

## Glen Sannox & 802 Monthly Report – [May 2021]

### 1.0 General

Vessel 802, the partly assembled hull remains positioned at Ferguson Marine’s No 1 berth, Newark Works, Port Glasgow, since steel cutting in June 2016.

Steel production and block erection progress remain significantly delayed. The current baseline schedule flags a 19-week delay to the erection of Block 82, positioned week 15, 2021. The milestones of “Complete Preparation Unit 3/5”, planned completion November 2020, remains outstanding, as does “Complete Preparation Unit 48”, planned completion December 2020. The expectation is this work will take a further 3 months to complete.

The efficiency gains achieved by extensive pre outfitting at block stage typical of mainstream commercial shipbuilding yards remains to be capitalised upon.

Vessel 801, Glen Sannox remains alongside the outfitting berth at Ferguson Marine, Newark Quay, since her return from Dry Dock in August 2020.

Milestone ‘Structural Work Complete’ was originally due 9th April 2021 and is now claimed as complete 7th May 2021. However, the context of actual production achievement must be viewed as somewhat less. The balance of work needed to complete 17 remaining vehicle deck recesses, unfinished belting and funnel outfitting remains to be completed. At the time of writing, work that would typically have been performed before lifting the funnels is still ongoing, four weeks after installation.

Outfitting of the vessel since launch in 2017 remains limited to the installation/placement of toilet modules within accommodation areas and the attachment of thermal insulation to internal bulkheads.

Installation of wheelhouse consoles remains outstanding, which will require significant access openings to be established. It is unclear why the precursor milestone activity of wheelhouse window completion set as June 2021 does not appear on the Q2 quarterly production lookahead.

There is little visibility of any major activities associated with the installation and progression of the vessels electrical systems – this is a concern. The importance of cable installation and its relationship to the key successor activity to back feed the main switchboards from the shore connection is also not identified in the Q2 quarterly production lookahead.

#### Vessel Weight:

CMAL attended a weight review meeting with the shipyard on 27 May 2021. The FMPG Naval Architect has been reviewing the vessel weight estimate and work continues to verify weights and increase the level of confidence in the accuracy of the estimate.

The required weight of the Vessel is 3,553.35 tonnes, the current estimate is 3,575,85 tonnes. 22.5 tonnes more than the contract requirement. FMPG continue to review the weight estimate and will provide further update. Any increase in vessel weight would result in a loss of deadweight capacity.

The deadweight requirement in the contract specification is:

801 – Deadweight: 877.95 tonnes at 3.45m draft

802 – Deadweight: 877.85 tonnes at 3.45m draft

Refer to the shipbuilding contract for deadweight deficiency clauses.

[redacted]

#### Recent Observations on Weight:

The flooring structure for the generator room arrived in the shipyard. The system is large, heavy and is akin to Offshore or Petro Chemical installations, not a commercial ferry. The flooring walkway structure drawings have never been passed to CMAL for comment before sending out to a sub-contractor for fabricating and our first contact with these structures is on delivery to the Shipyard.

We have raised our serious concern to FMPG through their Technical Query (TQ) system on both weight and access, as these structures are not easily de-mountable and will cause major issues for the crew regards access for maintenance. We have advised FMPG that this is not an example of good design and consideration of weight and is not an approach to limit weight growth.

It is our understanding that these walkway structures have become a priority for installing and also that the correct size securing bolts/nuts had not been ordered and that the team installing them will use longer bolts, which all have to be replaced when the correct size bolts have been delivered.

Heavy foundation seats and supports for fan motors and silencers etc. continues to be of concern and again highlighted to FMPG design engineering and structural departments regarding the weight of these structures as it looks to be much over-engineered, which has been further highlighted with the Gen-rm and Engine room flooring supports as these are enormous weighty structures and vastly over- engineered. Following TQ meeting with the shipyard on Thursday 03 June 2020, onsite checks will be carried out to see if agreement can be reached achieving significant weight loss.

#### Out of Sequence Works:

Delays caused by poor planning invariably serve as the precursor forcing out of sequence work. By not completing the original assumptions supporting the 7th of May 'Structural Work Complete' milestone for the funnel installation, shell belting completion and remaining 17 vehicle deck recesses, the successor task relationships are unlikely to have been satisfied. The resulting delay is not simply limited to the next logical waterfall events but to all events where resources have been seconded. At this stage of the project, where task float is non-existent,

the yard must strive to service the completion philosophy set out within the project plan if current delays are to remain manageable.

Without the benefit of a time base planning document, it is impossible to fully predict the risks associated with the current levels of 'out of sequence work'. The revised document will need to track several out of sequence metrics such as relationship validations, bottleneck identification and task density management.

There are many other areas to complete to achieve 'full' Steel/Aluminium Structural Completeness if future out of sequence work is to be avoided.

- Installation of all remaining internal bulkheads, aluminium bulkheads within the accommodation areas.
- Installation of all stairwells.
- Completion of welding of all Panama Fairleads.
- Completion of lift shafts.
- Installation of all windows.
- Installation of Forward Mast.
- Cutting / opening of bow doors and associated major structural works.

#### Planning:

Since restarting work after the COVID 19 shut down, the yards baseline planned accumulated working hours as of week 21, 2021 for hull 801 is stated as circa 166,000 man-hours. Actual hours burnt currently stands at 25,000 hours. For 802, the reported actuals are even less at circa 10,000 hours. It is still not possible to make meaningful comment against work sequencing and actual production achievement. This will remain the case until the revised baseline planning update is released, now expected at the beginning of June 2021.

Depending upon receipt of the re-baseline information (due 31<sup>st</sup> May 2021) we will need some time analyse and digest/validate its content. We are currently unsure as to the level of detail that will be shared but will ask for sight of the details required for CMAL to verify that assumptions are correct. All of this is very much dependent upon the available labour and the prompt commencement of all activities by appointed subcontractors.

All scheduling comments are against the context set out within the FMPG April 2021 yard monthly report where the impact of legacy production issues and the impact of COVID 19 manning limitations are factored respectively in sheets 9c (Ship 801 Critical Path) and 10 (Resource Profile as at Baseline Position August 2020).

A Cardinal Date Programme associated with a commercial shipbuilding approach remains to be issued. This update to the August 2020 re-baselined programme would appear to be challenging to the shipyard – having taken several months more than originally anticipated.

What is not immediately evident of the production philosophy is the prioritisation given to works not identified as residing on the project critical path (review pack sheet 9c). For

example, the current acceleration of works to install partially complete funnel casings and the aft mast is somewhat confusing, as neither item is identified as residing on the critical path. Such an approach will likely be the precursor of significant out of sequence outfitting works, which will probably drive further production delay that will ultimately challenge the mechanical system completion to sign off in support of commissioning start-up. In contrast to the above, walkways and isometric system pipe spools are identified as critical. At this juncture, timely acceleration measures do not appear to have been put in place to mitigate the scheduling impact of late starting of the commissioning process scheduled to start September 2021, reference August 2020 baseline programme.

### Milestone Status 801

Aft Mast: As of week 21, 2021, milestone completion claimed 7th May 2021. However, final acceptance by CMAL inspection was not possible as the build quality of vent pipe supports and poor standard of internal structure coating was insufficient to satisfy normal industry build standards, let alone the requirements set out in the contractual specification.

Belting: As of week 21, 2021, milestone completion claimed 7th May 2021; however, no further work has been progressed over this reporting period, structural completion stands at circa 25%.

#### 17 Remaining Vehicle Deck Recesses

As of week 21, 2021, milestone completion claimed 7th May 2021. However, outstanding design detail is required to allow this work to complete.

### Milestone Status Hull 802

Erect Unit 82 at Berth - November 2020: Block 82 was lifted week 15, 2021, 19 weeks later than planned. It is worth noting that lessons learnt on hull 801 on the importance of pre outfitting at block stage have not yet found their way into mainstream yard production planning.

Complete Preparation Unit 3/5 – November 2020: Survey work, not complete as of week 16, 2021.

Complete Preparation Unit 48 – December 2020: Block Fabrication has yet to start. The current delay stands at 27 weeks.

Commence Tank Testing – January 2021: No testing has yet to start. The current delay stands at 17 weeks.

### Resources

At the time of writing, labour resources remain insufficient to service the intent of the August 2020 schedule. It is estimated that the current working hourly deficiency across both hulls is more than of 90,000 hours since the COVID 19 restart of work.

Resources need to be managed more efficiently if the effect of COVID 19 restrictions are to be minimised. There are gains to be made on numerous fronts, such as operating a multi-

shift approach to the daily working schedule. We note that the yard has now moved to cancel the night shift commencing week 21, 2021. The effects of which will require careful monitoring if production achievement is not to fall further.

The May 2021 project report flags the availability of an additional 62 workers upon delivery of hull 805. This figure is commuted to just 24 in the April 2021 report (X 6 ancillary workers, X 5 mechanical fitters X 4 Joiners, X 3 pipefitters, X 5 platers and X 1 shipwright. The report also elaborates that this event will pave the way to open additional work interfaces. It is not at all clear within the Q2 quarterly look ahead as to what these interfaces are. Arguably it would be logical to expect work packages to be developed that would accelerate closure of fitment of the Bridge window, bridge consoles, Panama eyes, HVAC duct installation and cable pulling.

Workers from [redacted] started week 21 (24/05/21), further workers arrived 31/05/21, with more expected w/c 07 June 2021, all will work on hull 802. The current quarantine regulations mean that there is a lag between labour arriving and being deployed in the shipyard.

### On-Going Works

Steelwork and Hull Outfitting below 05dk 801

03/04dk recesses progress continues although at a much slower pace due to Milestone "achievement" with much of the labour transferred to P&S Funnels and Aft mast structures which was also part of the FM milestone, although still not yet complete, we note that at last the Port side Gun-port deck replacement has been worked all week and is now well progressed although underdeck-stiffening has still to get underway.

### Bottom Fabrication Sheds & Structures

Fabrication of rotating equipment foundations, casing uptake gratings and electrical equipment supports continues, despite concerns the additional consolidated weight element will further exasperate the already identified deadweight issues. This issue has been flagged to the yard design team back in week 16, 2021, who have still to confirm that the current weight log truly reflects the current overengineered design weights.

### Pipefitting

Shipyard Responsible Systems:

The shipyard continues to install pipe spools in zone 0303, focusing on the port & starboard stabiliser rooms, frames 68 – 81. Circa 110 out 284 pipe spools are now fitted (38% complete). Progress is currently insufficient to service the project schedule (Baseline August 2020).

External Contractor Responsible Systems:

Isometric pipe spool installation continues. Work is focussed on the auxiliary engine and main engine rooms, zones 0202 & 0203. Progress continues to be insufficient to service the project schedule (Baseline August 2020).

The consolidated number of pipe spools to be installed for the whole build is reported as 13,000; current spools installed totals 800 (Week 21), equating to 7% of the required total.

The short-term focus from the yard must centre upon the recovery of the schedule if mechanical completion is to coincide with the planned start of commissioning activities in September 2021.

### Electrical

The focus of the external contractor at this should be the completion of the principal cable distribution. At the time of writing 8km of cable remains to be pulled. Work is on hold because of uncertainty in cable routing design together with delays to finalise 3rd party system routings. Contractor on site manning levels remain low at 8 technicians. It is expected numbers we need to expand upwardly of 80 to manage unavoidable bottleneck. Progress continues to be insufficient to service the project schedule (Baseline August 2020).

### Accommodation Outfitting

Unistrut pinning and A60 deckhead insulation work is ongoing. At this point, no other outfitting work is progressing. Progress continues to be insufficient to service the project schedule (Baseline August 2020).

### Vessel 802

Little achievement is reported this period. The majority of available manning resource was spent on either hull 801 or 805. Workers from [redacted] have been added to the resource pool from 24th May 2021. The Progress continues to be insufficient to service the project schedule (Baseline August 2020).

### Blasting and Coating

Blasting/coating of the external shell starboard side is progressing.

### Quality Control

The yards approach at times is reactive as opposed to proactive in the early identification of building deficiencies. The resulting out of sequence corrective action invariably presents additional loading on available manpower as the work is essentially performed twice. Examples are erroneously cut pipe penetrations beneath the freeboard deck and the poor standard of pre-inspection of the LNG vent mast.

### Design Concerns

The length of time taken to conclude technical discussions is far too long, considering the time-constrained nature of each project. Erroneous holes cut beneath the freeboard deck are a case in point where work has been put on hold for the last six weeks.

### 3D Model Accuracy

The number of clashes between unrelated systems has become a growing concern despite the remodelling work performed by [redacted]. The expectation is that this problem will escalate when [redacted] ramp up production. The outcome of which will be further unplanned production delays.

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

[redacted] has re-joined the on-site inspection team positioned at the yard. His principal role will be to support the day-to-day inspection call-outs issued by the yard as well as support eventual commissioning activities.

## **3.0 Design Changes Approved**

Change request for Vessel 802 has been approved by SG. The need for the change request was regarding an area of concern in the Engine Room, which CMAL originally raised with the old FMEL, regarding the type of thermostatic valves (4 off) provided for the vessel cooling system. The valves purchased by the old FMEL are difficult to access and time consuming to maintain and time consuming to fix in the event of a failure. The Valves are fitted in 801 by the old FMEL, but not yet fitted in 802.

FMPG cannot consider carrying out this change on 801. Way back in September 2019 we first asked the new FMPG if they would consider changing the valves on 801 to a more suitable type. FMPG advised in their opinion changing 4 valves would impact the programme for 801, which surprised us given our experience of shipbuilding projects and programmes. Twenty (20) months on, the valves could have been easily changed on 801 and unfortunately for the vessel operator, they will have to live with what is there.

The valves have not been fitted in 802. In July 2020, during 3D model reviews with [redacted], we raised with FMPG if they would consider installing more suitable valves in 802. FMPG provided a proposal 26 May 2021, the cost to install the valves is [redacted]

There are a small number of small changes requested by builder and buyer which the builder has still to finalise, most which were identified during the extensive 3D model review last year.

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

The builder has still to provide details of the re-baselined programme and planned delivery dates.

A simple tabulation was shared on 31<sup>st</sup> May 2021 with CMAL CEO – significant detail is required to verify whether the re-baseline is achievable.

## **5.0 Agreed Changes to Price**

There are a small number of small changes requested by builder and buyer which the builder has still to finalise, most which were identified during the extensive 3D model review last year.

See above design changes approved, 802 only, [redacted]

## **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**

No formal inspection calls outs have been issued by the shipyard over this reporting period, all inspections are based on ongoing patrolling discussion.

## **8.0 Progress Against Programme**

As of week 22, 2021, the yard has not presented a formal percentage of project completion. It is assumed that this KPI will be declared upon the release of the forthcoming re baselined planning schedule. That said, based upon the under-resourcing currently experienced by the yard, it is reasonable to conclude that the development of a recovery strategy detailing acceleration measures will also need to be factored into the revised schedule if the planned delivery dates of the vessels are to be assured.

## **9.0 Next Stage Payment Due**

CMAL are not party to Stage payments between the builder and the buyer.

## **10.0 Forthcoming Period Events**

(Note of events, visits, holidays or other yard commitments)

Revised dates supporting all trial and equipment testing will be declared upon the release of the revised project schedule.

## **11.0 Test and Trials Due**

Awaiting re-baselined programme.

## **12.0 Risk Register Update**

CMAL attended a meeting with the builder on 20th April to review the risk register. FMPG to provide risk register to the buyer.

There are several risks identified by FMPG as high risk, with a risk score of 250. Most are relating to programme. The most concerning technical risk is that the vessel cannot meet contract deadweight. We have stressed to FMPG since the new team were in place, the importance of this and there requires to be certainty and appropriate action.

## **13.0 Safety & Environmental**

Suitable controls are in place by the yard to address all significant safety hazards which are reported monthly through authoritative good practice. A total of X10 First Aid Cases, X0 Fatalities, X7 Medical Case and RIDDORS Ratio of 1 are reported this period.

On Thursday 03 June, a small fire broke out in the generator room. We have written to the shipyard to consider a safety assessment in areas that are difficult to access.

## **14.0 Owner's' Observation Reports (OORs)**

Key	Definition	No. of OOR's per Category	Open/ Closed
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Completed	OOR has been completed by FM onboard the vessel(s) and has been witnessed and signed off by CMAL.	180	180	Closed
Will be done	FM has proposed a fix, CMAL have agreed fix, but work is still to be done onboard vessel.	109	212	Open
Dry Dock WBD	OOR will be done in dry-dock number 2 (date TBC).	14		
FM Review	OOR to be reviewed by FM and a proposed fix presented to CMAL.	46		
CMAL Review	FM have either provided a technical proposal or a fix onboard that CMAL have to review.	10		
No response	No response received from FM after submitting OOR.	33		
<b>Total</b>		<b>392</b>		
			<b>Open</b>	<b>54.1%</b>
			<b>Closed</b>	<b>45.9%</b>

## 15.0 CMAL Technical Queries (TQs)

There are 125 open CMAL technical queries with FMPG for response.

Print Name: Jim Anderson

Signature:

Date: 07 June 2021