Using the assurance case pattern provided and the domain information for the BlueROV2 system, the instantiated and structured assurance case in GSN format is represented hierarchically as follows:

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G1: Hazards for "BlueROV2 System" addressed in accordance with ALARP principle.

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)

G3.1: Risk from "Deviation from the operating area" has been reduced as low as reasonably practicable

- C2: Assigned severity class is "Minor" (uninstantiated)

- S4: Apply ReSonAte to estimate level of risk from hazard condition "Deviation from the operating area" (uninstantiated)

- A1: Function "obstacle detection" required by "BTD for Deviation" is available (uninstantiated)

- G4: Model "BTD for Deviation from the operating area" accurately describes possible propagation of hazard "Deviation from the operating area" (uninstantiated)

- 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 "collision" is below allowable threshold for severity class "Major"

- Sn1: Estimated risk level "0.001 per hour" (uninstantiated)

G3.2: Risk from "Obstacle encounter" has been reduced as low as reasonably practicable

- C2: Assigned severity class is "Major"

- S4: Apply ReSonAte to estimate level of risk from hazard condition "Obstacle encounter"

- A1: Function "command authority" required by "BTD for Obstacle" is available (uninstantiated)

- G4: Model "BTD for Obstacle encounter" accurately describes possible propagation of hazard "Obstacle encounter" (uninstantiated)

- 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 "collision" is below allowable threshold for severity class "Major"

- Sn1: Estimated risk level "0.001 per hour" (uninstantiated)

G3.3: Risk from "Loss of pipeline" has been reduced as low as reasonably practicable

- C2: Assigned severity class is "Minor" (uninstantiated)

- S4: Apply ReSonAte to estimate level of risk from hazard condition "Loss of pipeline" (uninstantiated)

- A1: Function "avoidance logic" required by "BTD for Loss of Pipeline" is available (uninstantiated)

- G4: Model "BTD for Loss of Pipeline" accurately describes possible propagation of hazard "Loss of Pipeline" (uninstantiated)

- 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 "collision" is below allowable threshold for severity class "Minor"

- Sn1: Estimated risk level "0.001 per hour" (uninstantiated)

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This structured tree represents the instantiation of the general assurance case pattern specific to the BlueROV2 system, incorporating system components and terminology specific to its operation and safety requirements.