



Incorporating STPA-Sec into GBSD's Contract

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First Step – Is this worth our time?

- 2018 – Six people trained in STPA-Sec
- Capability Development Document and Weapon System Specification
 - Mission statement, unacceptable losses, and high-level hazards
 - Found 40+ issues (inconsistencies, poorly written requirements, contradictions)



Step 2: Putting STPA-Sec on contract

- Incorporation into contract documents
 1. Directed Northrup Grumman to conduct STPA-Sec
 - *"All STPA-Sec hazards have been addressed and mitigation steps are included in the design necessary." GBSD Critical Design Review Exit Criteria*
 2. Directed the use of the STPA handbook as a reference
 3. Provided the mission statement, unacceptable losses, and high-level hazards
 4. Describing the basic steps

What is missing here?



Step 3: What does “done” look like?

The contractor shall deliver the following STPA-Sec deliverables to exit CDR:

1. Visual representation of the control diagrams of the examined functions/system
2. Detailed written and/or visual descriptions of the hazards control actions of control diagrams
3. Written description of the causal scenarios leading to hazardous conditions
4. Written description of mitigation measures taken to avoid/reduce/eliminate hazardous conditions/states

Depth of the analysis

- Northrup Grumman must examine mission, cyber, or safety critical functions.
- Communication/interactions/control actions between system components must be fully mapped and control loop generated



Step 4: Lessons Learned

- Require contractor to provide a STPA execution plan
- Require integrated product team participation/specify team size
- Develop a performance metric
 - Number of identified hazardous conditions
 - Number of STPA driven requirement additions or modifications
- Development of a MIL-STD-882F task for STPA



Questions?