Here is the hierarchical tree format of the assurance case for the BlueROV2 system:

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- G1: Hazards for BlueROV2 system addressed in accordance with ALARP principle. (undeveloped)

- S1: Argument by risk reduction/elimination of each hazard.

- G2: No intolerable risks present in the system.

- C1: Definition of "intolerable"

- S2: Argue that risk posed by any remaining hazards is negligible. (undeveloped)

- S3: Argue that no other risks have been identified. (undeveloped)

- G3: Risk from collision hazard has been reduced as low as reasonably practicable.

- C2: Assigned severity class is critical

- S4: Apply ReSonAte to estimate level of risk from hazard condition collision hazard

- A1: Function safety control required by the BTD is available

- G4: Model Bayesian Threat Diagram (BTD) accurately describes possible propagation of hazard collision hazard.

- G6: Possible hazard propagation paths correctly captured in BTD. (undeveloped)

- G7: Barriers in the BTD correctly describe their respective control action including any required system functions. (undeveloped)

- G8: All non-negligible threats have been identified. (undeveloped)

- G5: Quantitative risk estimates are accurate and below acceptable threshold.

- G9: State probability distribution used for risk estimation is an accurate representation of expected system states. (undeveloped)

- G10: Estimated probability of critical consequence is below allowable threshold for severity class.

- Sn1: Estimated risk level RiskEst

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In this tree:

- Each dash (-) indicates a new level in the hierarchy.

- Text in parentheses indicates the element’s status, such as undeveloped or containing placeholders.

- Placeholders have been instantiated where necessary for the specific assurance case.