major sub-contractors started work on 802, with only minimal FMPG employees onboard, the launch date of August 2023 and handover date of March 2024 are at risk [REDACTED]

### Key Challenges for the Shipyard

Hull 801 - Key known Challenges/Risk for the shipyard to meet the programme remain the same.

[REDACTED]

### Owners Observation Reports 801

The information below has been updated in conjunction with FMPG to reflect the joint review conducted during this reporting period. Significant efforts have been made to ensure that the scope of all issues, as well as the cost of implementation and the impact on the programme are fully understood.

In recent weeks we have agreed to remove 30+ OORs from the list, which will be added to snagging lists raised during compartment completion inspections or actioned by FMPG beforehand.

<u>OOR Status</u>	Cat 1	Cat 2	Cat 3	Overall
Total Committed	23	7	0	30
Close when work complete	28	9	1	38
Still to resolve	1	1	1	3
OOR's Totals	52	17	2	71

Reference – Updated ORR Summary by Yard 30th January 2023

- Cat 1** - Items, which relate to Safety, Quality, Maintainability and Specification requirements.  
**Cat 2** – Item, which relate to poor design, quality or production.  
**Cat 3** – General snagging and workmanship.

## **2.0 Changes to Site Supervision Team**

The core head count remains the same.

## **3.0 Design Changes Approved**

Ongoing design changes and legacy issues are still affecting the constructability of the vessels. CMAL are now daily assisting the design process due to poor legacy design. Assistance is also being given to Fergusons in meeting criteria to gain approval from class and MCA. Closure of final design gaps is needed, which at this late stage of the project remains a significant risk to the project.

## **4.0 Agreed Changes to Delivery Date**

Updated programme delivery dates are set out in section eight below.

## **5.0 Agreed Changes to Price**

(Note of changes; changes to be authorised & recorded in Contract Variation Register)

## **6.0 Changes Awaiting the Owner's Approval**

(Note of changes outstanding for approval by the Owner in excess of Buyer's Representative authority as stated in Consultancy Agreement Cl. 3.4)

## **7.0 Surveys / Inspections**

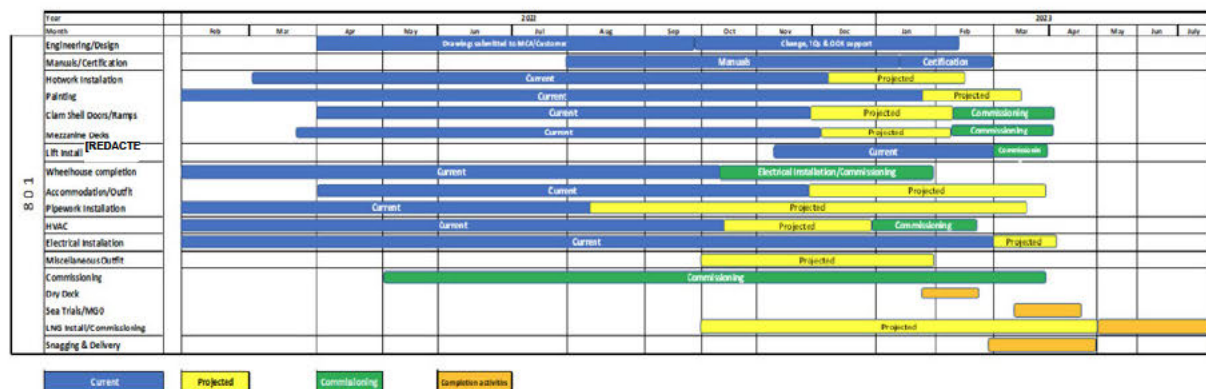
Verification surveys of the as-built standard are listed below.

	Week 49	
82	801 Accommodation behind linings part inspections with MCA. Part 2/4	
83	801 Pressure testing of fuel overflow tank in ER. Part 2/2	
84	801 Fuel system stbd side survey	
85	801 OOR walkround with CalMac/FM and CMAL	
	Week 50	
86	801 P&S fuel Oil tanks survey for and weld damage	
87	801 Stbd side above ceiling cabins inspection	
88	801 Paint surveys in various lift shafts.	
89	802 Pass/stairs infills structure survey with [REDACTED] and ourselves (repairs complete)	
90	802 Welding survey with [REDACTED] Aft Mooring E-L Bollards (repairs complete)	
91	802 Ally Units A9/7 P&S (only windows to fit/check when fully fitted)	
	Week 51	
92	801 Accommodation behind linings part inspections continue	
93	801 Pressure test of Gearbox system hydraulic piping.	
94	801 FLushing of Gearbox System hydraulic piping.	
95	801 Press test of LO storage tank tank with [REDACTED] and ourselves.	
96	801 Pressure test of Bow-Thrust LO pipes with [REDACTED] and ourselves	
97	802 Deck 5 main seams inspection	
	Week 52	
	No inspections due to yard closure over Christmas period	
	Week 01	
	No inspections due to yard closure over Christmas period	
	Week 02	
98	801 Pressure test of Gearbox system hydraulic piping.	
99	801 Flushing/Chem-clean of Gearbox System Hydraulic piping.	
100	801 Survey of Port side FO main lines chem/cleaning and flushing completed (Fuel now in lines)	
101	801 Pressure test of Gearbox system hydraulic piping with [REDACTED] in attendance.	
102	801 05dk survey hot-works/pens/spigots/structural	
	Week 03	
103	801 Re-pressure test of Gearbox system hydraulic piping due to failures	
104	801 Further flushing/Chem-clean of Gearbox System Hydraulic piping. As requested by OEM	
105	801 Paint survey of Stern-Thrust compartment final sign off before floor plates reinsted.	
106	801 Paint survey of AMS voids	
107	801 Lube oil storage tank pressure test	
	Week 04	
108	802 Unit 4/7 full inspection. MPI and dye-pen	
109	801 Paint survey of Stern-Thrust compartment	
110	801 Review of axi-lock to welded sleeve on bilge and ballast systems.	
111	801 Lift shaft survey regards outstanding hotworks	

Reference – Updated CMAL Surveys by week number.

## 8.0 Progress Against Programme

Glen Sannox



Reference – Updated November 2022 FMPG Project Report. (LNG impact still to be confirmed)

Completion dates for planned works for commissioning activities are late to complete, particularly electrical aspects to meet target commissioning dates. The latest baseline incorporates a 52-hour a week resource schedule to aid acceleration of the electrical installation.

#### Hull 801 Pipe Spool Installation

Installation of pipework spools is showing to be well below the s-curve versus the 801s Level 0 programme. FMPG and their subcontractor's pipe fitting rate is down in general due to rework on systems previously fitted. Attributed to the necessary alterations to previous systems to allow commissioning to take place. Pipe installation was due to be completed week 8 as per the latest programme, however this will not be achieved using the average fitted number from the past 6 months. We have highlighted our concern to the Ferguson management team. This number does not include 'site-run' pipes which we have requested a status/progress update on those system considered in as site-run.

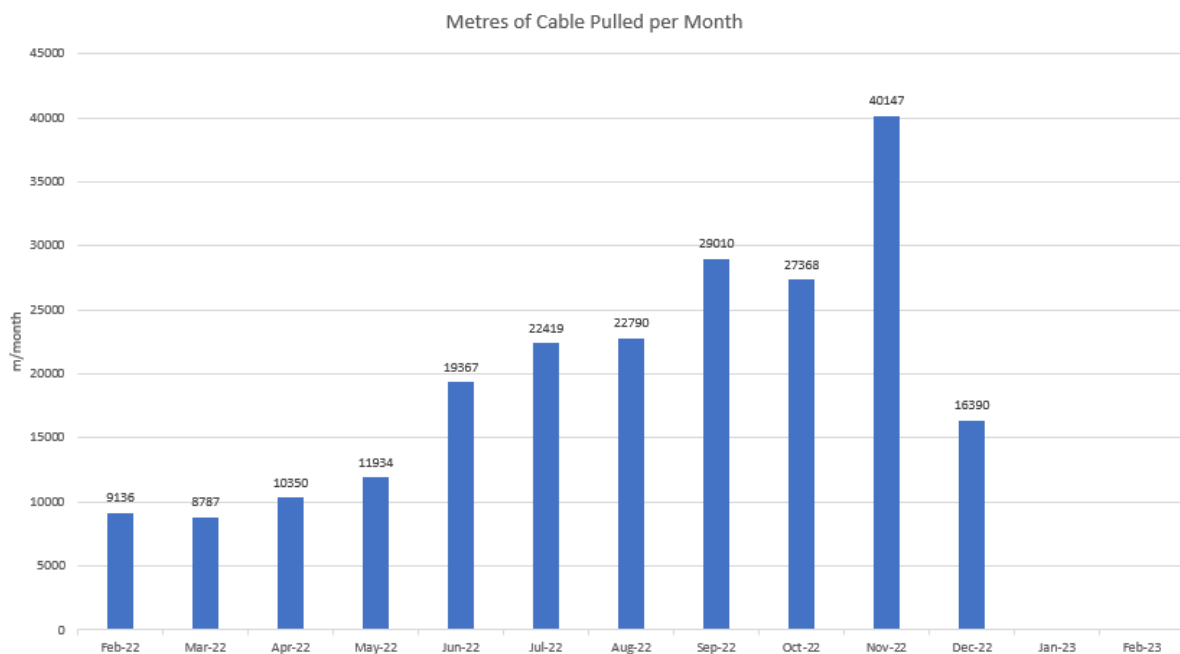
Week Number	Spools Fitted	Spools Fitted Running Total
2249	22	11325
2250	18	11343
2251	17	11360
2252	0	11360
2301	0	11360
2302	44	11404
2303	35	11439
2304	70	11509

Reference – November update on CMALs records.

#### Hull 801 Electrical Works

Cable pulling has continued throughout the vessel in both the machinery and passenger accommodation areas. Due to the yard shutdown over Christmas the December records are very low. The latest update from the yard and contractor was to complete all cable pulling by week 5, 2023. As a result of low numbers in January this will not happen. It has also come to fruition that the numbers being reported by the contractor were from Rev 32 of the cable schedule. We now sit at Rev 38 and there is an additional 30,000 metres of cable not accounted for in their programme.

A new programme is expected in the near future to reflect the status of installation. However, it is expected to add a number of months to the electrical programme for the installation of cables. The same theme continues in the cables that are classed as glanded and terminated (G&T) as well as cables that are tested. Both these areas are considerably behind in their respective programmes.



Reference – January update on CMALs records.

### Hull 801 Clam Shell Doors

Work on the bow doors is now underway after the completion of specialist scaffolding contractors on the external face. Slippage in completion date is looking at in the region of 8 weeks due to issues procuring the specialist scaffolding contractors. This scope is planned for completion before drydock but will likely run into the drydocking period and be completed whilst there.

### Hull 801 Lifts install

Lift contractor, [REDACTED] arrived in early November and commenced with lift install. Commencing with the forward access passenger lift then moving onto the passenger lifts throughout the ship. The latest programme shows all lifts installed by week 13, 2023. However, the contractor has not returned to site from the Christmas break. Fergusons to provide an update on this issue.

### Hull 801 LNG System

In line with other small projects onboard, for the LNG system install, integration and commissioning a composite project team has been appointed. The team includes the main stakeholders: FM, CMAL and [REDACTED] and [REDACTED] Ferguson pipe sections to be installed after pre commissioning activities of engines and generators. Due to the delay in the commissioning of man engines and generators, this scope has yet to begin.

### Hull 801/802 LNG Bunkering

There are 2 locations on the vessels for bunkering LNG: one port and one stbd. There may be an option than one bunkering location will meet with operational requirements, this is being investigated.

A dialogue has now been opened and is due to commence in February between Transport Scotland, CalMac, CMAL and Fergusons on first fill bunker and commissioning of the system.

### Hull 801 LNG Vacuum Skid

Below latest update regarding the LNG Vacuum Skid and where [REDACTED] currently sees the programme with regards to delivery.

Projected timeline shown below. Slippage of approximately 3 months in delivery confirmed over the new year break.

Preliminary Plan, Pending Skid Approval from [REDACTED] Register

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

### Hull 801 Commissioning

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

### Hull 801 - Accommodation Outfitting

- 07dk cabins carpets fitted with furniture now being installed.
- Wheelhouse ceiling perimeter now commenced.
- 06dk cabins above ceiling inspection underway. Looking to close out in the coming week or two.
- 06dk bhd linings complete barring fwd observation windows.
- 05dk bhd linings nearing completion.
- Galley fit out nearing completion.
- Patient transfer room outfit has now commenced.

In our professional opinion, additional outfitters/joiners are required to meet the schedule.

### Hull 801 HVAC Installation

Contractor performing in line with current outfit demands, the standard of installation remains satisfactory. Issues with sequencing and finishing details occurring due to lack of information.

Below 3 deck works now await further outfitting and commissioning of major machinery before HVAC can be installed and completed. Outstanding HVAC control panels and AHU plants have been delivered with all now installed in their final position onboard.

## Hull 802

802 Level 0 Programme	Ship Construction																								Ship Delivery into Service				
Year	2022												2023												2024				
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]																													
Workpack Release																													
Structure (Unit Construction)																													
Structure (Unit Erection)																													
Structure (Unit Consolidation)																													
Hotwork Installation																													
Clam Shell Doors/Ramps [REDACTED]																													
Mezzanine Decks																													
Pipe Manufacture																													
Pipework Installation																													
HVAC																													
Electrical Installation																													
Outfit																													
Launch Prep & Launch																													
Commissioning																													
Dry Dock																													
Sea Trial																													
Snagging/ Delivery/ In Service																													

Reference - October 2022 FMPG Project Report. (**Confirmed launch date still under review**)

Project 802 is making limited progress against the dates given in the level 0 plan. Main sub-contractors are yet to commence work on hull 802. There remains no visibility of main contracts for Electrical systems being awarded with limited pipework allocation in machinery spaces. The yards focus remains committed on project 801. There is a lack of available labour across all trade groups for 802, dates shown above will need to be revised.

The programme is currently under ongoing review to align with proposed new launch date and allocation of labour. We expect to be presented with said programme after dry dock.

## Hull 802 Block Fabrication and Erection

- Unit fabrication going well. Only Wheelhouse (A10/7) and masts still to complete.
- 06dk only two units still to be erected. No 07dk units onboard as of yet.
- 06dk consolidation slowing due to labour constraints. Between 30% and 60% consolidated. 05dk only minor structure to weld before being complete.

## Hull 802 Works

- Limited outfit of machinery foundations are being installed in the AMS and generator room.
- Limited paint work continues in varied spaces below 03dk.

## 9.0 Next Stage Payment Due

N/A

## 10.0 Forthcoming Period Events

N/A



## 11.0 Tests & Trials Due

### Hull 801

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

### Hull 802

- N/A

## 12.0 Risk Register Update

CMAL attended the shipyard monthly project risk review meeting on Monday 07 November.

## 13.0 Safety & Environmental

No issue to report this period.

Print Name: [REDACTED]

[REDACTED]

Signature:

Date: [10 February 2023]