



# Spartan Motor Disposition



## Spartan First Stage Rocket Motor Disposition Overview

**Jeff Lee**  
**16 May 2007**

# Spartan Motor Disposition



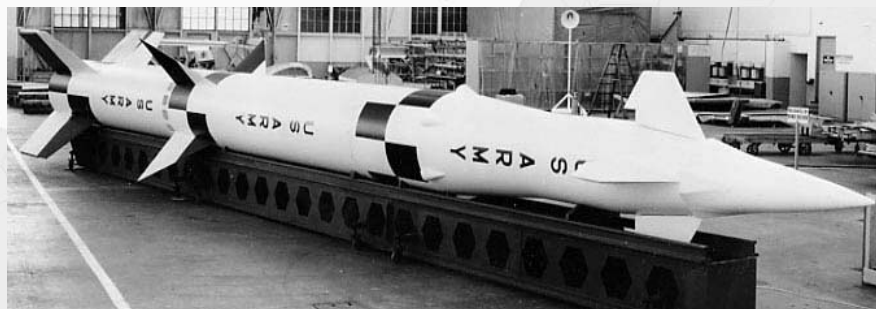


# Spartan Motor Disposition



## Plan Overview

- Review of Tier I Safety and Condition Assessment
- Develop Tier II Demilitarization Requirements for First Stage Motors
- Plan of Execution







# Spartan Motor Disposition



## Plan Overview

**Anniston Defense Munitions Center**

**17 Containerized Spartan Rocket Motors**

**5 Non-containerized Motors**

**Red River Munitions Center**

**24 Containerized Spartan Rocket Motors**





# Spartan Motor Disposition

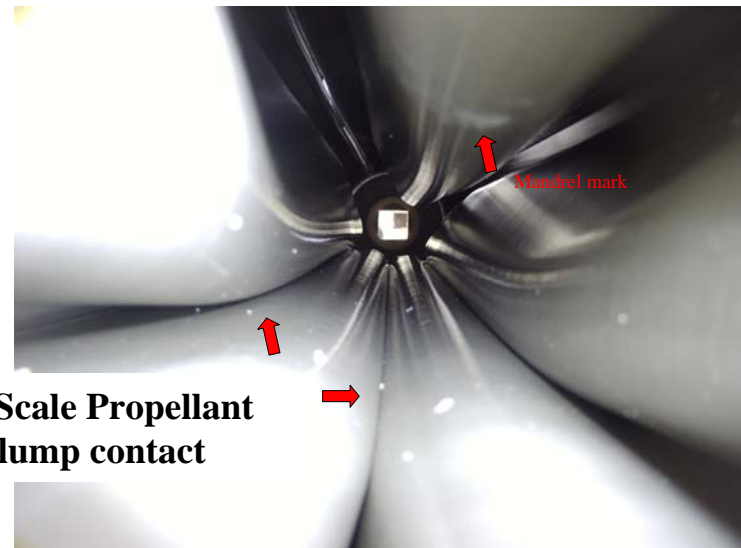


## Review of Tier I Safety and Condition

**Safety and condition assessments conducted on 5 motors stored at the Army Defense Munitions Center (ADMC) in Anniston, Alabama**

### Conclusions

- **Due to propellant grain slumping, the motors are not suitable to be transported OFF-POST.**
- **Develop a plan for the handling of the motors from the storage magazine to the open burn site.**
- **Recommended: use flexible, linear-shaped charges to sever the case and initiate the propellant**
- **Recommended: develop a desensitization procedure for risk mitigation (water).**



**Large Scale Propellant grain slump contact**



# Spartan Motor Disposition



## Tier II Plan Overview

### Develop Tier II Requirements for Demilitarization of First Stage Motors

- Review of Spartan Second Stage Motor Demil Conducted at Sandia National Laboratory in Albuquerque, New Mexico
- Regulatory Requirements
- Desensitization Procedure
- Transportation Plan
- Open Burn Procedure





# Spartan Motor Disposition



## Tier II Plan Overview

### Develop Tier II Requirements for Demilitarization of First Stage Motors

#### Second Stage Demil at SNL

- Coordinated with SNL POC for information sharing
  - Mr. Steven Yesner, Spartan Project Lead, Defense Systems and Assessments Division, Operations, Planning, and Integration
- Participated in on-site SNL operations to gain experience and knowledge
  - Reginald Smith – Anniston Munitions Operation Supervisor
- Used SOP from SNL as building blocks for ADCM test plan and SOP



Photos courtesy of SNL





# Spartan Motor Disposition



## Tier II Plan Overview

Develop Tier II Requirements for  
Demilitarization of First Stage Motors

### SNL Demil

Flexible linear shaped charge  
arrangement



Burn Operation



Courtesy of SNL





# Spartan Motor Disposition



## Tier II Plan Overview

### Develop Tier II Requirements for Demilitarization of First Stage Motors

#### Regulatory Requirements

- **Permitting from Alabama Department of Environmental Management**

- **Completed**

- » **SOP**
- » **Plume Dispersion Model**
- » **Preliminary review**
- » **Final review**
- » **Public hearing conducted on May 15, 2007**

- **Pending**

- » **“Dry Run”, scheduled for May 22-23, 2007**
- » **Public notice – in progress, closes May 31, 2007**
- » **Responses to public notice and public hearing**
- » **Issuance of burn permit**

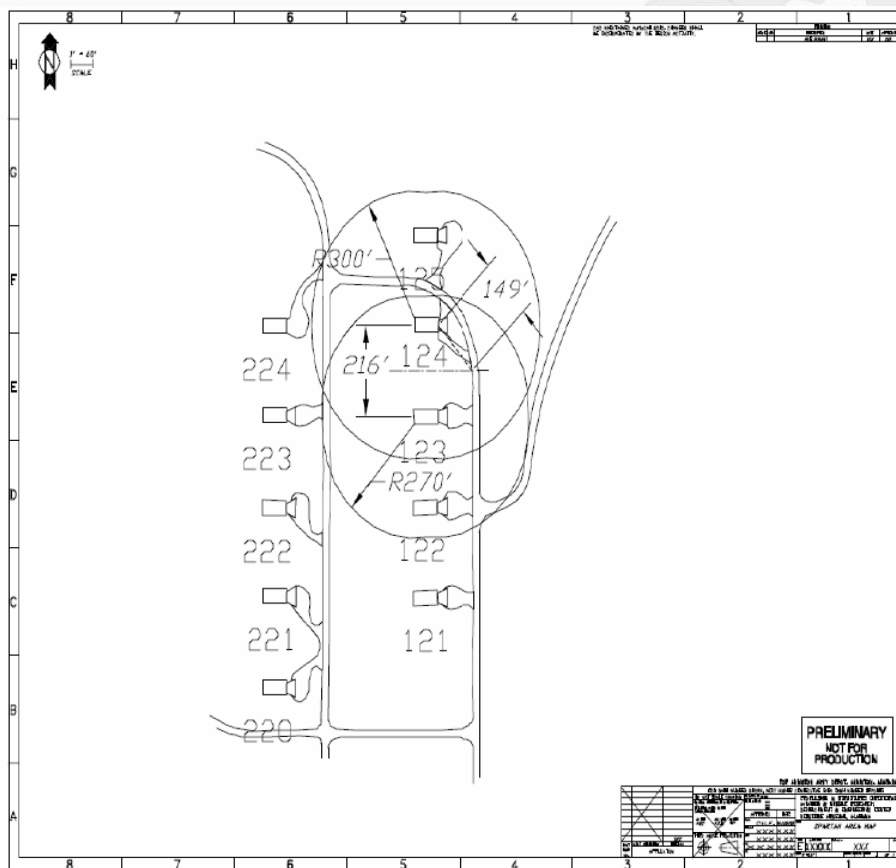


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## Tier II Plan Overview

### Desensitization Control and Operational Layout





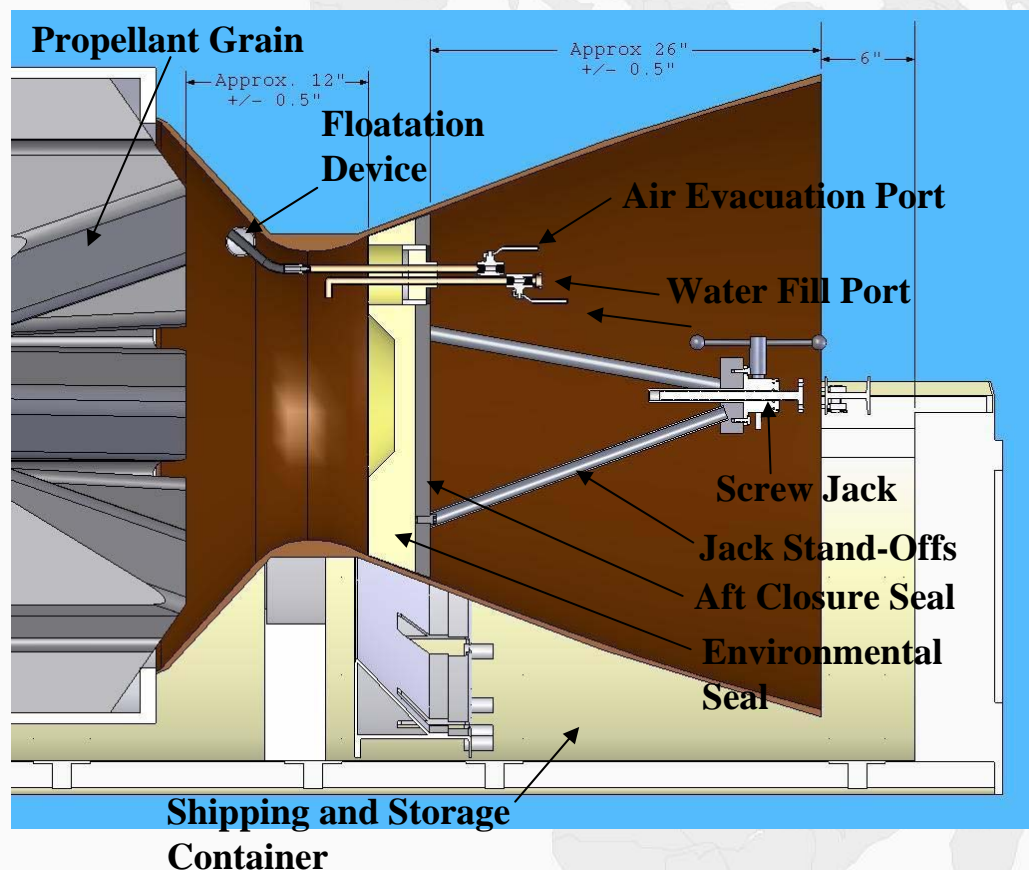
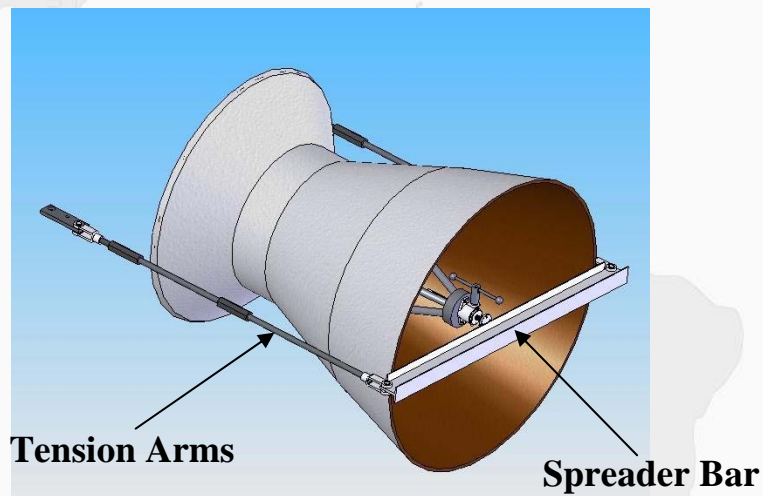
# Spartan Motor Disposition



## Tier II Plan Overview Desensitization Procedure

### Reduce risk associated with grain slumping

- Aft closure seal
- Water fill ~ 250 gal
- Retainer assembly







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## Tier II Plan Overview Desensitization Procedure

### Aft Closure Dry Fit



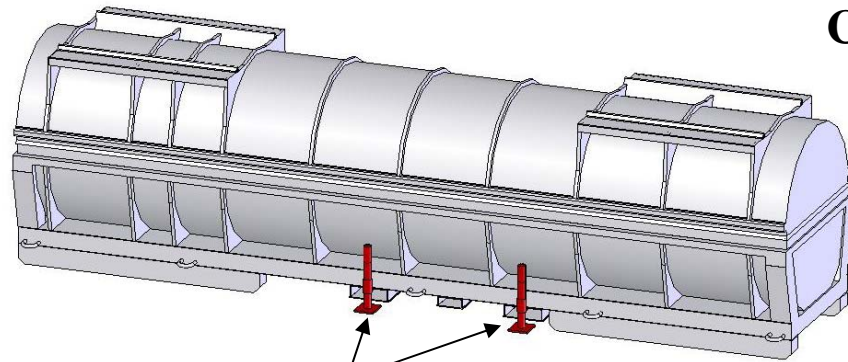


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## Tier II Plan Overview Transportation

### Critical lifts



4 Toe Jacks: FOS = 4



Forklift – 30K lb

### Removal from magazine



Transport Dollies: FOS = 4

### Transport Vehicle •GPS onboard



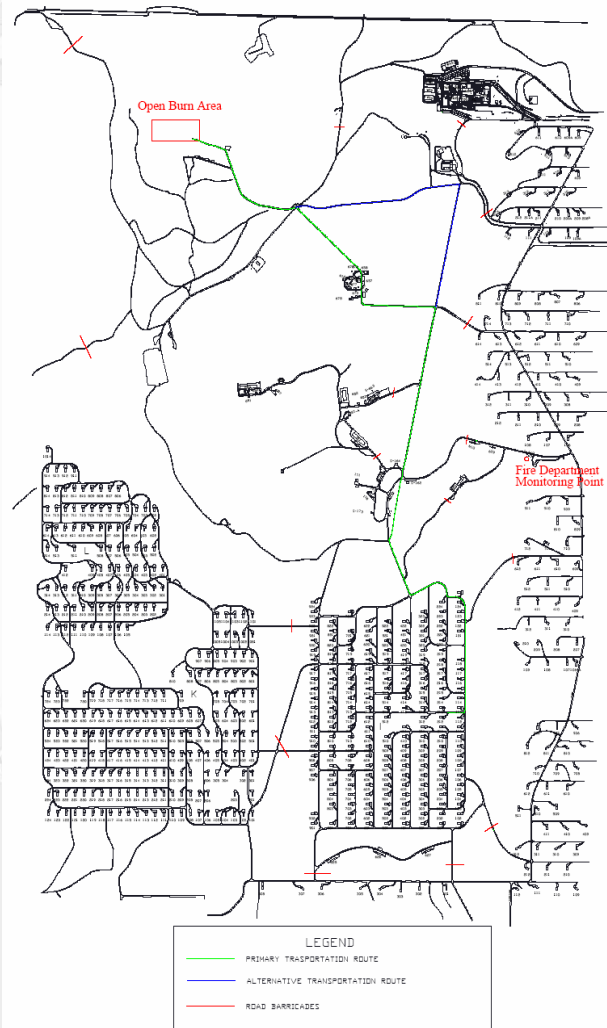


# Spartan Motor Disposition



## Tier II Plan Overview

Transportation  
Route







# Spartan Motor Disposition

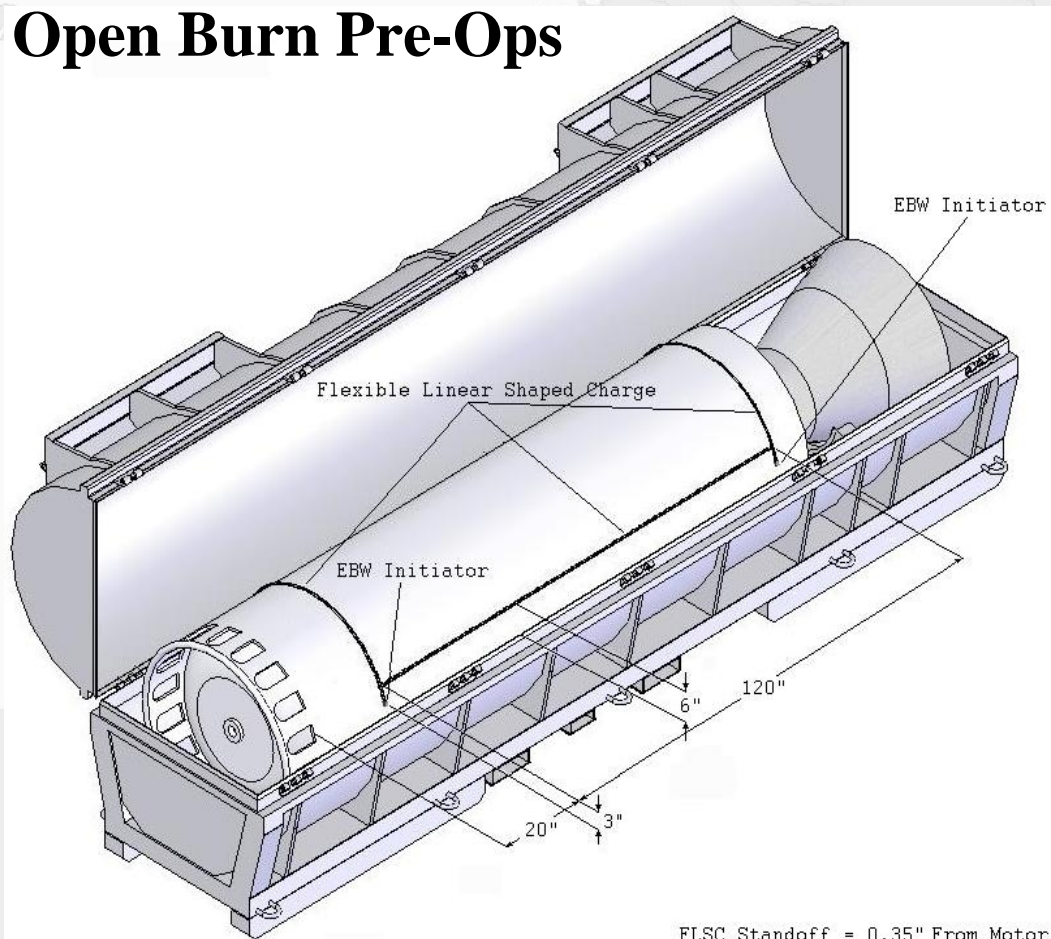


## Tier II Plan Overview

### Open Burn Pre-Ops

#### Flexible linear shaped charge

- 250 gr/ft
- 0.35 in. standoffs
- Firing system – FS 43



FLSC Standoff = 0.35" From Motor



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## ADMC Burn Site





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## Tier II Plan Overview

### Support Groups

#### **Desensitization Team**

- **AMRDEC**

#### **Transportation Team**

#### **Demil Team**

#### **Surveillance/Safety Team**

#### **Emergency Services Team**

#### **Re-Entry Team**

#### **Environmental Team**

#### **Public Affairs Team**

- **ADMC**

#### **Meteorological Support**

- **Regina Deola, Sandia National Laboratory**

#### **Particle Analysis by Mass Spectrometry (PAMS)**

- **Dr. David Ferguson, Lawrence Livermore National Laboratory**

#### **Spartan Second Stage Rocket Motor Disposition Project Plan and Documentation**

#### **Sandia National Laboratory**

- **Mr. Steven Yesner, Spartan Project Lead, Defense Systems and Assessments Division, Operations, Planning, and Integration**





# Spartan Motor Disposition



## Tier II Plan Overview

### Summary

- **Procurements are complete**
- **ACS and retainer assembly fabrication complete**
- **ACS dry fit check complete**
- **Dry run demonstrations scheduled for May 22-23**
- **Anticipate ADEM permit issuance – 1<sup>st</sup> week of June**
- **Target date for live operations – June 8, 2007**
- **Path forward and schedule to be determined after initial burn**
- **Develop Spartan rocket motor Tier I & II plan for the Red River Munitions Center inventory**



# Spartan Motor Disposition



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