DEMILITARIZATION BY INDUCTIVE HEATING MELTOUT (DIHMEs)

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KEY PLAYERS

- DEFENSE AMMUNITION CENTER
- CRANE NSWC
- EL DORADO ENGINEERING, INC
- AJAX TOCCO MAGNETHERMICS
- SAFETY MANAGEMENT SYSTEMS
- UNIVERSITY OF MISSOURI, ROLLA

PHASES OF DEVELOPMENT

- PRIMARY COMPONENTS
  - DESIGN MOST IMPORTANT ITEMS FIRST
  - DON’T LET PROJECT GET BOGGED DOWN WITH COMPLEXITY OF THE ENTIRE SYSTEM
  - ABLE TO SIMPLIFY PROCESS
- PRIMARY COMPONENTS TESTING
- SECONDARY COMPONENTS
- FINAL INSTALLATION AT HWAD
- FURTHER DEVELOPMENT AFTER PRODUCTION HAS STARTED

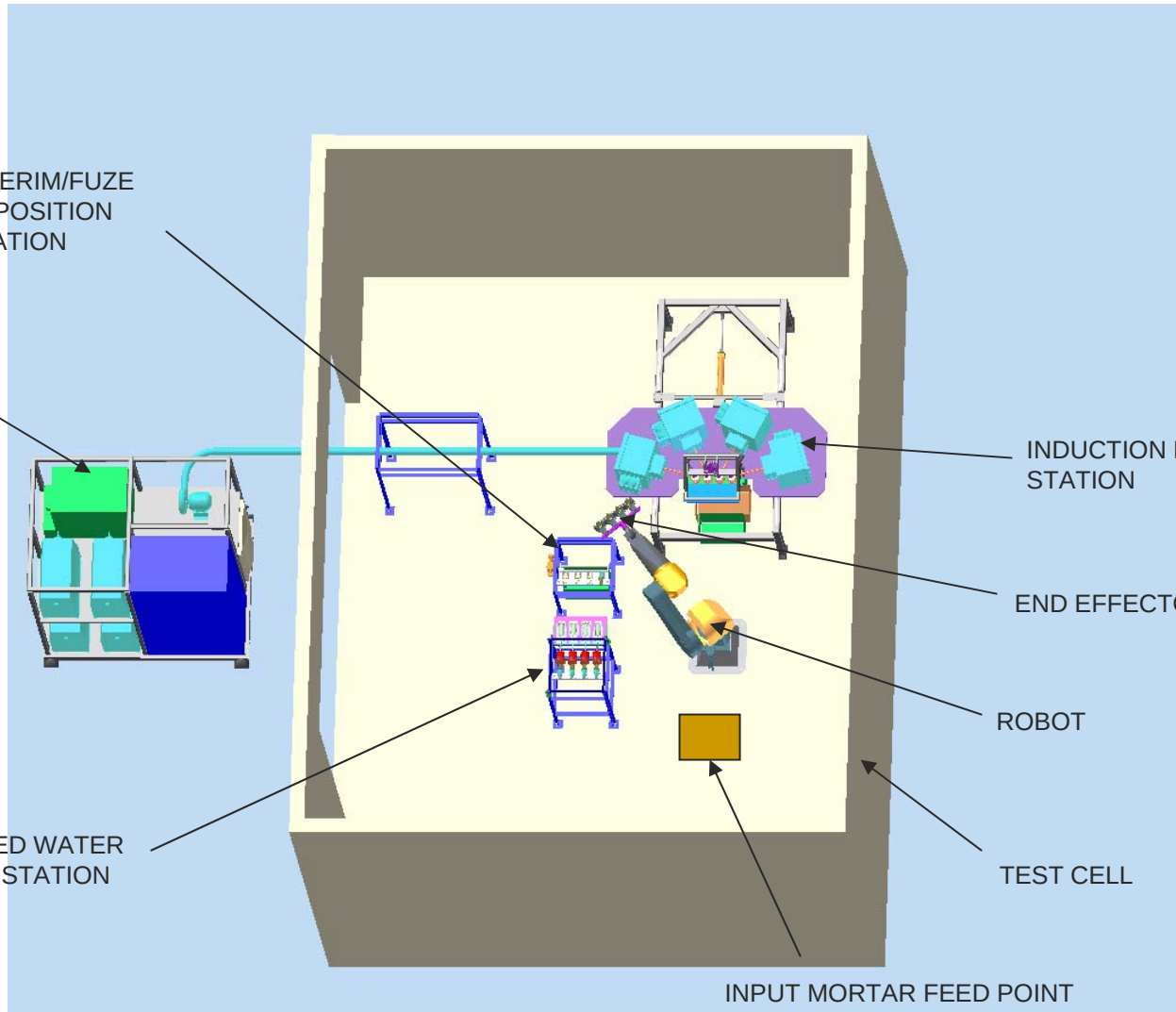
PROCESS DESCRIPTION

- M49A2, M49A3 & M49A4 60MM MORTAR ROUNDS
- CLASS I DIV. 1, CLASS 2 DIV 1 HAZARDOUS OPERATION ROBOT
- WATER JET CUTTING STATION
- INTERIM/FUZE DEPOSITION STATION
- INDUCTION HEATING STATION

TEST CELL AT CRANE NSWC LAYOUT

- PRIMARY COMPONENTS ONLY
- SECONDARY COMPONENTS WILL BE ADDED AT HWAD

TEST CELL LAYOUT AT CRANE NSWC



ANCILLARY STUDIES

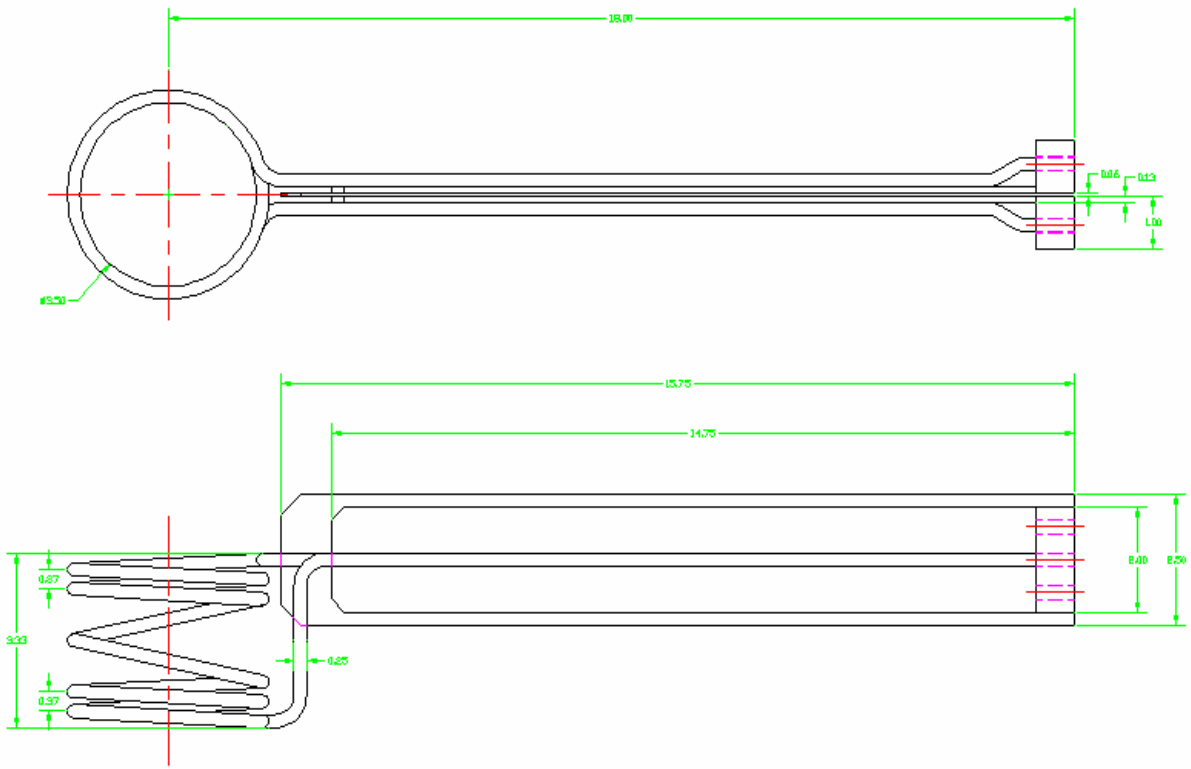
EXPLOSIVE PACKAGING REQUIREMENTS

- FUZE DROP ANALYSIS
  - MUST PASS 5 AND 40 FOOT DROP TESTS PER MILITARY STANDARD 331C
  - FUZE HAS SEVERAL DESIGN FEATURES TO PREVENT INITIATION.
- TWO CUTS VERSUS ONE CUT
  - FOUND THAT FIN END OF MORTAR BODY DID NOT NEED TO BE CUT OFF TO GET EXPLOSIVE SLUG TO FALL OUT

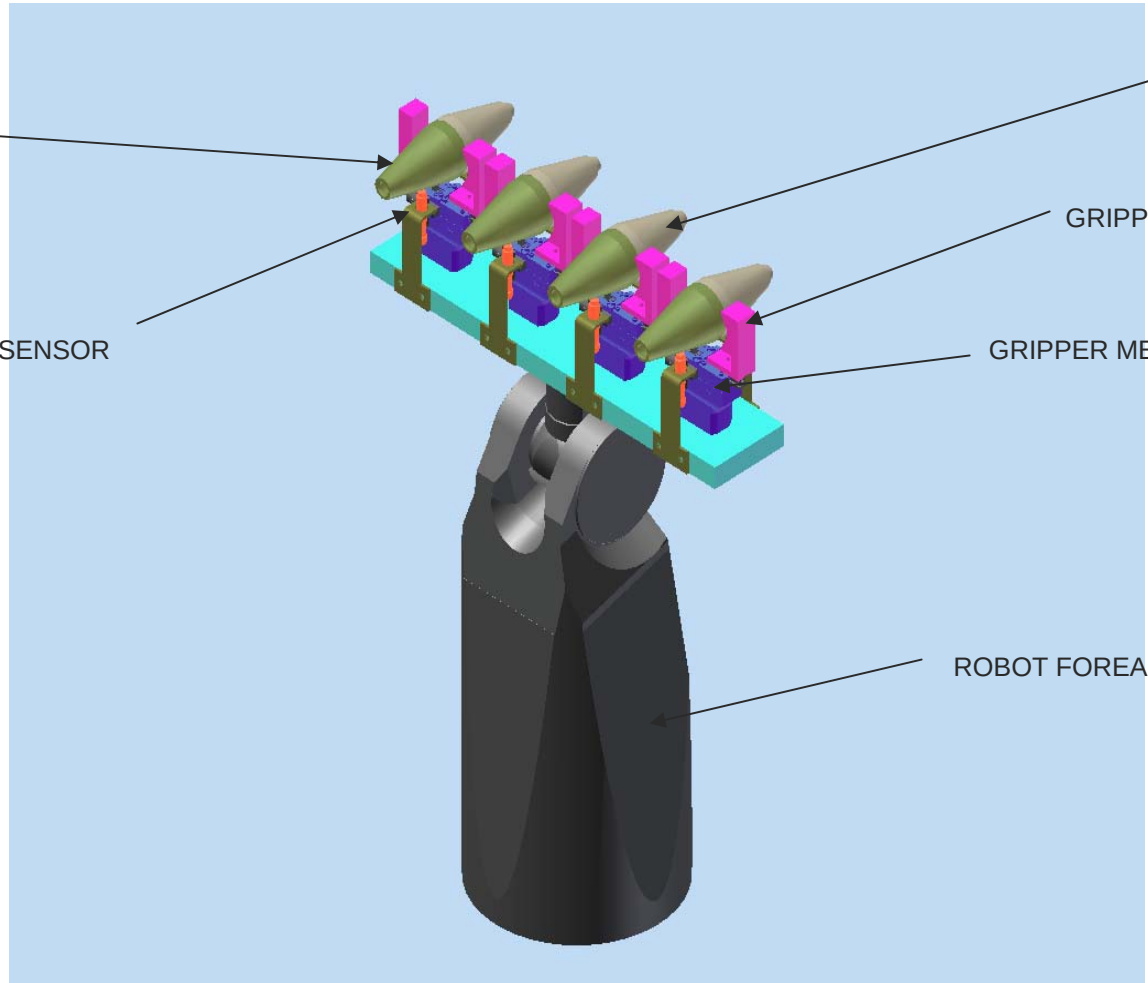
COIL DEVELOPMENT

- UNIFORMLY HEAT MORTAR BODY TO 300 DEG F PLUS OR MINUS 25 DEG F
- COIL MUST BE SHIELDED TO ENSURE ARCING DOESN'T OCCUR
- MINIMUM STANDOFF DISTANCE MUST BE MAINTAINED AT ALL TIMES
- EXPLOSIVE SLUG CANNOT EXCEED 300 DEG F
- ELECTRONIC CIRCUITRY MUST BE PROTECTED FROM EXPLOSIVE VAPORS AND DUSTS

FINAL COIL DESIGN



ROBOT & END EFFECTOR



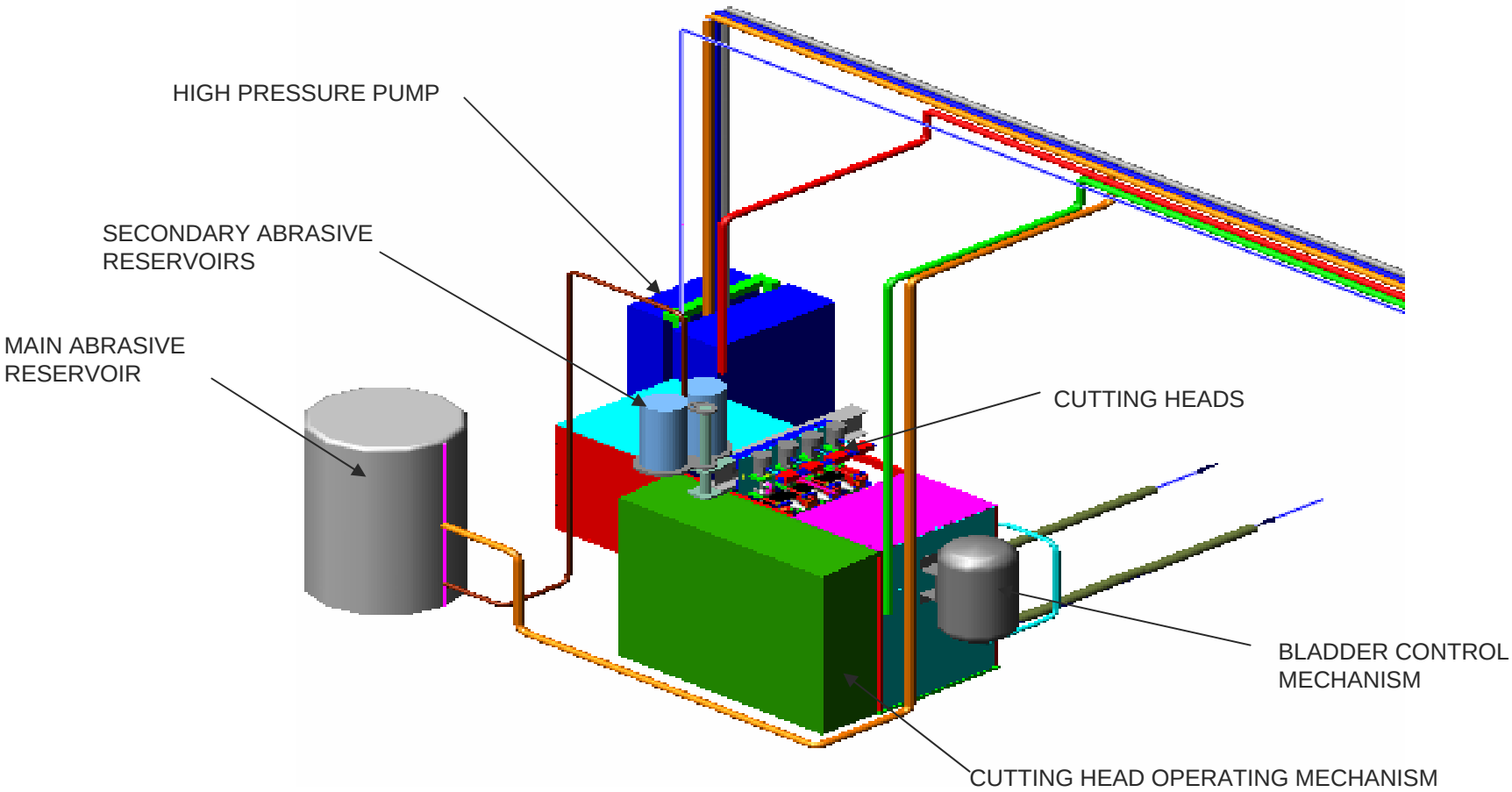
ROBOT &END EFFECTOR REQUIREMENTS

- PICK UP 4 MORTAR BODIES & 4 SEVERED FUZES
- WEIGH AROUND 35 POUNDS
- FAIL IN HOME POSITION
- OPERATE IN HAZARDOUS ENVIRONMENT

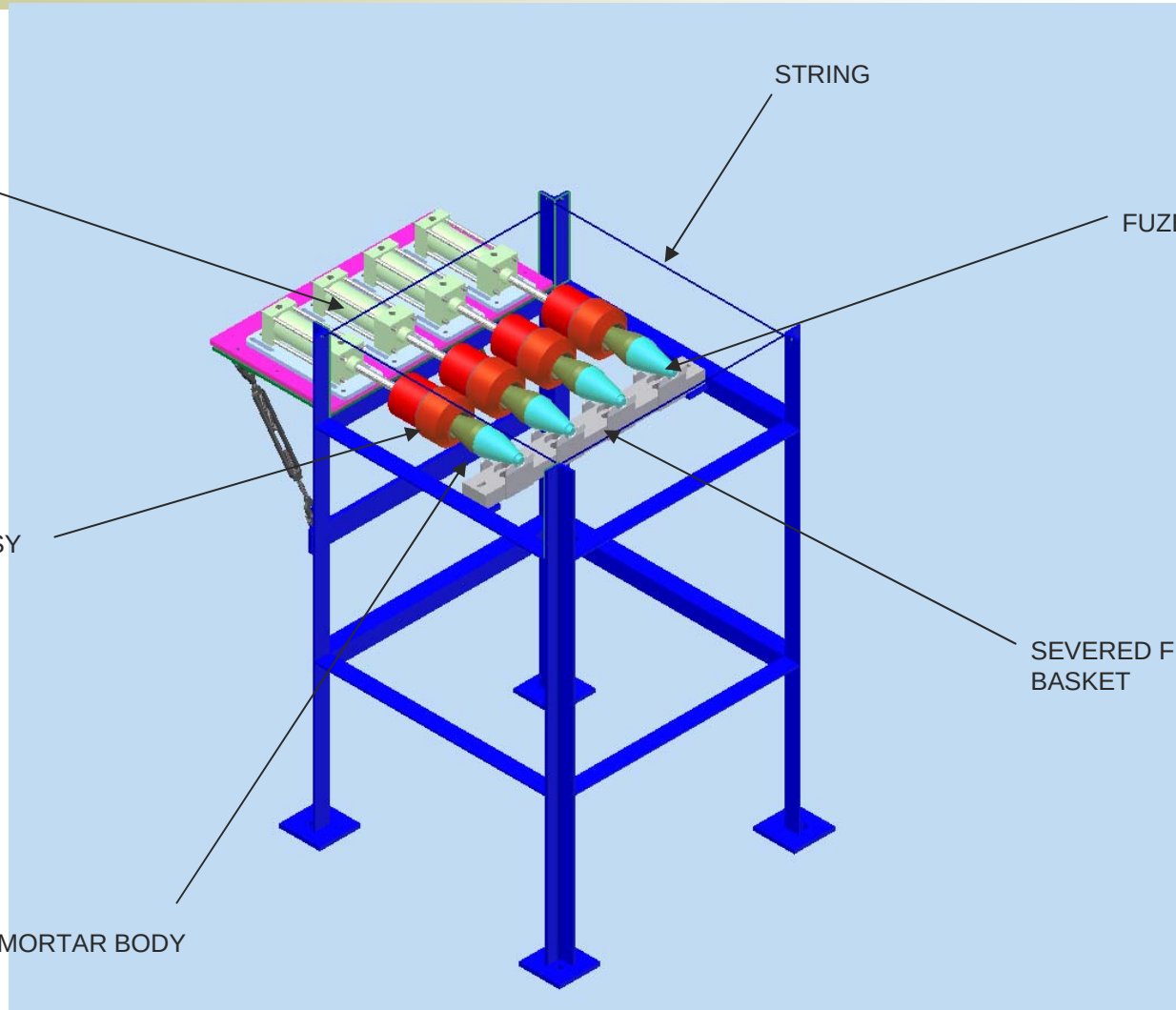
WATER JET CUTTING STATION

- DEVELOPED BY UMR UNDER SEPARATE CONTRACT

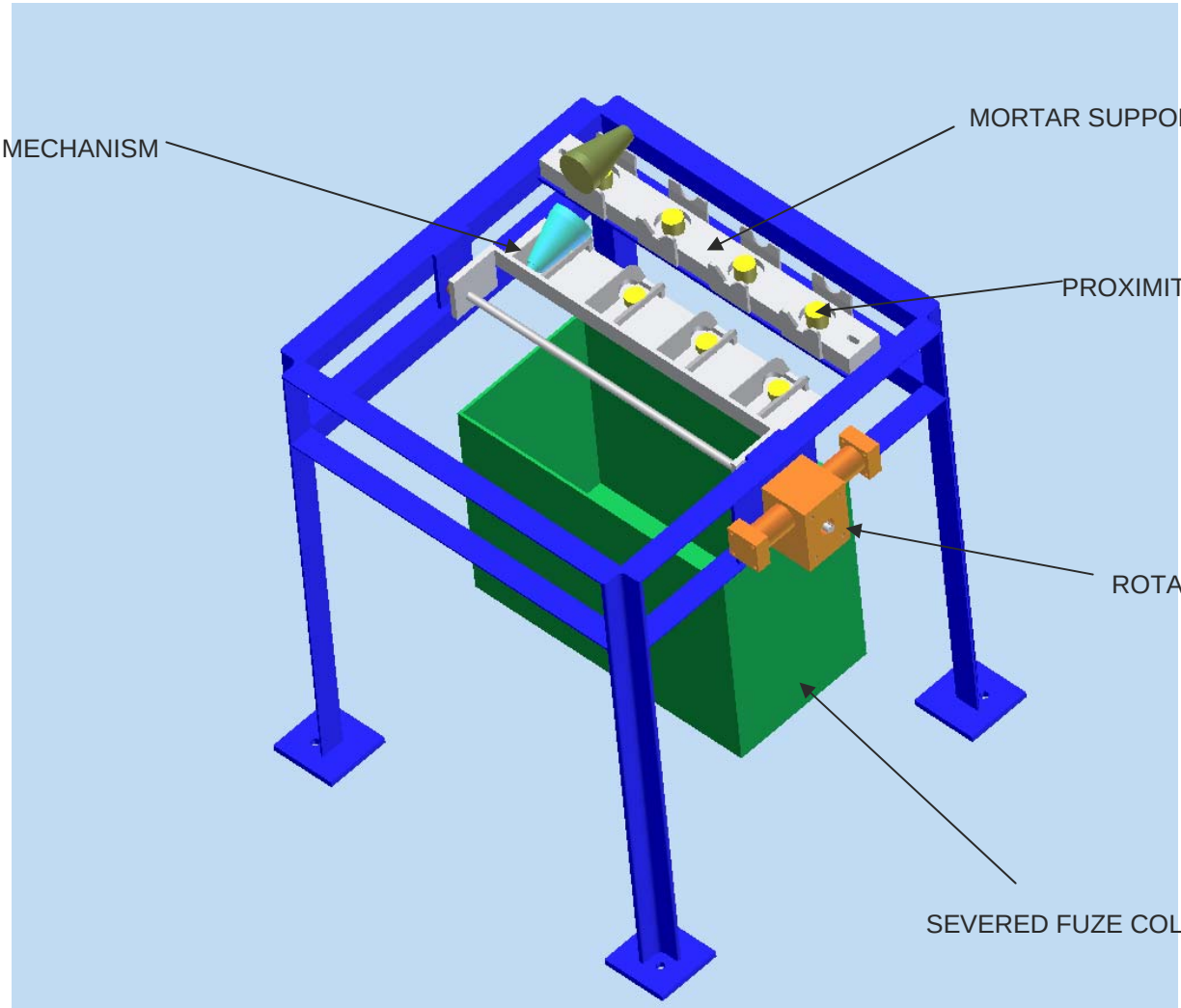
WATER JET CUTTING STATION



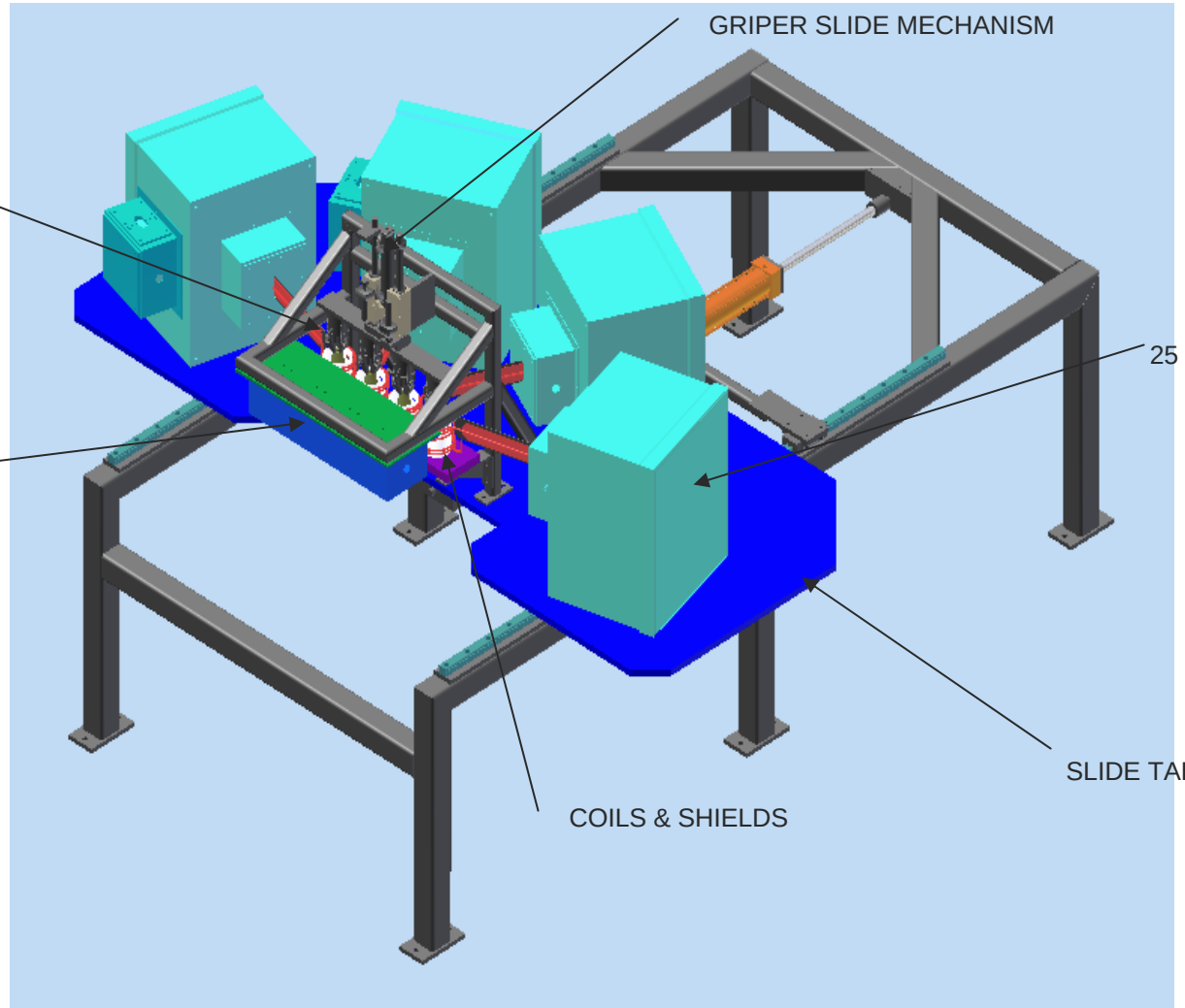
SIMULATED WATER JET CUTTING STATION



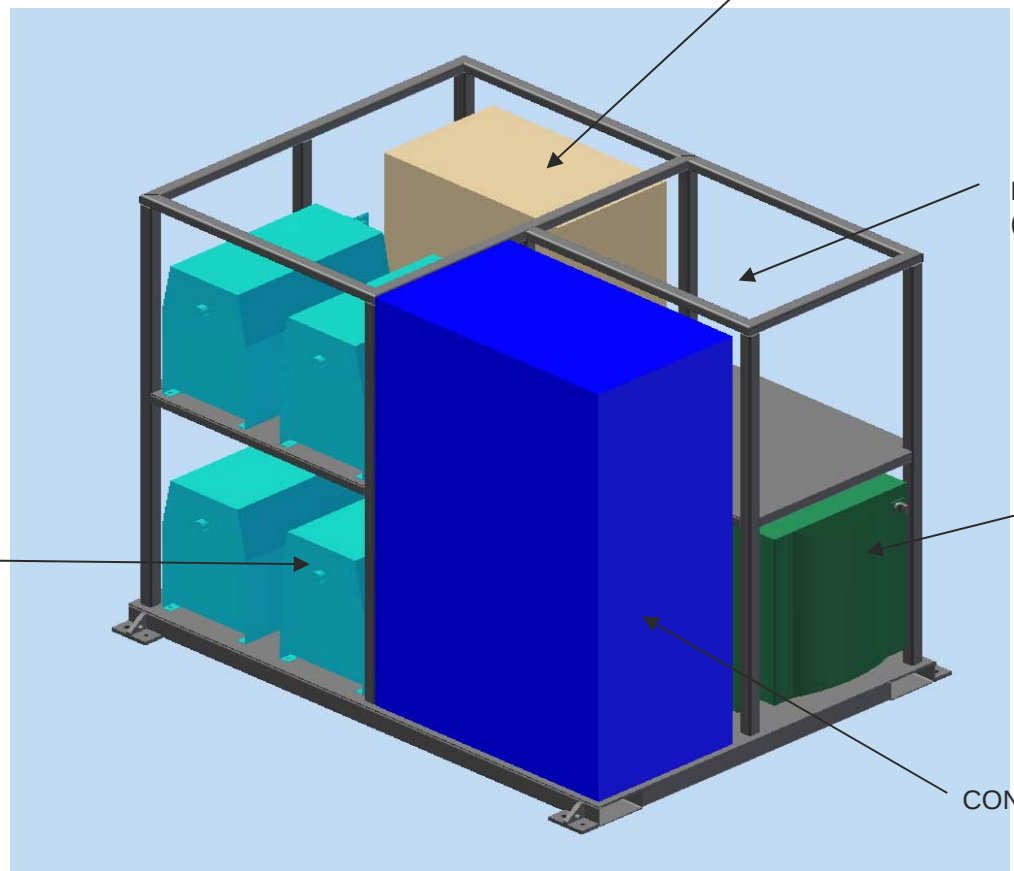
INTERIM/FUZE DEPOSITION STATION



INDUCTION HEATING STATION



INDUCTION HEATING STATION SUPPORT EQUIP

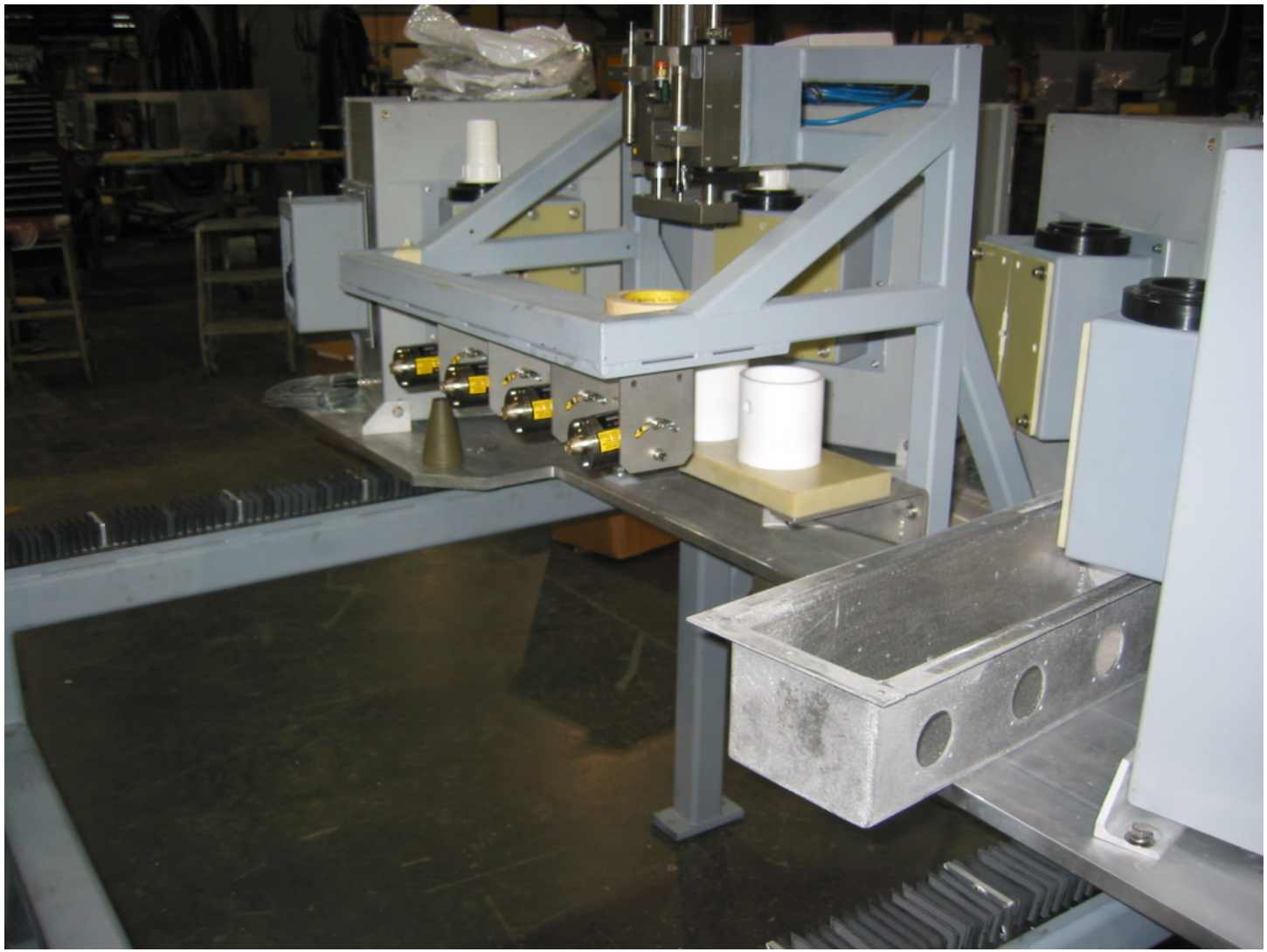


CYCLE TIME

- CYCLE TIME VARIES WITH LIFE OF WATER JET CUTTING OPERATION
- NEW CUTTING ORIFICE CUTTING TIME IS AROUND 83 SECONDS
- WORN CUTTING ORIFICE CUTTING TIME IS AROUND 99 SECONDS

EQUIPMENT PICTURES

PICTURES CONT.



PICTURES CONT.

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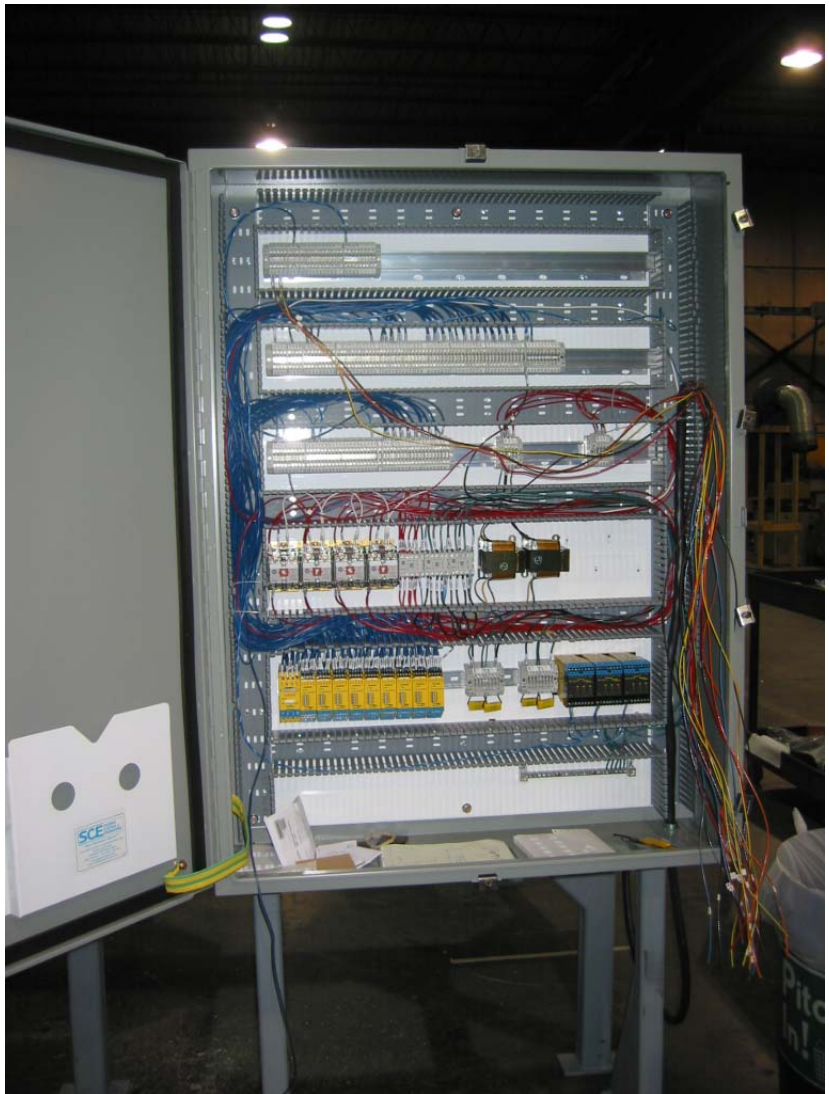

PICTURES CONT.

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WHERE WE ARE AT

- CURRENTLY FINISHING FABRICATION
- STARTING INERT TESTING MAY 15, 2007
- SHIPPING TO CRANE NSWC AROUND JUNE 1, 2007
- LIVE TESTING AT CRANE NSWC LATE JUNE
- WHEN TESTING IS COMPLETE, SHIP TO HAWTHORNE ARMY DEPOT