

Glen Sannox & 802 Monthly Report – [December 2021]

1.0 General

Executive Summary

The level of work performed this reporting period is significantly impacted by the loss in production momentum in the lead up to the Christmas 2021 holiday period, when the Yard shut down all works between 23rd December and 5th January 2022.

The updated planning programme, which now includes commissioning works definition, critical path detail, and updated percentage levels of task completion for each subzone of Glen Sannox, was released on November 26th, 2021. [redacted]

As our initial review of the submission shows the detail contained to be as deficient as the previous June 2021 submission of the document. No attempt is made to show the scheduled impact of current delays faced by the project despite formally announcing further slippage of the vessel completion date. It is understood that the percentage level of sub zone completion is measured against the notion that planned work durations are directly comparable with actual physical work achieved. [redacted]

We have concerns about the work durations applied to each planned activity as most appear to be unrealistic and possess no foundation when compared to other similar new build projects. The critical path presents a scenario where almost all remaining tasks are deemed as critically driving the longest sequence of events to deliver the vessel. It is simply not correct to create a finish to start dependency to the work activities of commissioning the emergency and main switch boards as it also makes no sense to include commissioning of the passenger service lift as the predecessor driving commencement of the watertight door commissioning.

Progress is being made on board the Glen Sannox, however, the works undertaken do not appear to follow the programme and appear to largely be driven by the availability of materials as opposed to prioritised programme needs. The current level of production output continues to be insufficient to meet the requirements of either vessel programme, the instances of work partial completion is a serious issue throughout the vessel. [redacted]

[redacted]

Reconciliation of production delays experienced on Glen Sannox remains limited to an increase in structural workers and the formulation of a revised production management process that it is hoped will increase worker efficiency starting January 2022. Our opinion remains that the programme of works for either vessel remains not credible.

Project Risk – Glen Sannox

The yard has announced the availability of their recently updated risk register, this document has yet to be shared with this group.

Warranty Issues 801 & 802

The Yard has yet to provide information on how this essential post-delivery benefit will be managed, as the current position held of no allowance will have significant [redacted] implications. Clarification has not been received as of 30th November 2021.

Yard Supervision

[redacted]

The absence of verification inspection callouts, as well as the need to issue repetitive Owner Observation Reports (OORs) all support the need for higher levels of onboard management control. It is understood that in January 2022 the Yard will move to implement a change in production governance by appointing responsible Foremen to each work zone. Each will be tasked with the responsibility to ensure timely completion of the remaining works through to delivery. This approach brings FMPG production management into line with industry production norms, it is not clear why the Yard has been slow to action such an approach.

2.0 Changes to Site Supervision Team

FMPG has been notified of the imminent arrival of X2 CalMac Ferries operations personnel; Master and Chief Engineer, both will assist the site team until the delivery of Glen Sannox.

3.0 Design Changes Approved

Ongoing design changes affecting the constructability of the vessels design are driven exclusively within the Shipyard process, a good example would be the still outstanding 700 piping technical queries that have still to be implemented. Concerns that the vessel construction design is not frozen at this late stage of the project should be seen as a significant risk to the project, the impact of which is not currently accounted for in either vessel programme.

(Note of changes; changes to be authorised & recorded in Design Change Register)

4.0 Agreed Changes to Delivery Date

The latest update to the programme covering the construction of the Glen Sannox, issued on November 26th, 2021, lists the Key Milestone Date of Delivery as August 30th, 2022, the FMPG November Project Report issued in 26th of November defines the date as a Forecast Window of July 25th through September 25th, 2022. The programme delivery milestone date

for hull 802 is reported as 3rd April 2023, the FMPG November Project Report references the delivery Forecast Window as 3rd April 2023 through 3rd July 2023.

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

The low frequency with which routine verification inspection calls are made remains a source of serious concern. Industry standards dictate a process flow based on continuous verification of completed works to ensure regulatory and owner requirements are always met. Late verification and process signing off will unavoidably result in significant production bottlenecks developing. In December, the yard requested a single inspection for deck fairing on hull 801 as well as a single inspection for structural units 50 and 51 on hull 802. This type of construction site inspection is an important monitoring and reporting indicator, ensuring that the work is completed as intended in terms of both quality and specification compliance. The lack of momentum to sign off on verified work completion should be interpreted as a clear indication of the ongoing delays in completing working interfaces on either hull.

8.0 Progress Against Programme

As of the 26th of November 2021, the yard has provided an amended schedule detailing the works required to complete hull 801. This latest programme presents information for the first time setting out the critical path analysis, commissioning tasks and percentage progress. This updated document does little to address the deficiencies identified in the June 2021 programme [redacted]. The below listed deficiencies are not in any way exhaustive, the intention is to flag the lack of familiarity with the process required to plan and execute a project of this type. Comment is raised against level 1 detail; our primary concerns are as follows.

1. Progress completion is plotted against percentage work duration (level of effort) but does not take into account actual physical work achieved. Such an approach does not consider production inefficiencies extending from the significant risk that the vessels constructability design remains open. To not have reached a point in the detailed design where the construction design is frozen effectively prevents a direct correlation between percentage task duration completion and percentage physical work completion. One example is the reported progress of the deck 5 main galley, which is stated as 56 percent complete when measured against the reported level of elapsed task duration. However, for items such as galley equipment, ventilation, ceiling and vertical panels, fire detection, GA/PA speakers, space lighting, and so on, the degree of physical completion achieved over the same reporting period is closer to 5% of the total deliverable. Such an approach applied to the entire programme cannot be considered meaningfully in the reporting of actual production achievement but would go some way to explain why the shipyard has a challenge to timely action recovery/acceleration measures.

2. The 17th of December 2021 is maintained as the start date for commissioning activities despite full knowledge that the production delays faced to energise either 415 volt bus,

preventing this work from progressing, at the time of writing (13th January 2022) commissioning activities have still to start.

3.The 22nd of December 2021 is retained as the completion date for isometric pipe spool installation and testing in subzone 2020. (Auxiliary Machinery Space). Despite separately reporting in the monthly progress report that 960 iso spools remain to be installed. The obvious issue with constraining this completion date is the illusion that commissioning start-up dependencies are not in any way challenged, when in fact the opposite is true.

4.Recommencement of the installation of the remaining 230km of electrical cabling required to complete the vessels electrical distribution is still not started and is unlikely to meaningfully start earliest for another 14 days. The complexities associated with this work are not new as the restart was originally planned for week 36 (27 September 2021). Presenting this update to the programme, which now includes impossible-to-achieve commissioning dependencies, severely undermines the program's credibility. A good example would be meeting the initial start dates for the electrical distribution panels listed below.

Systems Grouped By Key Milestone Pre-Requisites		17-Dec-21	24-Aug-22
801 - Shipwide Distribution Boards -System 875		04-Feb-22	26-Mar-22
801ScA0000Cd01	Local Distribution Panel - P02 - 415V Dist Engine Room - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd02	Local Distribution Panel - P03 - 415V Dist Engine Room - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd04	Local Distribution Panel - L11 - 230V Dist Hyd Room - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd05	Local Distribution Panel - P04 - 415V Dist Aux Machinery Space - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd06	Local Distribution Panel - L10 - 230V Dist Nitrogen Room - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd08	Local Distribution Panel - L13 - 230V Dist Board - Hyd Room - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd09	Local Distribution Panel - L09 - 230V Dist Eng Room - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd10	Local Distribution Panel - L08 - 230V Dist Aux Machinery Space - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd11	Local Distribution Panel - L14 - 230V Dist Board - Hyd Room - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd14	Local Distribution Panel - P01 - 415V Dist Aux Machinery Space - Energise	04-Feb-22	04-Feb-22
801ScA0000Cd16	Local Distribution Panel - P06 - 415V Reefer Skt Dist - Energise	04-Feb-22	04-Feb-22

5. The commissioning of the main and emergency switchboards is scheduled to begin in six working days. Normal practice would see the prioritisation of the works required to complete all outstanding hot work as well as background installation work to allow for deep cleaning of each switchboard cubicle and reduce the possibility of future contamination during commissioning works. The yard expects to complete subzone 0309 (engine control room) by April 7, 2022, and the emergency generator space, subzone 1002, by May 26, 2022. It appears the importance of maintaining these safety critical areas as clean areas is not fully understood.

Zones		522 days	Mon 06/07/20	Tue 05/07/22		58%
	Sub Zone 03-09 (Engine Control Room)	310.38 days	Mon 26/04/21	Thu 07/04/22	x	57%
	Sub Zone 10-02 (Emergency Diesel Generator & Air Handling Machinery Room)	316.63 days	Mon 07/06/21	Thu 26/05/22	x	48%
801 - Required to Energise Main Switchboards		125.63 days	Tue 30/11/21	Wed 20/04/22		0%
801ScA0000C	Commission - System 868 - Shore Supply	1 day	Fri 17/12/21	Fri 17/12/21	E	0%
801 ScA0000	Commission - System 860 - Electrical Power Supply (MSB, ESB, (Generic Heading)	1 day	Thu 20/01/22	Thu 20/01/22	E	0%
801 ScA0000	Commission - System 872 - Main Switchboards	6 days	Thu 20/01/22	<u>Wed 26/01/22</u>	E	0%
801 ScA0000	Commission - System 872 - Emergency Switchboards	6 days	Thu 20/01/22	<u>Wed 26/01/22</u>	E	0%
801 ScA0000	Commission - System 882 - Transformers	7 days	Thu 27/01/22	Thu 03/02/22	E	0%
801 ScA0000	Shore Supply Finish Milestone	1 day	Thu 03/02/22	<u>Thu 03/02/22</u>	E	0%

6.The below sub zones are scheduled to be complete in the next 14 days, at the time of writing no work is currently being performed in any area. It is our opinion that the probability of achieving completion is close to zero, furthermore, the planned prioritisation of these areas takes available (limited) resources away from project critical system completion in defiance of the commissioning programme for the main and auxiliary machinery spaces.

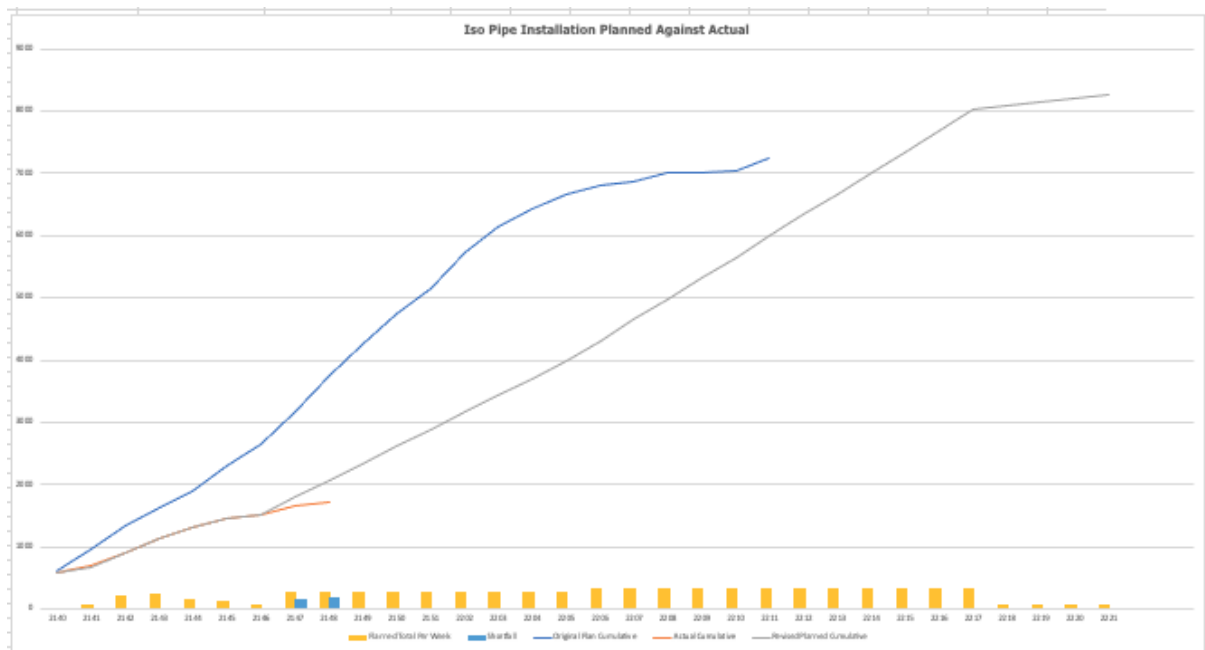
Zones	522 days	Mon 06/07/20	Tue 05/07/22	58%
Sub Zone 03-01 (DB Mid Ship Tanks & Voids - Frames 41 - 67)	503.13 days	Mon 06/07/20	Wed 19/01/22	92%
Sub Zone 03-02 (FO Serv & Settling Tanks)	277.13 days	Mon 15/03/21	Tue 18/01/22	85%
Sub Zone 03-03 Pipes , Cable & Transformer Space	316.63 days	Mon 08/02/21	Thu 27/01/22	85%
Sub Zone 03-04 Sewage treatment Tank Space	313.63 days	Mon 08/02/21	Mon 24/01/22	85%
Sub Zone 03-05 Stabiliser Space	239.13 days	Sun 09/05/21	Mon 31/01/22	76%
Sub Zone 03-08 Stabiliser Port	242.63 days	Mon 26/04/21	Fri 21/01/22	78%

Resource Allocation Glen Sannox & Hull 802

This reporting period's available working hours are significantly reduced because of the yard closure for the Christmas holiday period between the 23rd of December 2021 and the 5th of January 2022. Since the beginning of December, the available labour force has dwindled as employees are compelled to take unused vacation days before the start of 2022. On the 18th of December 2021, many foreign workers left the yard. During this reporting period, production output should be viewed as minimal.

Yard Production Reporting

The level of detail contained in production reports remains heavily restricted and largely generic and does not show the consequential impact of mounting production delays. The below 'S' curve is a case in point where the planned volume of pipe spools illustrates by the orderly requirement to routinely delivery 273 pipe spools per week in January that ignores the time constraints faced to install the missing 1,511 commission start-up critical spools in the machinery spaces that will demand nearly twice the installation resource than spools positioned outside of these areas. The deviation seen between planned and actual (orange line) currently reported by the yard provides clear indication of the lack of maturity applied to reporting this KPI metric.



ISO Pipes	Oct-21				Nov-21				Dec-21				Jan-22				Feb-22				Mar-22				Apr-22				May-22			
Week	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221
Original Plan Cumulative	621	970	1344	1633	1888	2291	2642	3161	3750	4254	4733	5163	5746	6146	6427	6677	6805	6866	7001	7017	7037	7250										
Actual Cumulative	591	688	900	1142	1302	1441	1521	1645	1728																							
Revised Planned Cumulative	591	688	900	1142	1302	1441	1521	1794	2067	2340	2613	2886	3159	3432	3705	3978	4311	4649	4982	5320	5653	5991	6329	6667	7005	7343	7681	8019	8079	8144	8204	8269
Planned Total Per Week		77	232	242	160	139	80	273	273	273	273	273	273	273	273	273	333	338	333	338	333	338	338	338	338	338	338	338	338	60	65	60
Actual Per Week		97	212	242	160	139	80	124	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shortfall																																

The below table consolidates yard reported isometric pipe spool installation achievement claimed over the past three months in the monthly project review, in October 1,061 spools are claimed whereas the above 'S' curve claims 551 against a planned target of 551 was achieved, in November the claim in the 'S' curve is actuals of 589 against the planned figure of 765, the production report states a total of 484 as actual achievement. The point in this discussion is that KPI reporting does not appear to be generated via a single master source file (master programme) and that the complexities to deliver completed system in support of the commissioning programme is proving much more time consuming than would be suggested by the philosophy presented by the linear incline of the planned for installation curve.

System No	System	Total Spools	Remaining	Sept	Oct	Nov	Dec	Total
309	Hydraulic System	903	714	0	126	63		189
414	Echo Sounders, Speed log	21	21	0	12	0		12
571	Chilled Water	240	240	24	-2	7		29
577	Heating System	314	285	53	25	3		81
581	Technical & Domestic FW	1,146	1,145	149	57	11		217
582	Sanitary System	572	577	155	40	6		201
666	Quick Closing Valves	17	17	0	0	0		0
701	Fuel Oil System	529	587	222	222	48		492
704	Machinery Save All Drains	128	127%	6	-17	-17		-28
705	FO Bunkering	357	25	304	4	25		333
708	Nitrogen System	186	186	74	2	4		80
709	LNG System	310	310	28	0	53		81
711	LO Transfer System	256	46	161	38	10		209
712	LO Puri System	27	13	6	7	1		14
713	LO System	182	120	42	15	5		62
721	Sea Water Cooling	125	5	111	4	5		120
722	FW LT HT Cooling	989	188	663	99	40		802
725	Glycol Heating System	109	37	67	0	72		139
731	Compressed Air	524	215	273	26	10		309
743	Crank Case Breathers	200	100	90	10	0		100
801	Heel & Ballast Water System	226	43	97	81	5		183
802	Sludge & Waste Oil System	144	23	115	6	0		121
803.1	Clean Bilge System	635	127	0	451	57		508
803.2	Oily Bilge System	289	52	136	87	14		237
804	External Scuppers	551	435	264	-160	11		115
813	Fire & Deck Wash System	417	300	33	63	21		117
815	Novec System	169	127	15	22	5		42
816	Vehicle Deck Drencher	193	189	2	-2	4		4
819	Water Mist	773	580	155	39	0		194
821	Air & Sounding	1,104	254	563	265	22		850
822	Sounding System	192	69	42	81	0		123
Total for Month			7,031	3,850	1,601	484		
Totals	Key Systems		1,511	2,268	645	155		
Key System Completion In Support of Commissioning Programme								

Outstanding Hot Work – Glen Sannox

The below table clearly highlights the extent of the remaining hot works, slow production output rates are flagged in many areas over the period September through November. Completion of hot works is normally given the highest priority in the production and planning process as late completion has a huge impact upon start-up and completion of successor activities such as insulation, pipe installation and coating works and the subsequent.

Zone	Major Seats			Elect Seats			Lift Eyes			Pipe Pens			Elec Pens			HVAC Pens			WW/Stairs/Platfms			Struct/Sketches		
	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov
1	95%	97%	97%	0%	0%	100%	0%	0%	100%	28%	28%	35%	20%	70%	100%	45%	91%	100%				75%	88%	100%
2	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	92%	100%	100%	100%				40%	47%	57%	71%	71%	100%
3	87%	97%	94%	88%	97%	99%	32%	73%	100%	68%	69%	73%	45%	70%	80%	5%	32%	89%	14%	14%	14%	30%	30%	80%
4	82%	88%	86%	56%	88%	88%	65%	84%	100%	40%	20%	31%	13%	27%	33%	0%	50%	50%	40%	46%	46%	73%	73%	100%
5	0%	0%	100%	0%	0%	37%	0%	0%	49%	0%	0%	25%	0%	0%	0%	0%	0%	50%	21%	21%	21%	0%	0%	0%
6	0%	30%	64%	0%	30%	49%	0%	0%	2%	0%	0%	9%	0%	6%	7%	0%	21%	32%	0%	5%	5%	46%	46%	46%
7	29%	19%	71%	19%	19%	19%	0%	0%	0%	62%	62%	62%	0%	100%	48%	0%	0%	0%	0%	0%	73%	73%	73%	
8	0%	0%	25%	0%	0%	0%	0%	100%	100%	0%	0%	0%	0%	64%	80%	0%	39%	81%				0%	100%	100%
9	0%	45%	0%	0%	45%	45%	0%	100%	100%	0%	0%	0%	0%	41%	92%	0%	74%	80%	0%			0%	0%	0%
10	0%	17%	17%	0%	17%	17%	0%	100%	100%	0%	0%	20%	0%	40%	61%	0%	14%	57%	0%	0%	0%	0%	0%	0%
11	73%	0%	91%	0%	0%	0%				0%	0%			21%	21%		100%	100%				0%	0%	0%

Figure 1 Outstanding Hot Work Percentages by Zone - Source FMPG

Owners Observation Reports 801

Progress to close out Owner Observation Reports (OOR's) remains slow and is performed largely out of sequence with the requirements of the vessel programme. Please note the context behind the closure of 43 OOR's in December is as a result of a detailed review to clean the current list based on an objective review on merging related deficiencies.

Year	2021						
Month	June	July	August	Sept	Oct	Nov	Dec
OOR's Raised	37	25	4	7	0	26	8
OOR's Closed	0	28	33	32	12	28	43

Inspection Call Outs

The frequency with which inspections are called out is extremely low; the emphasis is solely on regulatory compliance. Routine inspection calls to ensure that work is carried out as planned, both in terms of quality and compliance with building specifications, are ignored. Paragraph 7 contains detailed comment.

801 Commissioning

Despite not achieving any planned Level 1 activity completion date since the release of the revised baseline programme in June 2021. The latest update of the programme continues to report the start of commissioning works as 17th December 2021, presumably because the planning tool used is either set up against a set of constrained dates or each task is scheduled manually against the base line. As it stands the commissioning schedule should be seen as nothing more than a working list of dated activities that do not reflect the interdependencies between tasks and therefore do not highlight the ongoing impact of current known delays.

Maintaining this date has no foundation in terms of logical production achievement as the current delays to mechanically complete auxiliary system in support of commissioning start-up will not in our opinion now be achievable until mid-February 2022 at the earliest.

According to yard commissioning programme, the electrical shore supply system 868 will be commissioned by 18th December, this work is not started at the time of writing, 13th January 2022. The electrical shore supply must only be turned on when the 415V Main Switchboard is ready to be powered up. When will the 415V Main Switchboard be powered up from the shore supply? There are numerous unresolved issues regarding access and maintenance in the engine and generator rooms. These issues must be prioritised and resolved in order to deliver a vessel that meets Flag, Class, and building specifications. We've been told that "882 Transformers" and "872 Main and Emergency Switchboards" will be put into service. Which transformers/switchboards will be commissioned, and how extensive will the commissioning be? Is there any information available to support the Motor Control Centres and associated auxiliary system commissioning tests?

At this point in the project, we are still waiting for the Yards commissioning plan for all ship's equipment and systems to be released.

Hull 802

FMPG has advised of significant changes (delay) to the baseline schedule dates issued 28th June 2021 supporting block erection and completion, ref, email dated 28th September 2021, entitled Review of the Block Erecting and Consolidation Programme. Whilst it is acknowledged rescheduling of works within the programme is wholly under the responsibility of the yard and that the yard seeks to maintain overall key dates for Hull Assembly Completion (802KM002) and Superstructure Complete (802KM003), respectively 26th January 2022 and 21st July 2022. Late structure delivery invariably will impact the freedom production workers have to timely commence outfitting work in line with the current schedule, raising the question of the ongoing credibility of the current 802 schedule.

802 - FMPG Baseline Planning Detail

Of the twenty planned activity start/finish task dates, eight are late to finish and twelve are reported as late to start. In short no level one activity task group is yet signed off as complete.

Of the twenty scheduled activities with a planned start or finish date at the cut off of 30th November 2021, eight are late to finish and twelve are reported as late to start, ie FMPG has not upheld a single planned completion date in support of the baseline programme.

Activity ID	Activity Name	Remaining Duration	Start	Finish	Status as of 30th November 2021
802 - L1 PLAN					
Milestones					
		466d	24-May-21	03-Apr-23	
802MILECMAL2102	Commence Zone 2 Pipework Manufacturing	0d	24-May-21*		
802MILECMAL2004	Complete Preparation of Unit 48	0d		25-May-21	Late to Finish by 158 Days
802MILECMAL2103	Commence Zonal Hotwork Programme - Zone 2	0d	21-Jun-21*		
802MILECMAL2104	Commence Zone 2 Pipework Installation	0d	12-Jul-21*		
802MILECMAL2101	Commence Tank Testing	0d	26-Jul-21*		Late to Start by 126 days
802MILECMAL2105	Complete Preparation of the Funnels	0d		16-Sep-21	Late to Start by 70 days
802MILECMAL2109	Complete Pre-Filling Out (PFO) - Zone 2	0d		30-Sep-21	Late to Finish by 61 days
802MILECMAL2108	Completion of Cryogenic Pipework - Zone 2	0d		28-Oct-21*	Late to Finish by 61 days
802MILECMAL2108	Erect Focle Block (U495051) at Berth	0d	07-Dec-21*		Late to Start by 33 days
802KM002	802 Hull Assembly Complete	0d		26-Jan-22	
802MILECMAL2107	Shutline - Final Line of Sight Achieved	0d		21-Feb-22	
802KM003	802 Superstructure Complete	0d		21-Jul-22*	
802KM004	802 Launch	0d		16-Aug-22*	
802KM005	802 Commission/Auxiliary Systems Complete	0d		11-Oct-22*	
802KM006	802 Main Engine and Gearbox Commissioning Complete	0d		21-Nov-22	
802KM007	802 Zonal Outfit Complete	0d		30-Nov-22	
802KM008	802 Enter Dry-Dock	0d	26-Jan-23*		
802KM009	802 Inclining Exercise	0d	09-Feb-23*		
802KM010	802 Builders and Owners Sea Trials Complete	0d		20-Feb-23*	
802KM011	802 LNG Bunkering Complete	0d		20-Mar-23	
802KM012	802 LNG Sea Trial Complete	0d		28-Mar-23	
802KM013	802 Delivery	0d		03-Apr-23*	
Structure					
		281d	25-Aug-20A	05-Jul-22	
Unit Assembly					
		252d	25-Aug-20A	08-Jun-22	
A1170	Block 1	4d	25-Aug-20A	27-May-21	Late to Finish by 186 days
A1190	Block 3	86d	24-May-21*	21-Sep-21	Late to Finish by 70 days
A1210	Block 5	98d	07-Jun-21*	21-Oct-21	Late to Finish by 40 days
A1280	Block 12	87d	08-Jun-21*	07-Oct-21	Late to Finish by 54 days
A1200	Block 4	151d	14-Jun-21*	20-Jan-22	
Block Assembly					
		171d	13-Aug-21	21-Apr-22	
A1290	Block 11 Upper	25d	13-Aug-21*	16-Sep-21	Late to Finish by 75 days
A1300	Block 12 Focle	46d	04-Oct-21*	06-Dec-21	
A1310	Block 10/11 Wheelhouse	85d	13-Dec-21*	21-Apr-22	
Launch					
		116d	06-Dec-21	05-Jul-22	
802A7020	Launch Arrangement	104d	08-Dec-21*	14-Jun-22	
802A7030	Launch Preparation	12d	15-Jun-22*	05-Jul-22	
Outfit					
		366d	21-Jun-21	30-Nov-22	
Zone 01 Outfit					
		142d	12-Jun-22	03-Aug-22	
802201HTVK001	201 - Install all Compartment Hotwork incl. hull outfit/walkways/elec seats	46d	12-Jun-22*	16-Mar-22	
802201HVAC001	201 - Install HVAC & Hangers	26d	26-Jun-22*	02-Mar-22	
802201PPE001	201 - Install Pipework	73d	26-Jun-22*	11-May-22	
802201PPE003	201 - Pipework Testing	73d	23-Feb-22*	08-Jun-22	
802201HVAC002	201 - HVAC Testing	49d	02-Mar-22*	12-May-22	
802201EQUI001	201 - Install Equipment (Steel/HVAC/Elec)	73d	18-Mar-22*	29-Jun-22	
802201ELEC003	201 - Electrical cables - Reeve to Band Cables	79d	11-Apr-22*	03-Aug-22	
Zone 02 Outfit					
		207d	21-Jun-21	15-Apr-22	
802202HTVK001	202 - Install all Compartment Hotwork incl. hull outfit/walkways/elec seats	68d	21-Jun-21*	23-Sep-21	Late to Finish by 68 days
802202PPE001	202 - Install Pipework	63d	12-Jul-21*	07-Oct-21	Late to Finish by 58 days
802202PPE003	202 - Pipework Testing	77d	29-Sep-21*	24-Jan-22	
802202EQUI001	202 - Install Equipment (Steel/HVAC/Elec)	85d	04-Oct-21*	08-Feb-22	
802202ELEC003	202 - Electrical cables - Reeve to Band Cables	131d	06-Oct-21*	19-Apr-22	
802202HVAC001	202 - Install HVAC & Hangers	57d	28-Oct-21*	25-Jun-22	
802202HVAC002	202 - HVAC Testing	35d	13-Dec-21*	08-Feb-22	
Zone 03 Outfit					
		169d	19-Jul-21	22-Mar-22	
802203HTVK001	203 - Install all Compartment Hotwork incl. hull outfit/walkways/elec seats	108d	19-Jul-21*	16-Dec-21	
802203HVAC001	203 - Install HVAC & Hangers	83d	03-Aug-21*	25-Nov-21	Late to Start by 101 days
802203PPE001	203 - Install Pipework	98d	03-Aug-21*	16-Dec-21	Late to Start by 101 days
802203PPE003	203 - Pipework Testing	90d	30-Aug-21*	11-Jan-22	Late to Start by 92 days
802203EQUI001	203 - Install Equipment (Steel/HVAC/Elec)	110d	06-Sep-21*	15-Feb-22	
802203ELEC003	203 - Electrical cables - Reeve to Band Cables	134d	07-Sep-21*	22-Mar-22	Late to Start by 84 days
802203HVAC002	203 - HVAC Testing	27d	16-Dec-21*	01-Feb-22	
Zone 04 Outfit					
		189d	20-Sep-21	23-Jun-22	
802204PPE001	204 - Install Pipework	85d	20-Sep-21*	25-Jan-22	Late to Start by 81 days
802204EQUI001	204 - Install Equipment (Steel/HVAC/Elec)	123d	25-Oct-21*	26-Apr-22	
802204HTVK001	204 - Install all Compartment Hotwork incl. hull outfit/walkways/elec seats	60d	01-Nov-21*	01-Feb-22	
802204ELEC003	204 - Electrical cables - Reeve to Band Cables	152d	10-Nov-21*	23-Jun-22	
802204PPE003	204 - Pipework Testing	85d	15-Nov-21*	22-Mar-22	
802204HVAC001	204 - Install HVAC & Hangers	19d	22-Nov-21*	16-Dec-21	
802204HVAC002	204 - HVAC Testing	13d	30-Mar-22*	19-Apr-22	
Zone 05 Outfit					
		122d	29-Nov-21	31-May-22	
802205HTVK001	205 - Install all Compartment Hotwork incl. hull outfit/walkways/elec seats	25d	29-Nov-21*	11-Jan-22	
802205HVAC001	205 - Install HVAC & Hangers	40d	13-Dec-21*	15-Feb-22	
802205HVAC002	205 - HVAC Testing	34d	05-Jan-22*	21-Feb-22	
802205PPE001	205 - Install Pipework	72d	19-Jan-22*	03-May-22	
802205EQUI001	205 - Install Equipment (Steel/HVAC/Elec)	53d	09-Feb-22*	26-Apr-22	
802205PPE003	205 - Pipework Testing	67d	09-Feb-22*	17-May-22	
802205ELEC003	205 - Electrical cables - Reeve to Band Cables	64d	28-Feb-22*	31-May-22	

Block Erection Status - 802

Blocks 50 & 51 craned on board the vessel, prior to starting erections joint hot work when resources become available. Work continues on the fabrication of aluminium superstructure in the lower fabrication shed.

FMPG has, for the time being, abandoned any work on deck 5, further delaying the revised consolidation erection program.

Hull 801

Wheelhouse Navigation

Communications and Safety Console Installation

Work has not started on the agreed [redacted] equipment upgrade, the ongoing works to outfit the bridge area should in no way be considered as being performed in a controlled environment, aluminium grinding particulate covers most surfaces and will contaminate the safety critical equipment and cabinets. Correspondence has been entered into with FMPG the outcome of which is still awaited.

While window installation continues, access to install an underslung scaffold to facilitate the installation of the outermost port and starboard bridge wing windows has been restricted due to inclement weather. Our onboard patrolling inspections have identified a significant number of localised points of burn damage to the installed glazing units as a result of insufficient protection, which is disappointing given that CMAL raised the possibility of damage to installed windows several months ago but went unheeded. Following cleaning, the yard will conduct a detailed survey and report their findings.

Additionally, we notice that the window washing unit has been installed in the void beneath the bridge. The position chosen gives insufficient access for maintenance.

Ongoing External Structural Works

Panama Eyes

On-going work stalled because of poor weather. Work started on removal back in week 33, work remains to be completed as of week 43. Scheduled completion of this work (801Z05HTWK001) was planned as 29th November 2021. Bad weather has delayed their subsequent installation onboard.

Modified Mooring Rope Bits

Modification works to increase the height dimension is now complete, all units have now been installed on the forecastle.

Hull Belting

On-going work stalled because of poor weather - Planned completion of hot works in zones 1,2 & 3 is respectively 9 December 2021, 30 July 2021 and 16 August 2021. Arguably this work should have been a component deliverable of the 7th of May 2020 milestone claim for structural completion. Work is currently abandoned because of bad weather.

External Deck Coating Works

On-going work stalled because of poor weather - Uncoated structural components remain open to the elements for the second winter season, please [redacted] to gain a full understanding.

Forward And Aft Masts

Remaining structural and outfitting works are on hold because on continued poor weather conditions.

Clam Shell Door Installation

Work has progressed well this period, the first trial opening of the doors has now been attempted, a few issues remain to be resolved prior to the arrival of the TTS OEM on the 6th of December. It should be noted that the door movement was achieved by using external jacks, not the dedicated vessel hydraulic system.

Main and Auxiliary Engine Exhaust Resilient Supports

Works are ongoing, OOR's have been raised against several significant defects that must be progressed in line with the building programme to ensure the installation is fit for purpose, the yard is expected to prioritise this work in support of first start of main and auxiliary engines.

Structural Compensation of Pipe Transits

Work is ongoing to fit compensation pieces in all affected areas. This work's out of sequence impact is hugely damaging to the progress of works set out in the master schedule. The delay impact will significantly impact the earliest date at which testing, and commissioning works can start. This hold point is not factored into the current planning philosophy.

Structural Plenums

Work continues in the fabrication of structural plenums. No reference is made within the level 1 baseline program as to when this work is scheduled to be completed.

Deadweight Issue

Update expected week 50 during FMPG project update meeting.

Glen Sannox Piping

LNG

No progress is reported this period

Zone 2 Machinery Space Isometric Pipe Installation

At the time of writing 7,031 pipe spools still need to be fitted to complete the installation on Glen Sannox. Work continues at a slow pace, largely as a result of long overdue design solutions to technical queries driven by poor model accuracy. Onboard observation flags the complexity of the remaining works will warrant significantly longer installation times per spool. A normal installation would typically factor between 5 and 10 hours per spool, we now typically see this as closer to 20 hours per spool (typically 2 workers are needed to install each spool).

[redacted]

The ongoing baseline program completion date overrun is currently reported as 170 calendar days in delay. Unless the Yard takes immediate action to recover this delay through

acceleration measures there is little likelihood that commissioning will start until early February 2022.

Piping, Cable & Transformer Space - 0303

Minimal production progress is again reported over this reporting period. The overall level of piping completion this period; penetrations through to the P&S stabiliser spaces are now complete allowing final spool pieces to be installed for some transiting systems. Progress is assessed to remain at 85% for mechanical installation. The late procurement of glycol system valves and pipe spools is now averted, and work has restarted on the installation. Work to install the [redacted] stainless steel press fitted pipe for the [redacted] is underway, the standard of installation is not in line with the makers installation guidelines. Late installation of the LNG liquid pipe transits, and a lack of available resources to complete this area remain the principal issue faced by the yard. Scheduled completion of this area was planned as 16th August 2021 and is still to be met.

Forward Machinery Space (0402) – 801

Work has mainly stopped in this area, assess is hampered because of installed scaffolding. Furthermore, we assume that this is driven by late procurement of key components, pipe installation was scheduled to be completed 31st August 2021, hot work was scheduled to be completed 03rd September 2021, HVAC testing is also scheduled to be completed as well of 13th August 2021.

Central Hydraulic System Installation - 801

Work has started on the pipe installation, the main header is now run from the sewage treatments space (0304), through the pipe, cable and transformer space (0303), initial feedback is the installation standard is high, progress is slow as the contractor is unavoidably forced to await the shipyard driven hot works (bulkhead penetrations, support attachments to tank tops etc.) be completed. Many co-ordination issues have prevented pipe runs in the machinery spaces from following the 3D model coordination routing. Site run pipes have now been installed that will likely impact the access to the main engine cylinder heads during routine maintenance procedures, the issue is under discussion with the yard.

Zone 2 Walkways - 801

At the time of writing the yard has appointed an external contractor to review what improvements can be made to the onboard installation, their findings are awaited.

Electrical - 801

The electrical contractor has continued to run low-voltage wire in the workshop and forward auxiliary facilities.

As of week 48, the advice given at the Week 42 FMPG Project Meeting that mainline cable pulling will commence in week 43 (rather than the initially scheduled week 36) had not materialised. However, it should be noted that [redacted] has directed the vessel to be inspected by an advanced survey team prior to beginning this task.

Cable trays and ladder racks continue to be installed on decks 5/6/7. It should be noted that the cable tray utilised is extremely thin gauge, and additional support will be required to guarantee the proper installation standard is met.

[redacted] structural workers are completing the missing links in the emergency generator room cable routing by installing cable transit spigots rather than MCT glands.

[redacted] personnel continue to work on the [redacted] modification of the engine control room's main switch boards.

FMPG has awarded [redacted] the contract for switchboard cleaning. The initial cleanup occurred during week 46.

HVAC Installation - 801

Work is progressing on deck 7, the standard of installation is satisfactory, it is very likely that the remaining installation of chilled water, re heat pipe work and cable tray installation will warrant the partial takedown of installed ducts as a result of poor modelling detail.

Cardinal Date Status

Milestone' Completion of Car Deck Recesses' originally due 9 April 2021 and is now claimed as complete 7 May 2021, is now scheduled to be complete 24 May 2021 under the guidance set out in the re-baselined programme. The balance of work needed to complete the remaining 17 structural recesses remains to be started. The programme slippage currently stands at 158 calendar days. [redacted]

Work to complete the claimed milestone of structural completion claimed 7 May 2021 remains ongoing. Many other areas need to be worked and completed to achieve 'full' Steel/Aluminium Structural Completeness. Examples are, 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 and the cutting / opening of bow doors and associated major structural works.

Aft Mast: As of week 21, 2021, milestone completion claimed 7 May 2012. 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 or the requirements set out in the contractual specification.

Belting: Milestone completion claimed 7 May 2021; As of week 30, 2021, work remains incomplete on the starboard side of the vessel, work has been progressed this period to complete the port aft belting, this is not expected to complete until week 34, 2021. Programme slippage currently stands at 115 calendar days.

9.0 Next Stage Payment Due

n/a

10.0 Forthcoming Period Events

The shipyard is scheduled to close on 23 December 2021 and reopen on 5 January 2022.

11.0 Tests & Trials Due

A revised programme of works has been issued for November 26th, 2021. All planned dates have either been missed or are not progressing as planned. Detailed comment is made in paragraph 8.0: Progress Against Programme.

12.0 Risk Register Update

The yard has advised that the risk management procedure has been restored and the updated register is now available from November 2021. It should be highlighted that the stakeholder-centric methodology taken in this process excluded input from this group.

13.0 Safety & Environmental

Figures updated by FMPG November 2021

Title	This Month	Cumulative
RIDDORS	0	0
Fatality	0	0
Lost Working day Case	0	5
Medical Treatment Case	2	24
First Aid Case	8	84
Property Damage	0	0
High Potential Near Miss	1	4
Near Miss	0	0
Fire Incident	0	0
Environmental Incident	0	0
Total Number of Recordable Injuries	0	1
Total Number of Days Lost	0	48

Figure 2 Data from FMPG November 2021 Project Report

Print Name: [Jim Anderson]

Signature:

Date: [14 January 2022]

[redacted]