



# Analysis Summary



		Pit Type			
		W76 (Type 116)	W78 (Type 117)	W87 Reuse (MC3737)	W87 New (MC4597)
Pit Down-select Metrics	Security	Not a Discriminator			
	Safety			✓	✓
	Certification			✓	✓
	NEP Interoperability	Not a Discriminator			
	[Redacted]	[Redacted]			
	Reuse/Remanufacture Cost	✓	✓	✓	
Responsive Infrastructure				✓	

DOE  
b(3)



# Conclusion



- The W87 pit enables all threshold surety options.
- The W87 pit is certified and underground tested with IHE and detonator safing, which lowers certification risk.
- The W87 pit is fielded on the Mk21; studies indicate it will meet Mk5 environments.
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- A commitment to pit-building capability is essential to meet the W78/88-1 program requirements. The first steps have been taken as demonstrated in the NNSA FY2015-FY2019 Future Years Nuclear Stockpile Planning Budget.

DOE  
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**The NNSA choice is the W87 pit.**



# BACKUP



# Analysis of Alternatives



1. **Security:** Both pit types can be deployed with threshold or objective security
2. **Safety:**
  - Type 116/117 Pits:
    - Have not been fielded with IHE
    - Do not meet Fire Resistant Pit definition
    - Require retubulation for Multi Point Safety (MPS) implementation
  - ✓ W87 Legacy:
    - Has been fielded with IHE
    - Meets Fire Resistant Pit definition
    - Require retubulation for MPS implementation
  - ✓ W87 New: Would meet all safety requirements
3. **Certification:**
  - Type 116/117 Pits:
    - No direct underground tests with IHE, but some related tests
    - Certification basis will be established based on 3 pit-reuse UGTs, simulation, a series of hydrotests, and potentially subcritical experiments
  - ✓ W87 Legacy:
    - Six underground tests
    - Fielded with IHE
    - Is certified
  - ✓ W87 New:
    - ✓ W87 legacy UGTs are direct tests of W87 New design; simulation, hydro tests
    - ✓ Potential subcritical experiments will be used to verify performance



# Analysis of Alternatives



4. **NEP Interoperability:** Not a discriminator based on interoperability in either aeroshell

5. **Quantity and Availability:**

- ✓ Type 116 Pits: Enough to complete with no additional drawdowns
- ✓ Type 117 Pits: Enough to complete with modest stockpile adjustments of deployed W78-0s
- [REDACTED] DOE
- W87 New: Engineering development units only, produced in FY2013 b(3)

6. **Reuse/Remanufacture:**

- ✓ Type 116/117 Pits: Based on W76-1 work, the costs are less than \$2M/year
- ✓ W87 Legacy: Based on W76-1 work, the costs are less than \$2M/year
- ✓ W87 New: Highest cost alternative, incremental investment above Pu sustainment required through the end of LEP build

7. **Responsive infrastructure:**

- Type 116/117 Pits: Does not require responsive infrastructure
- ✓ W87 Legacy: Does not require responsive infrastructure
- ✓ W87 New: Building new pits is the only choice consistent with NPR commitments to modernizing an aging nuclear infrastructure