

DEVELOPMENT PROCESS TO IDENTIFY POTENTIAL DESIGN BASIS THREAT

December 2015



Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

Development process consists of two primary steps

- Conduct Threat Assessment of capabilities of relevant adversary groups
- Develop a DBT based on the Threat Assessment
 - Screening the threat assessment output for those threats with motivation, intention, and/or capability to commit a malicious act
 - Translating the resulting screened list into a statement of representative attributes and characteristics of the postulated adversary
 - Modifying the statement of representative threat attributes and characteristics on the basis of relevant policy considerations



Threat Assessment for Radiation Protection Center

- An evaluation of the threats – based on available open source information that describes the motivations, intentions and capabilities of these threats
 - Not focused on attempt likelihood



Development of representative adversary characteristics

- Performed in three steps:
 - Filtering of TA data,
 - developing composite description,
 - modifying for policy considerations
- Two initial documents developed:
 - One providing a broad description of the Design Basis Threat characteristics that would be public and part of published regulations
 - One providing the specific Adversary Characteristics that would be non-public and would be shared with those that have a need to know



Filtering TA

- Worksheets developed identifying the specific detailed attributes of the events
- Filtering Criteria:
 - Relevance to targets
 - Capability data availability



Developing Composite Adversary from Filtered TA

- Composite Threat Definition
 - Compare capabilities of all groups
 - Select reasonable characteristics of threats
 - Representing the bulk of the data
 - not worse case
 - Comprehensive yet concise definition
- Provide complete description of capability
 - Sufficient description for defining requirements for Physical Protection Systems design and evaluation
 - May require extrapolation of existing data in TA



Policy factors to consider

- Degree of conservatism of the DBT
 - Uncertainty in the baseline threat assessment
 - Robustness of DBT over time
 - Inclusion of potential threats for prudence
- Cost-benefit-consequence tradeoffs
 - Balancing benefit of asset, consequences of a successful malicious act and cost to reduce risk
 - Graded physical protection based on risk and consequence
- Political factors
 - Level of acceptable risk
 - Impact on public confidence
 - Contribution to public welfare
 - Confidence of neighboring states in protection
 - Threat situation in neighboring states

