No notes on this slide.
We’re still discussing SEP outputs and it’s time to focus on baselines.
We’ve said before that system development is iterative and divided into phases, with many outputs from one phase feeding directly into another.
The materiel developer, user, and contractor get a clear picture of the system from specifications – our expert technical translation of user requirements.

It is DoD policy to give first preference to developing and using performance specifications, which describe what function will be performed without necessarily describing how it will be performed. We feel this gives latitude for innovative solutions that we might not have thought of.

If it is not practical or effective to use a performance specification, a non-government standard should be used. If it is not practical or effective to develop and use a performance specification or non-government standard, a detail or military specification may be developed or used.

We had actually held a moratorium on the use of MILSPECs for about 10 years, because they were being used indiscriminately and presumably driving up cost.

You have seen the policy memo that lifted this “ban,” but we should still be judicious in what we specify. We should not “over-specify” what we want, and neither should we fail to be specific about what we do and don’t want the system to do.

The term “military specification” was largely eliminated and replaced by either “Performance Specification” or “Detail Specification.”

A performance specification defines the functional requirements for the item, the environment in which it must operate, and interface and interchange characteristics. Requirements in the performance specification shall describe what is required or the item's form, fit, or function. The performance specification shall not describe how a requirement is to be achieved, require the use of specific materials or parts, or give detailed design or construction requirements beyond those needed to ensure interchangeability with existing items.

The definition for a detail specification is also taken from MILSTD 961D. A specification that contains both performance and detail requirements is still considered a detail specification, unless the detail information applies only to interface requirements. Detail specifications shall specify materials, design or construction requirements, or "how to" requirements only to the extent necessary to ensure the adequacy, safety, and interchangeability of the item being acquired.
The Specification Hierarchy provides more detail on the types of specifications. Note the change to “name” specs and elimination of the “A, B, C, D, E” and their numbers, i.e., no more B-2, C-1 specs for new programs, although you may still find this convention on existing programs initiated prior to 1994.

Type of Specs selected are driven by things like:
- Level of control over design that is needed
- Technical or Log criticality of the item(s)
- Requirement for training documentation, etc.
This shows a sample flow-down of the type of information from the CDD to the item detail spec of a typical system. Many of us may have heard the different spec terms, but still don’t understand how the SE process goes from initial system concept to great detail at the end of the SDD phase.
Specs and Levels of Development shows the relationship between the types of specifications and the levels of development of the system. The key point here is that they need to be traceable between levels. In the preliminary design phase when we are developing prototypes, we are also developing “Item Performance”, SW or old B Specs for the Configuration Items.
Configuration Baselines

• Three DoD Types....
  – Functional - Sets the System Baseline
  – Allocated – The “Design To” Baseline
  – Product - The “Build To” Configuration

• VPM suggests a fourth baseline: “As-built”

These are the three types of system configuration baselines most commonly referred to. Note that these are all different from the Acquisition Program Baseline, or APB, which is our top level programmatic baseline of cost, schedule, and performance goals.
A functional baseline conveys our clear understanding of what our yet-to-be-designed system is supposed to do.
The allocated baseline conveys our understanding of what we are going to design, down to configuration item level, to fulfill all of our functional requirements.
The product baseline conveys our understanding of what we are going to build in production.
As might be intuitive, there’s a pretty direct relationship of baselines to specifications.
And there’s a pretty direct relationship of baselines to technical reviews.
This graphic shows the approximate arrival of baselines against progress across our acquisition framework model.
In summary, Systems Engineering is the process of how we technically describe the solution to the customers needs, and ultimately arrive at it. We have flexibility in our policies for how we are to comply with the prescribed use of this approach, as long as we do indeed employ it.