

Vulnerability of Spent Fuel Pools and the Design Basis Threat

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Design Basis Threat (DBT)

- The Postulated Threat is a document created by the Defense Intelligence Agency --- in conjunction with the U.S. intelligence community. It indicates a significant threat against nuclear facilities in terms of numbers of adversaries, lethality of weapons and size of truck bombs. This document should be the basis for the size of the DBT.

POGO based our recommendations on the size of the DBT on discussions with

- Army Special Operations units at Ft. Bragg
- Staff of the Scowcroft End-to-End Review of security of DOE and DOD nuclear sites
- Nuclear Command and Control staff
- Defense Threat Reduction Agency
- General Accounting Office
- NRC security staff
- DOE and NRC security contractors
- DOE Independent Oversight group

POGO recommended DBT

- Adversaries: 12 to 14 terrorists (squad size)
- Adversary weapons that should be included:
 - Rocket Propelled Grenades (RPGs)
 - .50 caliber sniper rifles with armor piercing incendiary rounds
 - platter charges
 - shape charges
 - automatic weapons
 - breaching explosives
 - and potentially shoulder-launched missiles
 - *The lethality of these weapons is demonstrated in a film produced by the DOE Oversight Group-“Systems Under Fire”

Possible Solution to Threat from Aircraft

- Barrage balloons, similar to those used in World War II, lofted around the perimeter of a nuclear plant site would likely divert an oncoming plane, and would not be prohibitively expensive.

How would an attack on a spent fuel pool take place?

- Surprise, speed and violence of action
- Special Ops personnel claim terrorists would use snipers to keep the pathway to the target open
- Could use remotely controlled explosives and gun fire on the perimeter as diversions
- Bangalore torpedoes can blow the perimeter fences apart faster than cutting the fences
- 1 to 2 snipers with .50 cal API rounds, used to take out Bullet Resistant Enclosures (BRE) from outside the perimeter fence

Possible attack cont.

- In most cases, security experts believe it would take 45 – 60 seconds from the outside fence to inside the spent fuel pool – terrorists can shoot or blow the door open
- Adversaries could be carrying explosives in a rucksack that can be used to blow a hole in the bottom or side of a spent fuel pool
- The 45 feet of water in the pool would make the explosive more effective due to the tamping effect of the water; special ops explosive experts claim they would have no problem blowing holes in 3 to 5 feet of reinforced concrete lined with $\frac{1}{2}$ - $\frac{3}{4}$ inch stainless steel

Performance testing of security at spent fuel pools

- OSRE program never tested spent fuel pools as a target
- OSRE tests have historically been “dumbed-down” – giving months advanced notice, running tests in daylight, limiting the possible attack scenarios, using old DBT (smaller # of adversaries, less lethal weapons).
- During past OSRE performance tests weaknesses were found at 46% of the plants, and according to former NRC Chairman Meserve, “the attacking force was typically able in one of the four exercises to reach a target set and simulate destruction of that equipment.”
- POGO has been assured that the new force-on-force program will test the spent fuel pools

Can spent fuel pools be drained with explosives?

- BWR pools are over 100 feet in the air and could be hit effectively with a platter charge, a missile such as a TOW, or an airplane
- PWR-a blast could drain the pool into auxiliary rooms underneath the pool. In some cases the sides of the pool are exposed, and could be easily drained

NRC DBT Seriously Lacking

- It is POGO's understanding that the number of adversaries in the NRC's DBT is nowhere close to a "squad size," contrary to POGO's recommendation, or the much larger recommendation included in the intelligence community's Postulated Threat. We also understand that few of the lethal weapons available to adversaries are included in the NRC DBT.