To represent the assurance case for the BlueROV2 system using the provided assurance case pattern in a hierarchical tree format, each instantiated predicate is expanded according to the domain-specific details. Indentations with dashes (-) articulate the hierarchical structure, while underdeveloped or uninstantiated points are also noted.

@Assurance\_case

- 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 BlueROV2.

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

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

- C1: Definition of "intolerable".

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

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

- G4: Model Obstacle BTD accurately describes possible propagation of hazard Obstacle encounter.

- 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 10^-3 per hour.

- A1: Function obstacle detection required by Obstacle BTD is available.

- C2: Assigned severity class is Major.

@End\_Assurance\_case

Each predicate expands the specifics of the BlueROV2 system, incorporating notions such as specific hazards like "Obstacle encounter" and related control strategies noted in the domain information. Underdeveloped and uninstantiated elements denote yet-to-be-elaborated components which might be detailed further in actual practice to refine the assurance case.