To instantiate the assurance case pattern for the BlueROV2 system, we will replace the placeholders and remove additional pattern decorators. Here is the instantiated assurance case:

### Instantiated Goals, Strategies, Contexts, Assumptions, and Solutions for BlueROV2 system

- Goal(G1, Hazards for BlueROV2 system addressed in accordance with ALARP principle.)

- Strategy(S1, Argument by risk reduction/elimination of each hazard)

- Goal(G2, No intolerable risks present in the system.)

- Context(C1, Definition of "intolerable")

- Strategy(S2, Argument by remaining risks is negligible)

- Strategy(S3, Argue that no other risks have been identified)

- Goal(G3, Risk from identified hazard has been reduced as low as reasonably practicable)

- Context(C2, Assigned severity class is Hazard Severity)

- Strategy(S4, Apply ReSonAte to estimate level of risk from identified hazard)

- Assumption(A1, Function required by BTD is available)

- Goal(G4, Model BTD accurately describes possible propagation of identified hazard)

- Goal(G5, Quantitative risk estimates are accurate and below acceptable threshold)

- Goal(G9, State probability distribution used for risk estimation is an accurate representation of expected system states)

- Goal(G10, Estimated probability of each consequence is below allowable threshold for severity class)

- Solution(Sn1, Estimated risk level: RiskEst)

- Goal(G6, Possible hazard propagation paths correctly captured in BTD) - (Undeveloped)

- Goal(G7, Barriers in the BTD correctly describe their respective control action including any required system functions) - (Undeveloped)

- Goal(G8, All non-negligible threats have been identified) - (Undeveloped)

### Hierarchical Tree Structure

- Goal(G1, Hazards for BlueROV2 system addressed in accordance with ALARP principle) - (Undeveloped)

- Strategy(S1, Argument by risk reduction/elimination of each hazard)

- Goal(G2, No intolerable risks present in the system.)

- Context(C1, Definition of "intolerable")

- Strategy(S2, Argument by remaining risks is negligible) - (Undeveloped)

- Strategy(S3, Argue that no other risks have been identified) - (Undeveloped)

- Goal(G3, Risk from identified hazard has been reduced as low as reasonably practicable)

- Context(C2, Assigned severity class is Hazard Severity)

- Strategy(S4, Apply ReSonAte to estimate level of risk from identified hazard)

- Assumption(A1, Function required by BTD is available)

- Goal(G4, Model BTD accurately describes possible propagation of identified hazard) - (Uninstantiated)

- Goal(G5, Quantitative risk estimates are accurate and below acceptable threshold)

- Goal(G9, State probability distribution used for risk estimation is an accurate representation of expected system states) - (Undeveloped)

- Goal(G10, Estimated probability of each consequence is below allowable threshold for severity class)

- Solution(Sn1, Estimated risk level: RiskEst) - (Uninstantiated)

- Goal(G6, Possible hazard propagation paths correctly captured in BTD) - (Undeveloped)

- Goal(G7, Barriers in the BTD correctly describe their respective control action including any required system functions) - (Undeveloped)

- Goal(G8, All non-negligible threats have been identified) - (Undeveloped)

### Notes

- Each Goal, Strategy, Solution, Context, and Assumption has been instantiated with system-specific information for BlueROV2.

- Goals and elements requiring more detail or support are marked as "(Undeveloped)" or "(Uninstantiated)".

- The hierarchy includes the relationships and context as specified in the pattern.