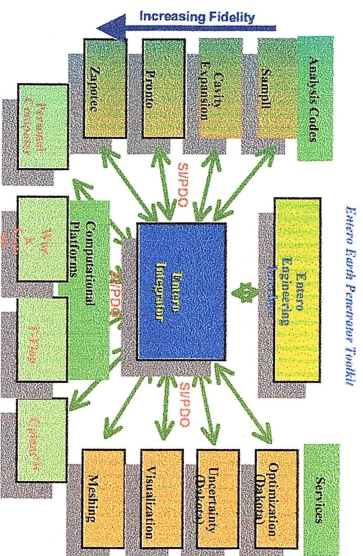
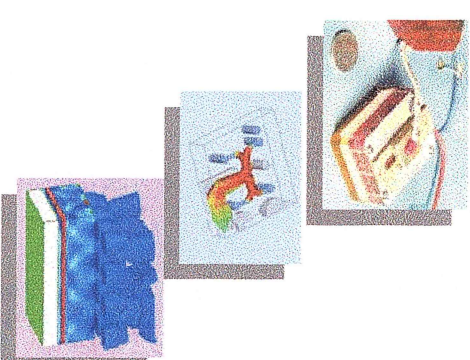


FY01 Projects

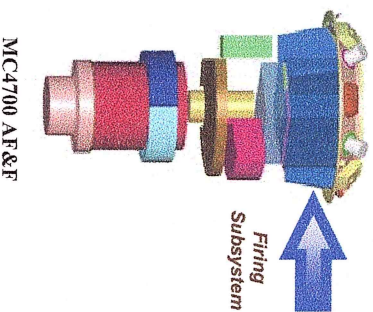
- The Entero Earth Penetrator Toolkit
 - Funded by CSRF



- The MC3028 Firing Set for the W76/Mk4 and W78/Mk12A
 - Funded by ESP

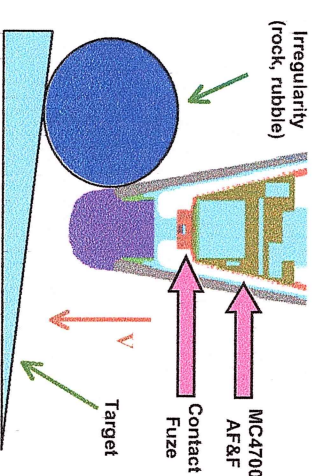


- The MC4700 Replacement AF&F for the W76-1/Mk4A
 - Funded by DP

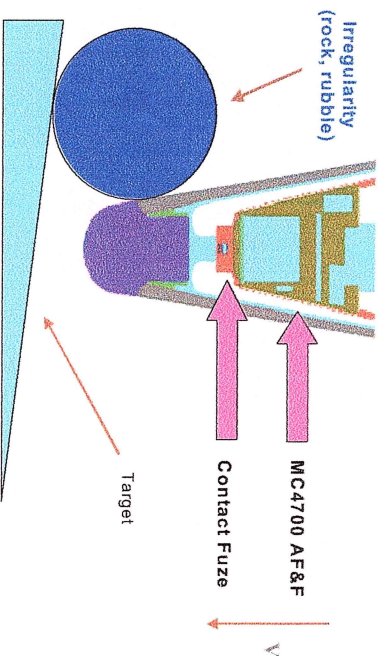


MC4700 AF&F

- The W76-1/Mk4A: Collisions with Obstacles and Impacts with Irregular Targets
 - Funded by ASCI



Collisions of the W76-1/Mk4A with Obstacles & Impacts with Irregular Targets



Issues

- Simulations to support DSW customers have been performed with RB impacting a perfect target to develop a timing requirement for a firing subsystem
- DSW customer wants to know the effects of collisions with obstacles and impacts into irregular targets

Customer/User

- Randy Harrison and Brad Godfrey

Approach

- Create CTH model of W76-1/Mk4A and template input for collisions and impacts
- Simulate collisions and impacts using CTH
- Analyze results and document

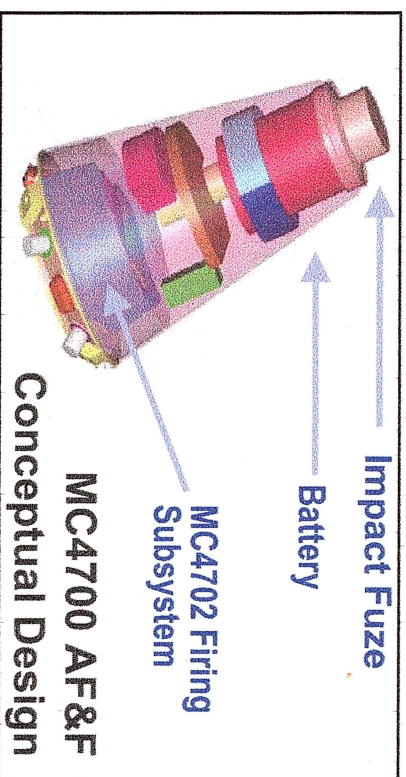
Accomplishments

- Summarized past hydrodynamic analyses
- Developed an initial target suite
- Created CTH models for simulations
- Completed base case simulation and one simulation of impact into irregular target

FY01 Milestones

- Develop an initial target set (first quarter)
- Create CTH models (second quarter)
- Complete CTH simulations (third quarter)
- Document results (fourth quarter)

Analysis for Design of the MC4700 Replacement AF&F for the W76-1/MK4A



Purpose

- Analyze impact of Mk4 reentry body (RB) into targets to predict impact-fuze performance
- Determine time MC4702 firing subsystem has to initiate detonators before some component critical to nuclear detonation becomes inoperable (timing requirement)

Customer/User

- Randy Harrison

1/MK4A

Approach

- Create CTH model of W76-1/MK4A
- Simulate impacts using CTH
- Determine timing requirement

Accomplishments

- Developed analytical method and criteria to assess damage to critical components (MC4702 and nuclear explosive package)
- Completed simulations into hard and soft targets for eight representative velocity-angle (V- γ) points
- Determined that fuze operates at all V- γ points
- Determined timing requirement

FY01 Milestones

- **Develop a timing requirement (first quarter)**
- **Document in presentation (second quarter)**
- **Document in SAND report (fourth quarter)**