

Baseline Needs Assessments

Or

Filling the Void Spaces with Red Caulk! ...

Analysis of the ETTP Post Fire Department Transition BNA

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Baseline Needs Assessments

DOE Order 420.1B -

- (8) A baseline needs assessment (BNA) of the fire protection emergency response organization that—
 - (a) establishes the site fire fighting capabilities to provide—
 - 1 effective response to suppress all fires;
 - 2 emergency medical and hazardous materials response capabilities; and
 - 3 staffing, apparatus, facilities, equipment, training, pre-plans, offsite assistance, and procedures;
 - (b) reflects applicable NFPA codes and standards; and
 - (c) is updated at least every 3 years and in accordance with applicable NFPA code provisions and whenever a significant new hazard is introduced that is not covered by the current BNA.



Baseline Needs Assessments

- East Tennessee Technology Park (ETTP) Hybrid BNA
- Oak Ridge Fire Department (ORFD) for all non-security emergency response
- BJC Fire Protection Program & Fire Protection Technical Services



Baseline Needs Assessments

- ORFD Requirements: DOE/ORO CITY of OAK RIDGE MOA-07-165
- ORFD Staffing Plan for ETTP based on MOA, not NFPA or other standards
- Any short fall of required resources must be provided by contractor (BJC)



Baseline Needs Assessments

Methodology:

- Analyze ORFD response resources
- Analyze Bechtel Jacobs (BJC) Defense-in-Depth resources
- Determine whether DOE Order 420.1B requirements are being met



Baseline Needs Assessments

Assumptions:

- ORFD resources are limited to staffing plan in MOA.
- BJC Defense-in-Depth Fire Protection Program provides “Improved Risk/Highly Protected Risk (HPR)”
- Together, this gives flexibility and latitude with NFPA 1710



Baseline Needs Assessments

Discoveries:

- ORFD meets staffing requirements of MOA and NFPA 1710 (but not timeline)
- BJC Fire Protection Program and Technical Services Group provide “HPR” level programmatic support
- “HPR” buys time to assemble full emergency response complement



Baseline Needs Assessments

ORFD numbers:

- 7 on duty at Station 4, 24/7 (first response-Engine, Rescue, Ambulance, Company Officer) 4.5 minutes
- 2nd due Engine with 3 FF, 8 minutes
- Full compliment (Engine, Rescue, Aerial, Batt Chief, Fire Specialists-11 FF) 14 minutes



Baseline Needs Assessments

ORFD Procedure Review

- Emergency Response
- Staffing
- Vehicle Maintenance
- Training (including DOE issues)/Fitness
- Security Clearances
- Pre-Fire Planning



Baseline Needs Assessments

BJC Numbers (Defense-in-Depth):

- FPP Staff - 10 Fire Protection Engineers (including FP Manager)
- FP Maintenance Coordinator
- FP Project Manager/Contract Coordinator
- Administrative Support
- 2 Technical Supervisors & 10 Technicians
- 2 Maintenance Mechanics & 2 FA Electricians



Baseline Needs Assessments

BJC FPP Procedures

- Combustible Controls
- Fire Prevention Inspections
- Extinguishers
- I, T & M
- Alarm Room Operations
- Fire Hydrant Flow Testing
- Training & Certification



Baseline Needs Assessments

Target Hazard:

- K-1065 Storage Warehouses (code compliant combustible liquids in “A” building)
- NFA Fire Flow Calculation requires 1134 gpm with 5% involvement
- Full Response Complement covers threat



Baseline Needs Assessments

Analysis of Threat:

- Initial Response of 1 Engine & 7 ORFD FF within 4.5 min
 - Second Due Engine & 3 ORFD FF within 8 min
 - Full Compliment within 14 minutes (21 FF)
 - 5% involvement credits ability of BJC FPP to provide HPR level hazards
 - ORFD Emergency Response
- + BJC HPR level Fire Protection Program
= Acceptable BNA (compliance with order)



Baseline Needs Assessments

Lessons Learned

- Streamlined Format – Kubicki Style
- Used Existing Descriptions:
 - K-25 Building DSA for Site Description
 - ETTP Fire Water Study
 - K-1065 & K-1037 FHA for Fire Hazard Scenarios
 - Emergency Management Reports for HAZ/MAT
- Hybrid Format drove development of “Defense-in-Depth” Concept



Baseline Needs Assessments

EMERGENCY RESPONSE

“The City of Oak Ridge and its fire department comply with the language of the Memorandum of Agreement signed by DOE-ORO and the City. While the document contains no specific requirement to satisfy DOE orders or national standards and codes, this assessment concluded that the ORFD satisfies the intent of the NFPA standard for organized fire departments (NFPA 2004). One possible exception is the standard for response time for the on-scene arrival of a full first alarm assignment. However, ORFD delivers deployed resources that exceed the standard as written.”



Baseline Needs Assessments

DEFENSE-IN-DEPTH SUPPORTING DUTIES

“The BJC fire protection program provides a level of rigor not normally found in municipal fire protection service environments. The attention given to building and fire prevention codes, suppression systems, alarm systems, fire prevention activities such as inspections and education, a fire protection maintenance program and fire extinguisher distribution contributes to a fire safety envelope that can help compensate for the usual fire fighting resources and response times necessary in the general public. It is expected that as long as DOE has nuclear material to manage at the ETTP there will also be related management requirements that include fire prevention features similar to the current Fire Protection SMP.”

