FAARM Collaboration Meeting

LUX Water Tank

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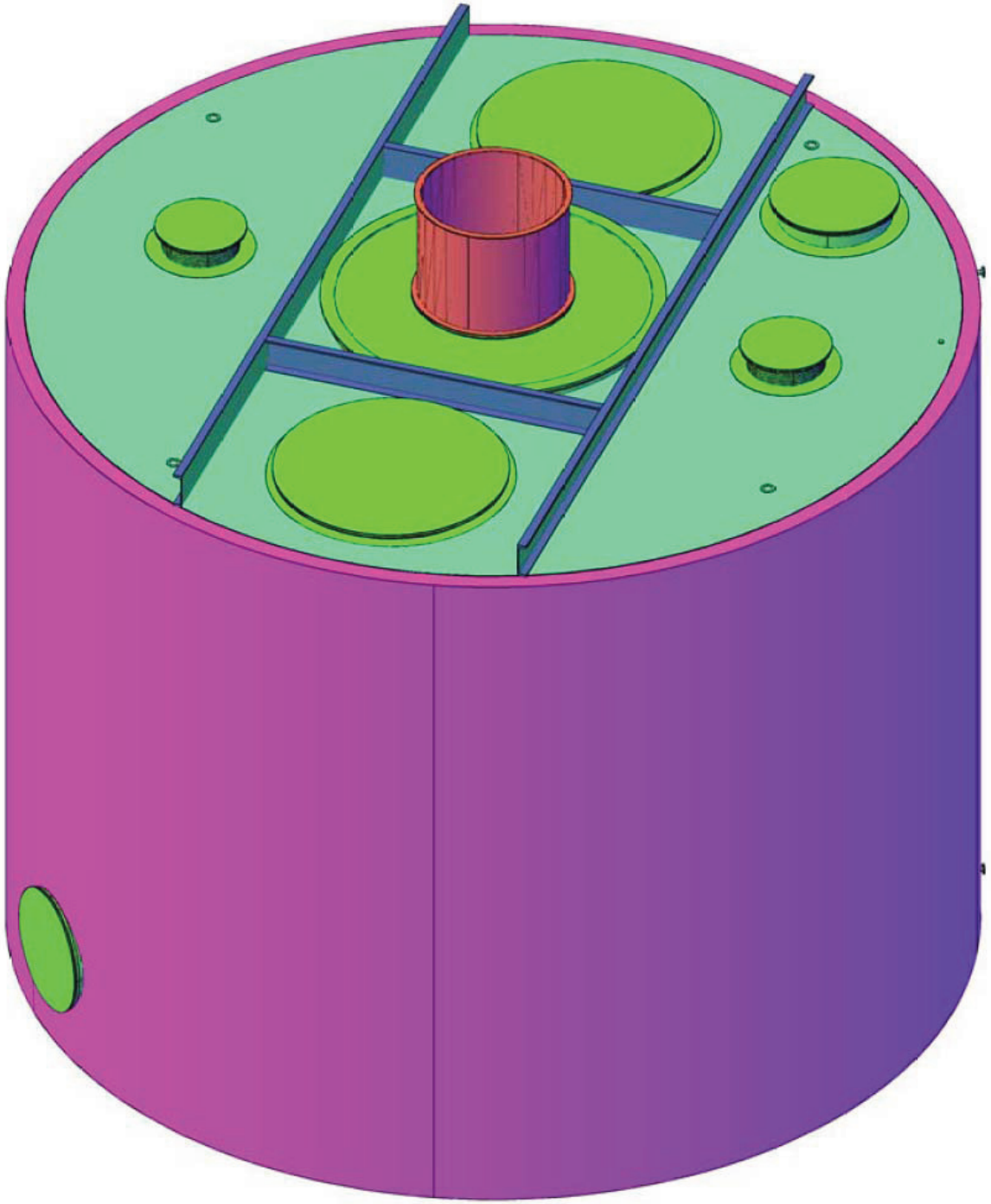
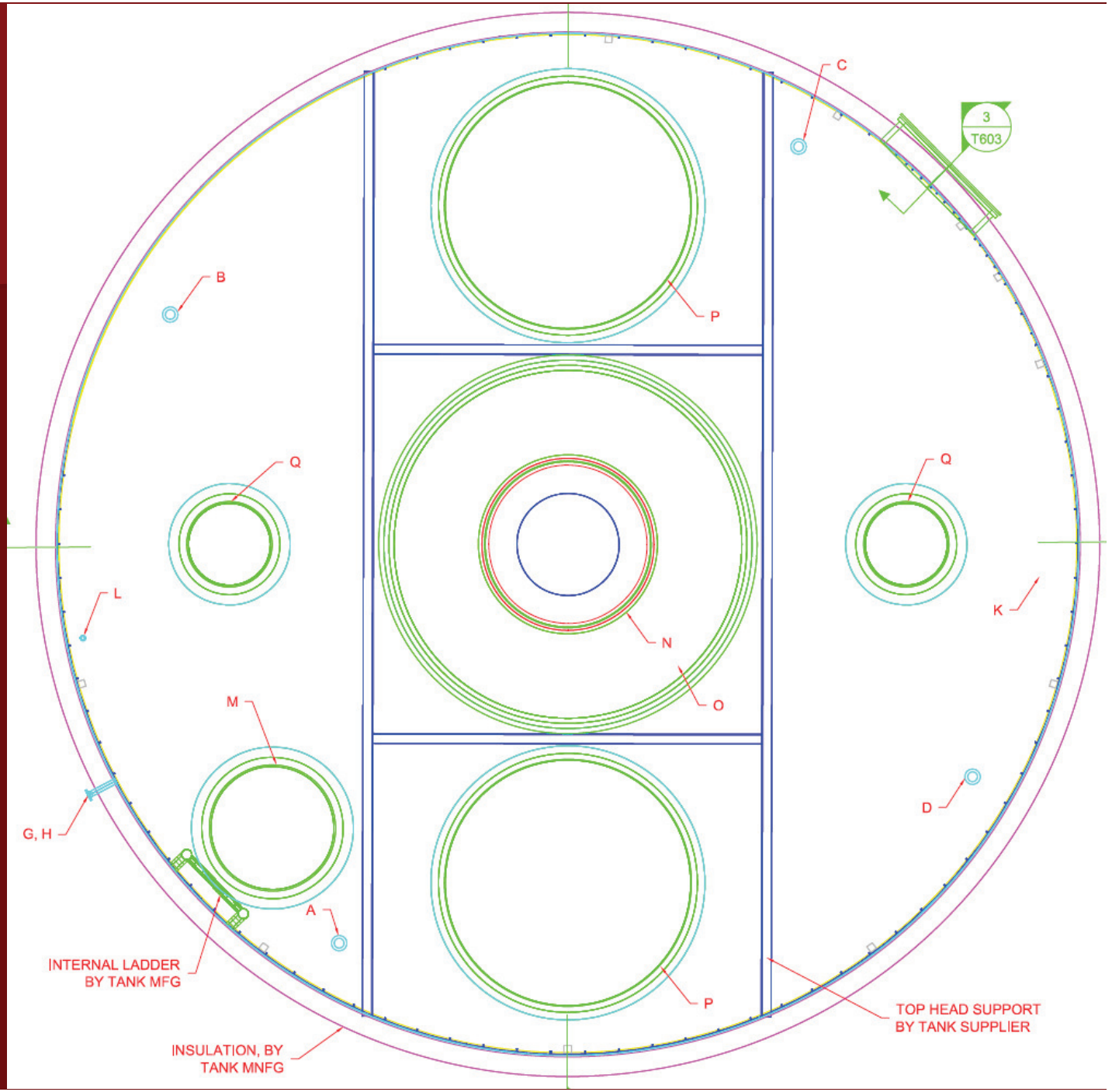
Tank Isometric



Tank Plan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INTERNAL LADDER
BY TANK MFG
P
TOP HEAD SUPPORT
BY TANK SUPPLIER
INSULATION, BY
TANK MNFG

Tank Details

- Size
  - 25’ Diameter
  - 20’ Tall
- Capacity
  - 19.12’ of water (70,213 Gal)
  - .35’ of pressure regulated Nitrogen Gas Blanket
- Loads
  - Detector & Stand – 8800 lbs
  - External pressure swing +/- .1psi, about 7200 lbs on top head
  - Top head to support a live load of 1500 lbs
  - Top head to support a dead load of all hardware associated with the ports

Port Details

- 36” side access-egress port
- 36” top access port in top head of tank
- Two 6’ diameter future experiment top access ports
- Two 2’ diameter experiment top access ports
- 4’ diameter central opening for LUX detector
- Monitoring instrument ports
- Gas blanket supply and return ports
- Water supply and return ports

Tank

- Includes:
  - Ports, human ladders, detector stand fixtures
- Does not include:
  - Mounts for PMTs, draped liner
    - Mounts consist of eye bolts and cables

Water Tank Insulation

- Insulation is not required to prevent tank sweating:
  - Cavern design temperature is 70F, 50% RH, dew point 50F
  - Tank water will be 59F minimum
- Insulation may be required to control convection

LUX Water Tank

- Tank Material
  - T304 Stainless Steel
  - Welded seams
  - Cleaned and polished
  - Channel sections to support top head loading
- Construction
  - Tank will be shop fabricated and field erected
  - Erection will utilize a jack system that will allow the contractor to erect the tank at ground level one section at a time

LUX Tank Quotes

- Three received (September 2008)
  - $220,000
  - $291,203
  - $407,000
  - Actual bid prices will likely be different
- Quotes have been solicited for FAARM