

Technical Evaluation, Operational Evaluation, Lessons Learned in Small Arms Procurement

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Introduction



- Operational Acceptance, as a requirement, is the best way to assure the product is “Mission Acceptable”. Our latest weapon systems (MK16, MK17, and MK13) had a strong user focus to allow multiple modifications to the design during various testing scenarios, thus ensuring the weapon system is the best it can be.
- The old way of only testing weapons in a laboratory environment has taken a back seat. As the value of operational testing becomes more familiar, we must learn to attain technical data from operational testing.

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Test Plan



- Test Phase I
 - Down select/Safety
- Test Phase II
 - User Assessment/Design Development
- Test Phase III
 - Pre-Operational Test/Design Prove-out
- Test Phase IV
 - Operational Testing/Final Design Review

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- Source Selection Testing
 - Go/No-Go type testing
 - Does it meet minimum requirements of the solicitation?
 - Safety testing
 - Does it meet the safety requirements to allow use by the operators?
 - User Assessment
 - Operational evaluation to assist in down select.

Major Components (Go/No-Go)



MK16



MK17



Accessories/Cleaning Kit



MK13 Ancillary Stock



MK13 w/Trigger Assembly



Magazines



Suppressor



Fire Control Unit



Bipod



BFA



Accuracy (Go/No-Go)

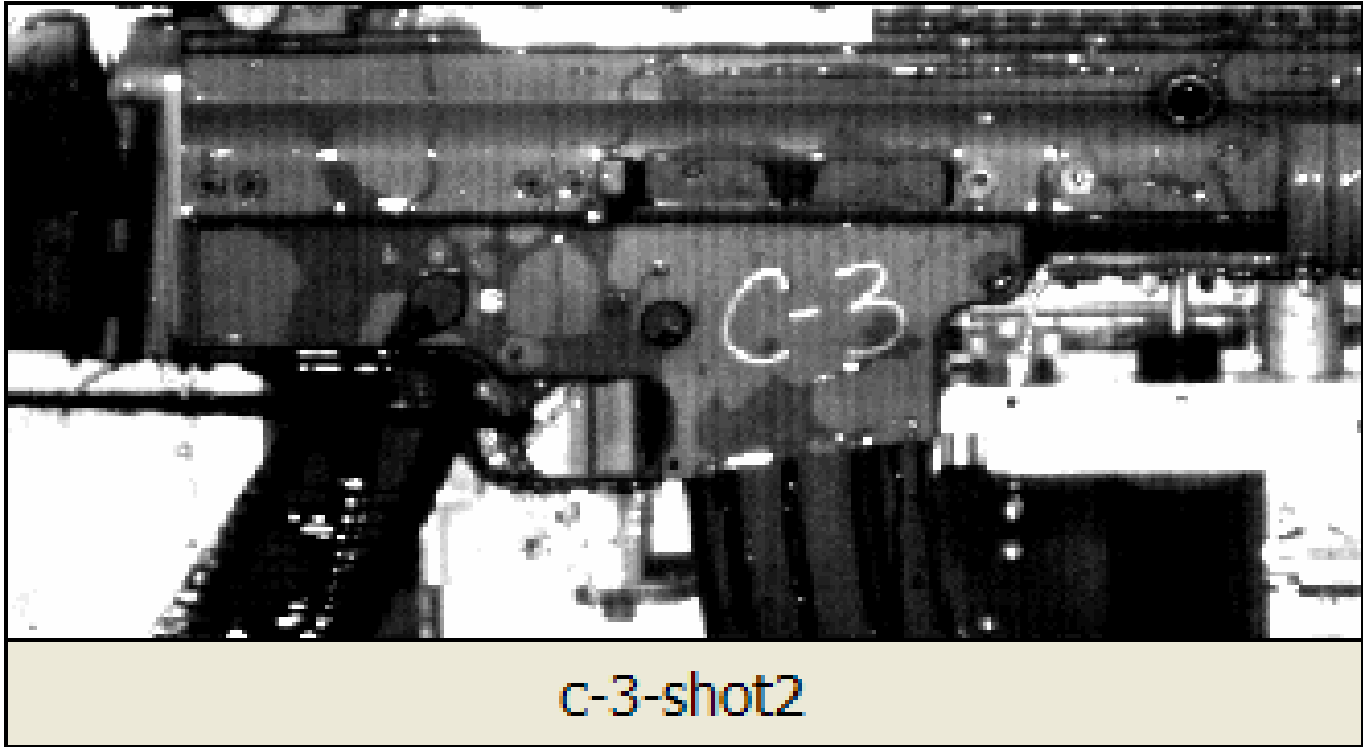


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Drain Time (Safety)



User Assessment



*Conducted at Camp Pendleton, Camp Billy Machen,
and San Clemente Island*



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- Go/No-Go testing was the first cut in the Source Selection Process.
- Vendors passing the Go/No-Go testing proceeded to Safety Testing to allow operators to complete an Early User Assessment of all the weapons.
- After completing the Early User Assessment by the Operators, the program was reduced to one vendor by the Source Selection Committee.



Engineering Review



- Following the Source Selection, an engineering review was conducted at the vendor facility. (Operators in direct contact with design team.)
- Vendor's project team met with Contracting Representatives, Program management, and Operators.
- Meeting was conducted to expedite the weapon development.
- Results from this review were implemented in the weapon design and samples were delivered for further testing/development.

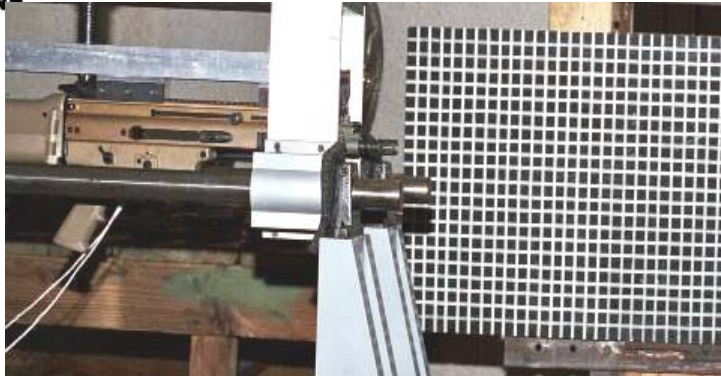
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- Prepare for Milestone C Decision
 - Technical testing
 - NAVSEA CRANE
 - ARMY ARDEC
 - NATICK
 - FN HERSTAL
 - Pre-Operational Assessment
 - Camp Billy Machen
 - San Clemente Island
 - Camp Pendelton



*Technical Testing
Conducted at NSWC Crane, IN*



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***Environmental Technical Testing
Conducted at US Army ARDEC, Picatinny Arsenal, NJ***



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JUMP CERTIFICATION
Conducted at NATICK



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CRANE



***Technical Testing
Conducted at FN HERSTAL***



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***Pre-Operational Assessment
Conducted at Camp Pendleton, Camp Billy Machen
& San Clemente Island, CA***



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MILESTONE C



- Milestone C was achieved at the end of Phase II allowing the program to progress to Phase III.

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- Prepare for Operational Testing
 - Additional testing used to verify any changes made prior to the Operational Test.
 - Camp Pendleton
 - Camp Billy Machen
 - NAVSEA CRANE



Operational Assessment
Conducted at Camp Pendleton & Camp Billy Machen, CA



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*Operation Assessment
Conducted at NAVSEA CRANE*



- Operational Testing
 - Final Testing Prior to Fielding
 - Fort Benning-Rangers
 - Camp Lejuene-MARSOC
 - Stennis Space Center-NSW
 - MCMWTC-NSW/SF
 - Avon Park



***Operational Testing – Urban
Conducted at Ft. Benning, GA & Ft. Knox, KY***



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***Operational Testing – Rural/Maritime
Conducted at Camp Lejuene, NC***



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***Operational Testing – Jungle/Maritime
Conducted at Stennis Space Center, MS***



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***Operational Testing – Mountain/Cold
Conducted at MCMWTC, Bridgeport, CA***



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Final Changes



- After conclusion of the many phases of operational testing, Engineering Changes were requested to satisfy the needs of the operator community.
- The design Engineering Change Proposals are implemented and tested in a laboratory environment.
- When changes are approved, a final test was conducted to confirm the changes in an operational environment.

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Closing



- Crane has done as much as can be accomplished to pull technical data from operational testing. We have combined developmental and operational testing to support technical testing goals. We have used this data to set the standards on the weapon for such things as parts replacement and service life in real world situations.
- This allows us to attain the data we have always needed, but now the data is attained from real world situations with operators, giving the data validity during use.





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