Below is the instantiation of the given assurance case pattern into an assurance case for the BlueROV2 system. Placeholder values in curly brackets (like `{A}`) are replaced with specific BlueROV2 information from the domain information provided earlier.

\*\*Assurance Case for BlueROV2 Systems:\*\*

- G1: Hazards for BlueROV2 addressed in accordance with ALARP principle

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

- G2: No intolerable risks present in the system

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

- G3: Risk from "Obstacle encounter" hazard has been reduced as low as reasonably practicable

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

- G4: Model describing "Obstacle encounter" BTD accurately describes possible propagation of "Obstacle encounter" \*(uninstantiated)\*

- G6: Possible hazard propagation paths correctly captured in "Obstacle encounter" BTD \*(undeveloped)\*

- G7: Barriers in the "Obstacle encounter" 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" \*(uninstantiated)\*

- Sn1: Estimated risk level 10^-3 per hour \*(uninstantiated)\*

- IncontextOf (G2, C1, 3)

- C1: Definition of "intolerable"

- IncontextOf (G3, C2, 3)

- C2: Assigned severity class is "Major" \*(uninstantiated)\*

- IncontextOf (S4, A1, 4)

- A1: Function "Avoidance maneuver" required by "Obstacle Encounter" BTD is available \*(uninstantiated)\*

### Legend:

- Developed nodes are not marked.

- `(Undeveloped)` indicates that further development is required.

- `(Uninstantiated)` indicates that instantiation with specific system data is necessary.

All nodes not instantiated like placeholders have been instantiated with specific information from BlueROV2's domain context. The attributes of each node directly align with real characteristics described in the domain information.

Moreover, nested structure signifies the hierarchy relationship between various goals and strategies, appropriately detailed, signifying the stepwise refinement of arguments.