																£2,260,000	£11,125,000		
‹ Register 801													Sep-23						
Risk No	Risk Category	Risk Name	Risk identified by:	Risk Owner	Risk Description	Pre-mit. Impact	Pre-mit. Likelihood	Pre-mit. Risk Score	Pre-mit. Ranking	Mit./Action Planned	Action Owner	Post-Mit. Impact	Post-Mit. Likelihood	Post-Mit. Risk Score	Risk Premium Min	Risk Premium Max	Monthly Risk decrease/(increase)	Explanation
	Contract Queries	Contract Queries		[	Legacy subcontractor costs continue to surface ie HB circa 2900 man hours owed for previous works. [R cable for 802 used on 801.	[	[	[		1. New process implemented for capturing costs. 2. Sit down with Subcontractors to establish/ confirm previous costs.	1. [RED	[	[	200	[		[RED	Potential for legacy costs to materialise from each subcontractor ie [RE ram register [R Potential for subcontractors to request revised norms. Potential for
P10-801	Production	Cost of Delay	[R	[R	Additional Overhead and SG&A, due to risks materialising and causing delay. 0-6 months for 801	[				Project management and continued focus to minimise risk.	1. [REDA	[					[RE	Potential programme extension from 3 months to 6 months due to ongoing change. NEEDS UPDATING ONCE CTG TIMESCALES ARE CONFIRMED
C7-801	Compliance	Design Consolidation	[R	[RE	Machinery escape non compliance	[				1. LR Escape Analysis conducted confirming AS built arrangement escape meets the statutory escape times. 2. Robust design justification paper submitted 3. Site survey by MCA completed 4 New solution currently being worked up by Engineering for submission to MCA.	1[RE	[					[RE	Site surevey costs, Manufacturing and installation costs now projected along with subcontractors costs. Addtiotional works for sub con pushing overall projection higher.
C6-801	Compliance	Design Consolidation	[R	[RE	An alternative Design arrangement submission (MSF 1261) relating to Secondary escape routes from passenger Observation lounge has been submitted to MCA for Equivalence to FFS Code requirements DH 15/5 - updated supporting documentation submitted to MCA following intial review prior to Glasgow office endorsment for HQ review. DH 5/6 - confirmed by MCA glasgow office MSF1261 now authoirsed by local office for HQ southampton final approval.	[				1. LR Escape Analysis conducted confirming AS built arrangement escape meets the statutory escape times. 2. Robust design justification paper submitted 3. Site survey by MCA completed 4 New solution currently being worked up by Engineering for submission to MCA.	1[RE	[					[	Now [
[-801	Engineering	Hull Vibration		[REDA	There is a theoretical risk of a potential global hull vibration issue at a frequency range of 14.5- 15.6 Hz. This natural frequency is close to the 1st order blade passing frequency of 15.0 Hz propeller frequency(s) causing undesirable Hull vibration in operational service	[				1. FMPG/Specialist contractor to prepare 'what if" scenarios with recommendations/mitigations extending to increased/decreased Propeller PPM and Propeller configuration arrangements (Cost/Time) 2. Conduct sea trails analysis to provide definitive NF and vibrational analysis.	1[REDA	[						
P2-801	Production	Sub-Contractor [RE	[R	[R	Sub- Contractor [RE 25% progress vs 65% Programme not aligned to commissioning plan, Sept 2022 currently at 50%	[				1. Recovery Plan now reviewed and monitored. Cable install now on track. G&T and testing behind plan.	1. [REDAC	[						
P5-801	Production	[RE Duel Fuel Generators & Engines	[		[RE - Duel Fuel generators and engines. Pre run checks to pull a liner from each machine and also split and service the main turbochargers causing delay to programme.	[				Meeting arranged to discuss solutions, work to potentially take place after commissioning and sea trials. Sept 2022 solution in place, DF engineers and generators, end Nov 22, early Dec22. Pre run service now complete. Contract requirement for pulling liners still theoretical i.e. demonstrated on 3D modelling, still requires to be physically proven. this will be done during sea trials.	[REDACT	[						
SC8-801	Supply Chain	Part numbers	[R	[RED	NEW RISK - APRIL Limitec[numbers available for materials and equipment purchased previously creating issues/delays in identifying material/equipment in warehouse.	[				1. Purchase orders with insufficient information to enable receipt to be communicated to Andy Crossan. 2. Andy to send technically SQEP person to support.	[REDAC	[						

P9-801	Production	Quality	[		Emerging quality issues/ Sub Standard of work produced from areas were it be FMPG or subcontractors.	[				1. Firstly to be agreed if works meets requirements. 2. Quality to sign off or raise NCR. 3. Subcontractors to be closely managed with work signed off from FMPG rep.	1. [REDACTED]	[REDACTED]						Ongoing quality issues uncovered as systems become live, also from Client patrol remarks.
E2-801	Engineering	801 Engineering		[R	Design Maturity, consolidation of design and management of change poses a risk to the delivery plan	[				1. Realign Engineering team structure 2. Strict control and ownership structure for change control processes 3 Restructure of Liaison, and QC teams to	[REDAC	[						
C2-801	Compliance	Project		[RED	There is a risk of delay (cost and schedule) due to OOR rectification, CMAL, class or statutory findings as the build program matures. Residual risk from OORs relates now to impact on through life maintance and its tolerability to CMLA/Calmac. Until this exercise is concluded by CMAL the Risk	[				1. All remaining Open CAT 1 and OORs discussed and actioned at weekly meeting with CMAL All WIP OORs to be managed through project/planning as WIP 2. Regular engagement with CMAL/LR/MCA to derisk and identify potential issues. 3. OORs now in production and being	[RED ACTE	[						
P7-801	Production	Cryogenic Pipework	[	[R	Cryogenic pipework purging takes longer than planned - liquid phase 75%. Concern is the installation of the Bronesxe pens. GAS phase gas pipes to be NDT awaiting on [R to confirm and [REDAC (Sub-contractor for [R will not come on site. Need date [RED based in France to come on site. Systems designed by [R and installed [RED Material specifications a concern.	[				Re-engagement with [REDACTE now in place.	[REDACTED]	[						
C5-801	Compliance	Spares, tooling, manuals & certification		[REDA	NEW RISK - APRIL checks on stock held in [RE stores relating to spares and tooling show deficiencies/not located/missing or incomplete for equipment originally purchased (legacy) creating issues/delays to re-order/replenish to supply Glen Sannox with final ships fit for Delivery, Similar trend identified on investigation with manuals and certification which will require re-issue from suppliers (paper ship)	[				1. Inventory checks with SQEP persons (FMPG/CMAL/Calmac) focused on spares/tooling based on "agreed spares" database from 2018. 2. Back fill from 802 to support 801 delivery 3. Generate purchase orders with insufficient information to replenish missing parts/transferred parts from 802 4. Engineering to plan and identify "paper ship" delivery	1. [REDA [RE	[						
P1-801	Production	Design Consolidation	[	[R	Design Consolidation - Production will continue to identify errors and gaps in design which will lead to TQ's and changes	[				1. Restructure of engineering and direct link into production, Andrew Milligan now embedded within Production & Engineering Teams	1. [REDA					[RE		Re-emerging change and modifications required.
C4- 801	Engineering	Regulation		[REDA	Certification CA marking UK, 'Red Ensign' change for UK flag from MED Wheelhouse marking came into force for equipment manufactured after 1st Jan 23. Engineering asseing impact and Vendors engaged. MCA Point of Contact (SME) identified and we work through this new requirements. Therefore Risk premium increase at this time until impact (if any) quantified/known. potential impact on new equipment supply chain	[				1. conduct regular discussions and meeting with Classification society staying abreast of any rule amendments 2. Conduct regular discussions and meeting with Flag state (MCA) society staying abreast of any rule amendments 3. conduct regular discussions and meeting with CMAL staying abreast of any rule amendments 4. MCA point of contact identified to support FMPG/Vendors/supplier navigate the Red Ensign requirements. (risk profile/premium increased accordingly)	[REDAC TED]	[						
P3-801	Production	Commission 3 key areas	[	[R	1) Main Machinery Space 2) Navigation Systems 3) Comms System Commissioning of 3 main systems	[				1. Weekly commissioning meeting in place monitoring issues and progress	1. [REDAC	[						
E4-801	Engineering	Noise & Vibration		[R	There is a theoretical risk that in two areas within the aft lounge (Deck 5, aft) and the aft crew cabins (Deck 6 aft) noise and vibration levels will be outwith PCAC2 notational levels as highlighted in the original Noise and vibration analysis by [report 6355535 Rev 1 dated 29th June 2017. resulting in the need to modify insulation/shielding arrangements in these areas Noise report now completed by BV with no major outputs being highlighted.	[				1. FMPG review the highlighted Noise and Vibration (N&V) issues by [2. FMPG prepare a N&V commissioning document to validate contract items during sea trials. 3. FMPG approached [o prepare a quotation to undertake N&V trial steps, including [opinion of re-doing original report based on current GA/insulations arrangements. Correspondence with [is ongoing 4. Conduct sea trails analysis to provide definitive noise and vibration measurements. 5. Act locally and accordingly to mitigate excess vibrations in measured areas. Specialist contractors arranged to be onsite during basin trials	1. [REDA	[						

E3-801	Engineering	801 Engineering		[R	There is a risk that principle contractual requirements may not be achieved i.e. deadweight, stability, performance (speed/power), which may impact on classification or passenger certification. failure to meet contractual spec due to OORs incomplete and non compliant	[				weight/stability 1. Contract support from 3rd party (tri-tech) to validate existing models/assumptions 2. Engage [for validation of 'as is' 801 Model and populate ships model with weight data. 3. Readiness for Incline test 4. introduce rigorous weight control process	1	[REDACTED]	[					
C3-801	Compliance	H&S		[RED	Bunkering & Safety case for FM(PG) handling and bunkering LNG - no experience DH 7/4 - MCA engaged as part of Sea trials readiness. CMAL/CalMac/FMPG meeting held 30/3. actions relating to all elements of bunkering/crewing discussed. until outputs known risk premium remains at this time	[				1. Engage CMAL for support as have experience in readiness for accepting LNG in service. 2. Contract [REDACT to provide HAZID & HAZOP for newbuild bunkering and handover. 3. Implement the necessary training and HSE control measures ensuring: - Firm schedule required for trials and early engagement with crewing companies. - CMAL to be approached to review possibility of using CALMAC crew - LNG training of FMPG (Commissioning and Operations) - LNG ticketed chief to be identified and engaged	1	[REDACTED]	[					
SC7-801	Supply Chai	Car deck Doors		[R	New Risk- Jan 23 Due to delayed design and engineering work, the order for Car Deck Doors was delayed until January 2023, with a 4 month lead & delivery time, the estimated delivery will be end of May 2023 - fitting still to be arranged. Update, due to discussions with Engineering to resolve issues, the date has been set back now to Mid June Further delays have been encountered due to certification issues - ongoing order management with the supplier, estimated delivery end of June 2023	[				1. Ordered with supplier and urgency detailed in discussions with the supplier. 2. Delivery date to be detailed in advance allowing transport to be arranged. 3. When manufacture of completion date is known, transport will be deployed by fastest means to ensure earliest delivery. 4. Maintain close contact with supplier and engage in expediting activities to sensor soonest delivery date. 5. MCA have not engaged in certifying CDD despite email and call from both the manufacturer and FMPG - Now in danger of further delay or certifying on site at FMPG.	[RED ACT		Captured in engineering Risks		[			
SC6-801	Supply Chai	NCAs		[R	New Risk - March 23 Unable to compete requirement for a variety of reasons including single source or customer specified. Values over £200k requires Scottish Government with 20 days for approval. Potential delays to completion.	[				1. Compete requirements to demonstrate competition 2. Provide clear SOW to Procurement as per schedule	1	[REDA				[REDACTED]		
SC5-801	Supply Chai	Material Management		[R	Minimal fixed pricing/Minimal Pricing	[				1. Full stock check currently underway 2. BOM/SOW required 3. Engineering team assessing condition of material to BOM/SOW 4. Order materials ensuring lead times are aligned with the programme schedule. 5. More PINs and frameworks being implemented with reviews of existing SG and other frameworks that can be used	[REDAC TED]		no longer a risk				[RE	
P6-801	Production	Procurement Process	[	[R	Procurement Process Delays	[				1. Implementation of min/max 2.Single source award -see NCA risk - SC6-801	[REDAC		no longer a risk				[	
C1-801	Compliance	Quality		[REDA	There is the risk of breakdown or failure of equipment during commissioning caused by defective, damaged, sabotage, care & protection, installation & workmanship DH 7/4 - noting the Prime mover	[				1. Planned maintenance activities 2. OEM inspections and surveys 3. Commissioning STW activities 4. Care and protection audits 5. Toolbox Talks	1.	[REDA CTED]			0		[	
P4-801	Production	Sub-	[RE	[	Lack of engagement from [RE programme required. potential 3 month installation period. Need to initiate ASAP	[				Procurement to engage with [RE programme required and completion date for works. Refurbishment of materials. Sept 2022 arrangement for uplift in progress. Material now returned from [RE and installation has commenced. now awaiting revised plan. Revised plan now received.	1	[REDA		no longer a risk			[	
SC2-801	Supply Chai	Obsolescence		[R	Equipment obsolescence may become a problem following the length of time the equipment has been on-site	[				New Risk Identified 1. Review existing contracts/frameworks to assess if include obsolescence mgt and spares 2. New contracts/frameworks for 802 to include obsolescence management and spares	1/2.	[RED		no longer a risk			[	

New Risk Register 802

													Aug-23			2,260,000	14,850,000	Sep-23			£2,970,000	£18,450,000		
Risk No	Risk Category	Risk Name	Risk identified by:	Risk Owner	Risk Description	Pre- Mit. Impact	Pre- Mit. Likelihood	Pre- Mit. Risk Score	Pre-mit. Rankin	Mit./Action Planned	Action Owner	Post-Mit. Impact	Post-Mit. Likelihood	Post-Mit. Risk Score	Risk Premium Min	Risk Premium Max	Post-Mit. Impact	Post-Mit. Likelihood	Post-Mit. Risk Score	Risk Premium Min	Risk Premium Max	Monthly Risk decrease/(increase)	Explanation
SC6-802	Supply Chain	Subcontract Contracts		[R ED	Subcontractor price increases	[				1. Review 14 existing subcontractor requirements ensuring all requirements captured 2. Engage legal advice on framework and contracts 3. Agree subcontract strategy across 14 subcontractors acknowledging some have already procured material 4. Issue PINs where required 5. Issue frameworks/contracts for subcontractor requirements 6. Work out with process and follow requisition process (this process is been applied to [R ED)	1/2/4/5. [R ED AC	[										[REDACTED] much will be justified because of design maturity, avoiding re-work, however 50% of this difference allowed for
SC1-802	Supply Chain	Material Management		[R ED	Material required for completion of 802 (costs to go) has increased costs, long lead times and may have already been used on 801	[				1. Full stock check completed 2. Clear scope of work provided 3. Order materials based on clear SOW ensuring lead times are aligned with the programme	[R ED [RE	[											
SC7-802	Supply Chain	NCAs		[R ED	New Risk Unable to compete requirement for a variety of reasons including single source or customer specified. Values over [R requires Scottish Government with 20 days for approval.	[				1. Compete requirements to demonstrate competition 2. Provide clear SOW to Procurement as per	[RE DA CTE	[REDACTED]											
SC3-802	Supply Chain	Inflation/Currency		[R ED	Suppliers costs will inflate particularly on fuel, stainless steel and aluminium and unable to be fixed due to weakened GBP	[R				1. Framework agreements with agreed terms including management of inflation.	[RE DA	[											
SC2-802	Supply Chain	Obsolescence		[R ED	Equipment obsolescence may become a problem following the length of time the equipment has been on-site	[				1. Review existing contracts/frameworks to assess if include obsolescence mgt and spares 2. New contracts/frameworks for 802 to include	[RED ACT	[											

[REDACTED] **Head of Engineering, (18th September 2023)**

Executive Summary.

The main focus for Engineering over August was to deliver an acceptable solution for the secondary escapes in the crew and passenger accommodation areas. An approved MSF1261 for the secondary escapes was received on the 30th of August. Production drawings were created at risk and released in advance of the acceptance to allow onboard work to proceed. All pertinent information has been conveyed to subcontractors and material requisitions raised. An evacuation analysis is currently underway with [REDACTED] All [RED ACTED] and MCA related drawings have been updated and are ready for final submission.

In addition to the issues with the accommodation area escapes we continue to work with the MCA to conclude with the non-compliant aspects of the machinery room escapes from below the bulkhead deck. The MCA confirmed on the 08/09/23 that an MSF 1261 would be required to cover the spatial aspects of the escape trunks, however, to date the MCA have been unable to clarify their position with regards to the routed systems through the escape trunks. A response on this issue was due on the 15/09/23 but is still pending. The MSF1261 for the spatial aspects is ready for submission subject to MCA clarification on door widths and insulation in the trunks.

The issues highlighted above are relevant for both 801 and 802 we continue to work with our design house [RED ACT ensure solutions are captured and implemented on 802. A review of the 802 status and validation of the implemented changes will occur with [R ED on site 19-20/09/23.

Modification sheets relating to the Mechanical systems have been passed over to the subcontractor to be implemented on board. These too have been caught on both ships with more comprehensive solutions adapted for 802 due to the lower completion status.

Engineering have supported with the identification of all required spares for the ships and associated vendor part numbers and drawings. This along with a list of spares already shipped to CalMac has been passed to procurement to obtain costs and lead times for spares where there is no history of having been purchased.

We have now released cable schedule 41, there should be no further cable schedule released for 801. The remaining car deck and lift doors have arrived, and electrical installation work can now commence.

Risks:

- MCA Acceptance and clarification of rules applicable to Escape Trunks remains the greatest risk to the Engineering schedule.
- Inclusion of all design changes and lessons from 801 in 802 presents a risk to be addressed during site visit by [R ED on 19-20/09/23.
- Support of sea trials and supply from SQEP.

[REDACTED] , 801 Ship Delivery Director, (18th September 2023)

Executive Summary.

Progress on 801 through to completion continues to be influenced by change and modification along with the **[REDACTED]**

Modification of pipework systems has now moved into its production and installation phase with all known works targeted for completion by end of November. The continual influence of these activities being OOR's and Patrol Remarks.

Evacuation route modifications are underway with preliminary information made available which has allowed for the start of these works. However, completion will be influenced by the availability of long lead items such as doors, bulkhead finishings and general outfit materials.

Work associated with Machinery Escape Routes has been undertaken as much as possible without major structural and system changes. We await MCA decisions regarding scope to be completed.

Electrical Contractor **[RED** has now returned to site following six weeks of disruption. An agreed advanced safe method of working is now being implemented to restart commissioning activities. However, this disruption has resulted in slippage in our commissioning activities.

[RED has presented a completion date of 14th November for the finish of all major installation works with completion of testing by the end of December.

[REDACTED] A Weekly programme of reporting to **[RED** Main Board to be implemented this week to provide greater visibility to all stakeholders.

The programme for delivery of Glen Sannox has now been re-base lined as end of March 2024 as a result of the additional evacuation routes. An update will be issued once the extent of work to be undertaken and delivery of materials has been established.

Discussions with Peel Ports have taken place to explore the move of Glen Sannox to **[REDAC** layup Basin, agreement now in place if required. Revised Drydocking date of 18th December has now been booked at **[REDACTED]**

Challenges moving forward:

- Completion of the electrical installation and management of a **[REDACTED]** .
- Evacuation analysis influence on programme.
- Address change / modifications.
- Addressing the technical definition associated with the LNG pipework installation.
- Sea Trials – taking the vessel on sea trials & results which may influence handover.
- Cost to Go.

Ref: **[REDAC**

[REDACTED] **802 Ship Manager Delivery, (19th September 2023)**

Executive Summary.

Progress on 802 :-

- Shaft Programme currently fitting port rudder housing/outer stern tubes for port shaft.
- [REDACTED] currently on-site observing installation thruster prop blades.
- Continued the installation of the steering gear walkway support frames.
- Commenced cutting into deck 2 aft end above the aft thruster for the cargo hatch 300, tapping ring fitted inside cut-out, currently fitting bulb bar stiffeners on the underside of the deck, holes will be drilled/tapped once all the welding has been completed.
- Completed PLF 08/ walkway in 701 up-take, currently fabricating the remaining PLFs/walkways for 701 up-take.
- Completed the installation of the HPU walkway.
- Fabricating and fitting new platform in the starboard gun port.
- Commenced the installation of the S.T.P. walkway.
- Fabricating/fitting large foundations in the damage control room.
- Fitting/drilling/tapping holes for the floor plates in the AMS, handrails fitted as well.
- Commenced fabricating the bow thruster walkway support frame.
- Re-commenced the fair-line heating on the starboard shell 600mm above deck 4 from frame 24 going forward.
- All 9 sections of the bridge walkway have been lowered into their location: minor modifications ongoing on the 3 forward sections of walkway for fit-up.
- Continued with reviewing & surveying work packs and checking the work sites for progress.

Challenges moving forward:

- 801 change not captured for 802.
- Material availability.
- Weather/water Ingress/scuppers.
- External Hull painting.

[REDACTED]