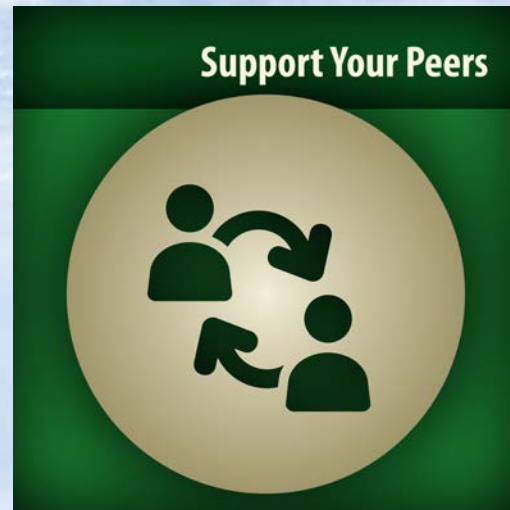


# DC Cook Baffle Bolt Inspection and Repair



2017 NATC International ISOE ALARA Symposium

**Dave Wood**

**DC Cook Radiation Protection Manager**



# Preparations

- Special thanks to the RP staff at Indian Point and Salem for allowing us to benchmark and learn from them

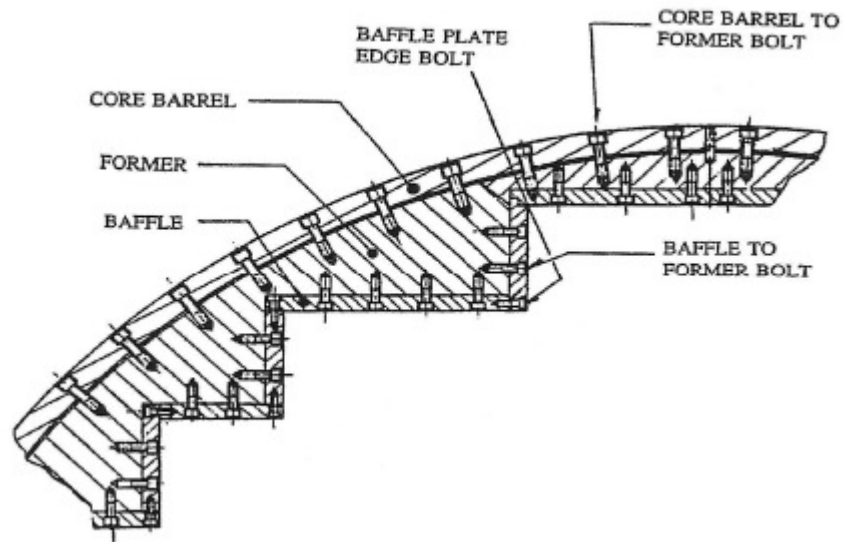


## Scope of Issue

- Baffle bolt degradation was found at the Indian Point and Salem Plants in March and April 2016
- Industry response guidance, endorsed by the NRC, has been issued
- Both units of Cook, along with both units of Indian Point, both units of Salem, and one unit of Diablo Canyon fall into the most urgent category of response
- Cook's current strategy is to replace at least 200 bolts during each of the next two refueling outages on each unit

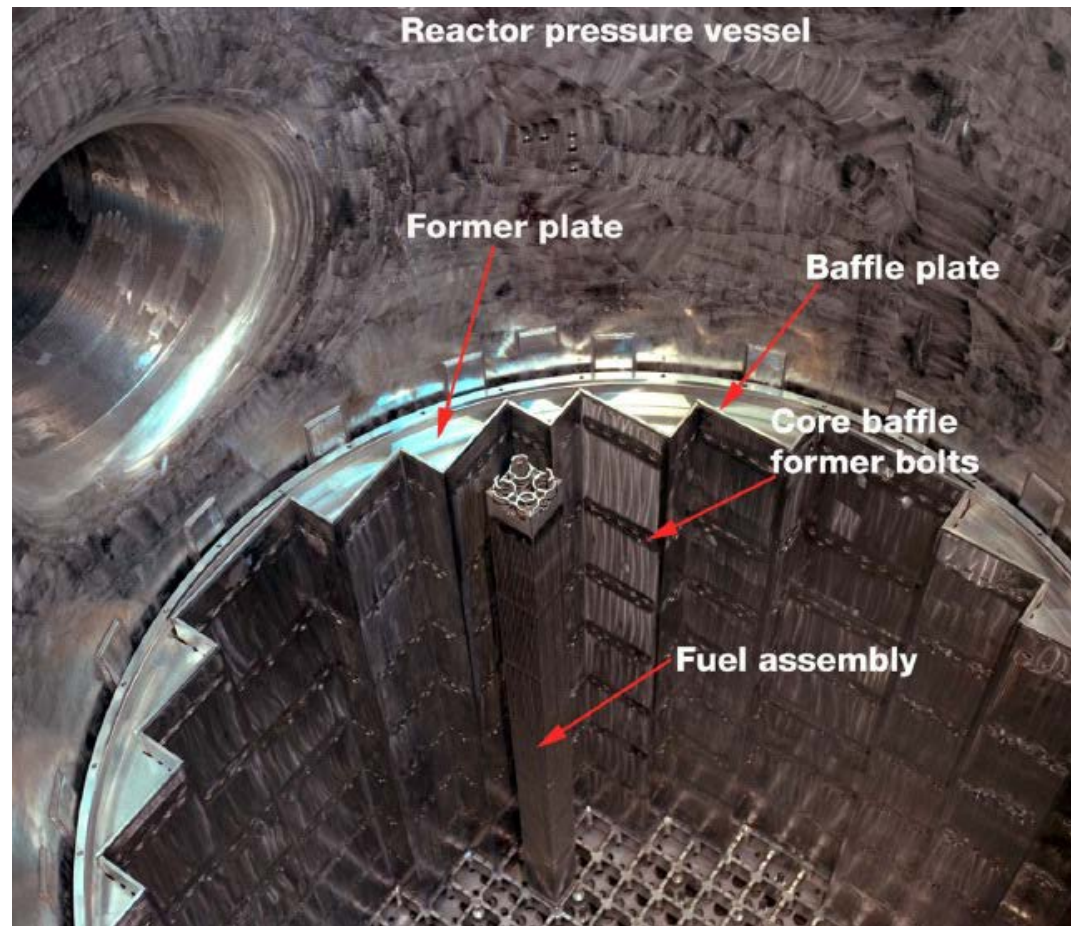


# So, What's a Baffle Bolt?

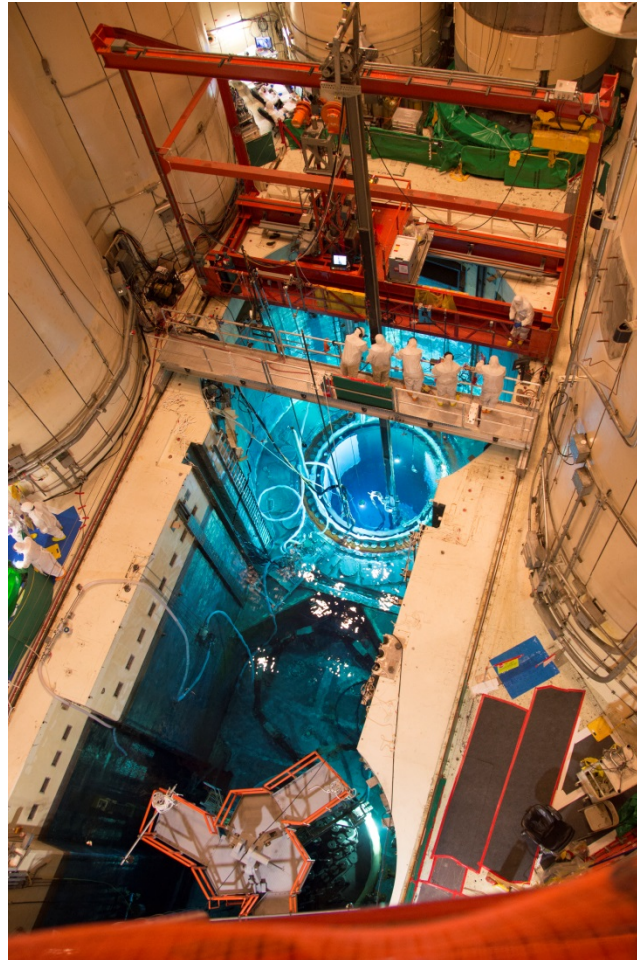




# How to put a Square Peg in a Round Hole

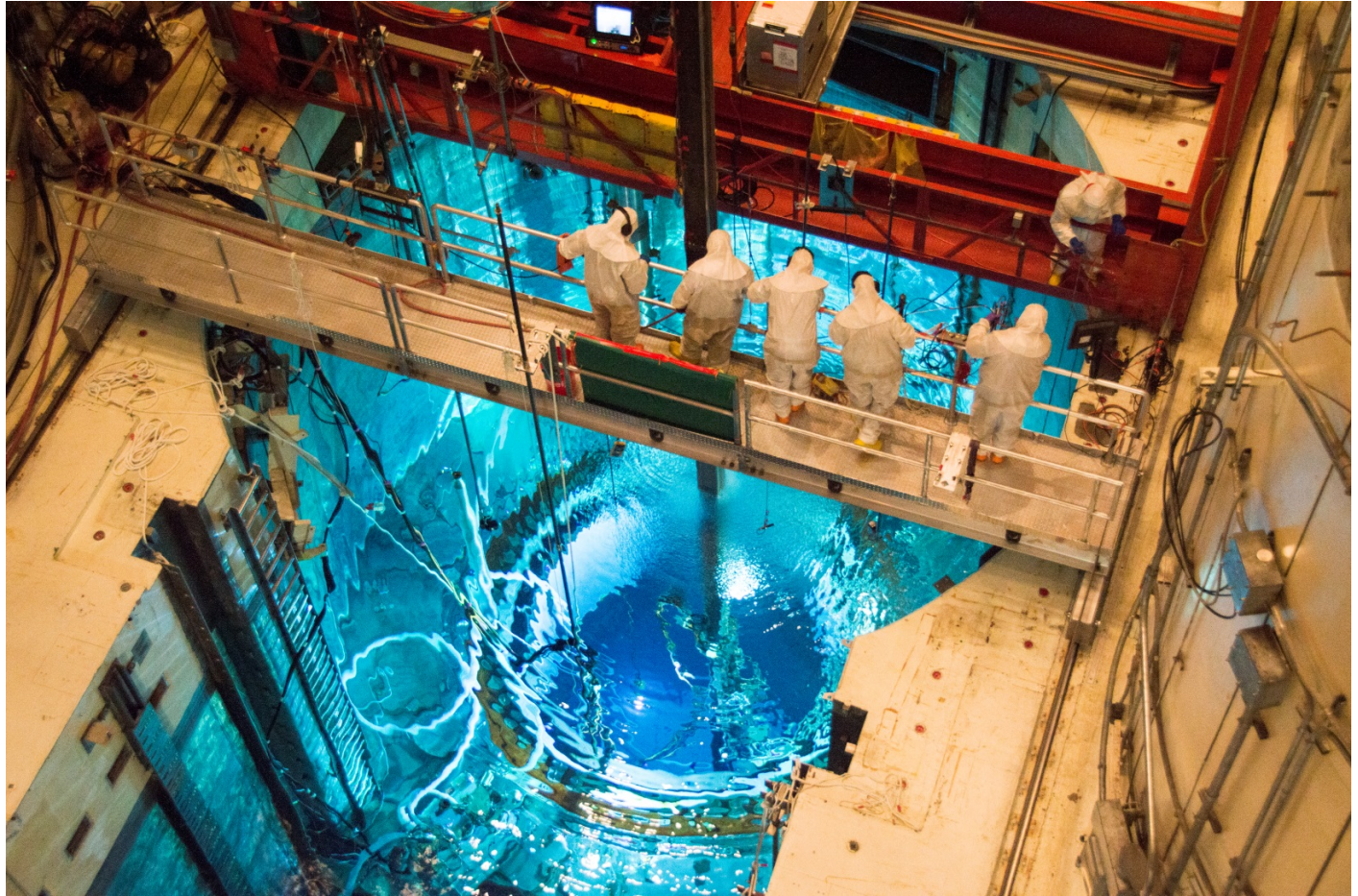


# Bird's Eye View of Set Up





# Männer bei der Arbeit (Men at Work)



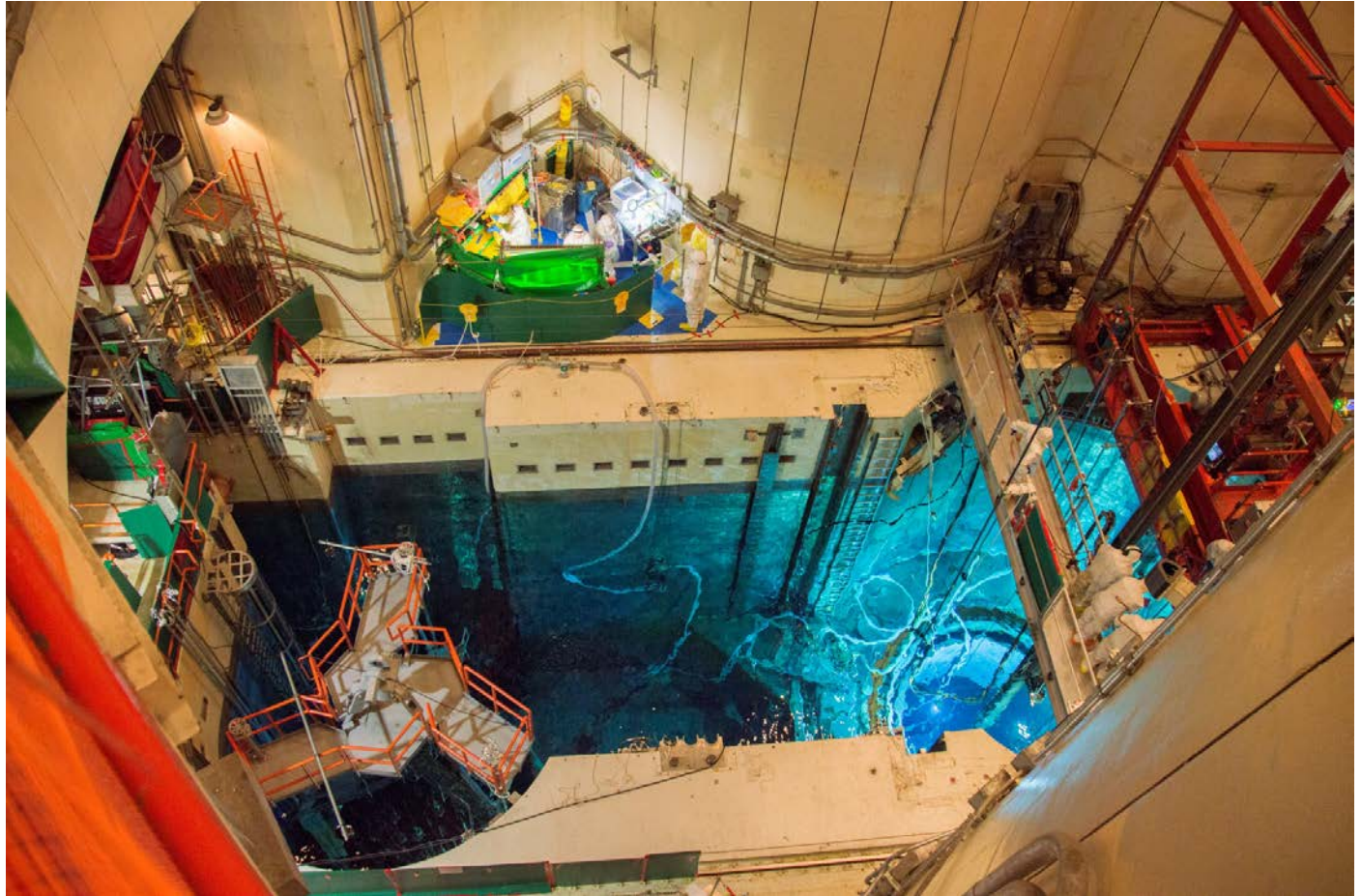


# Tool Head Repair Area





# Overhead View of Tool Head Repair Area

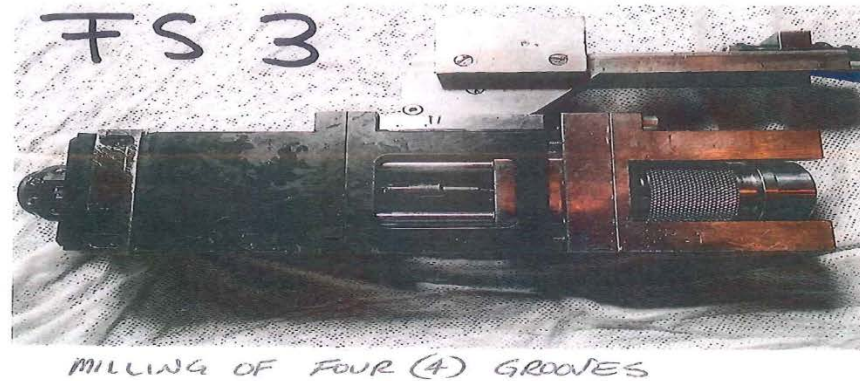


# Tool Repair





# The Usual Suspects

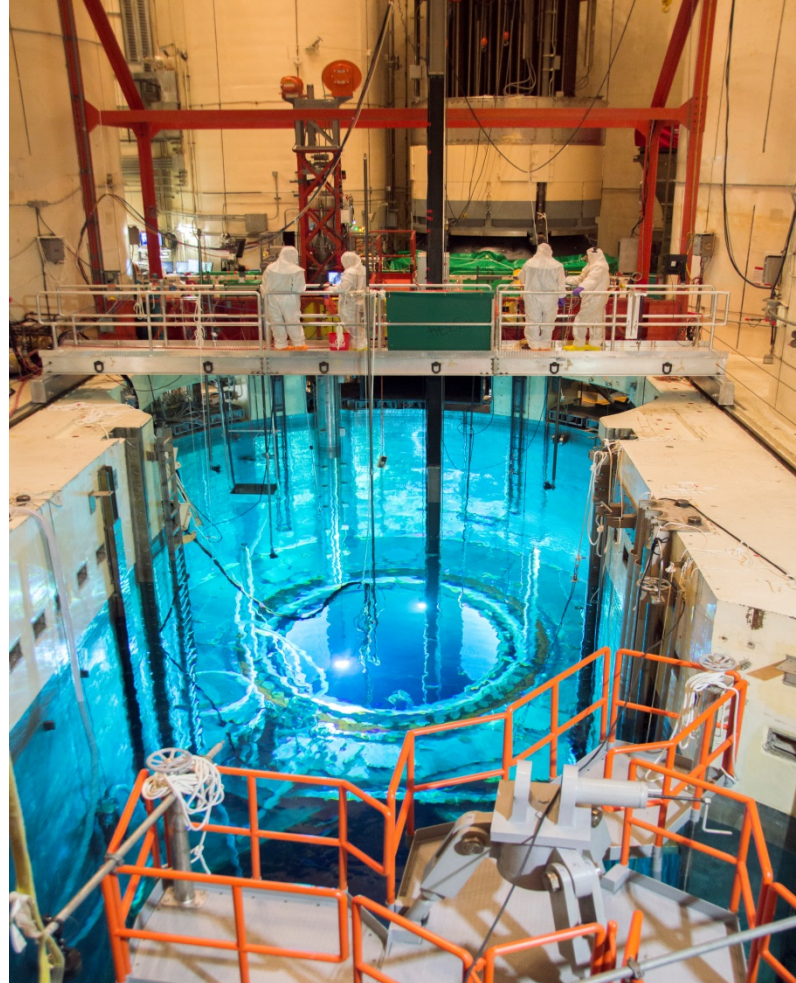




# FME Controls

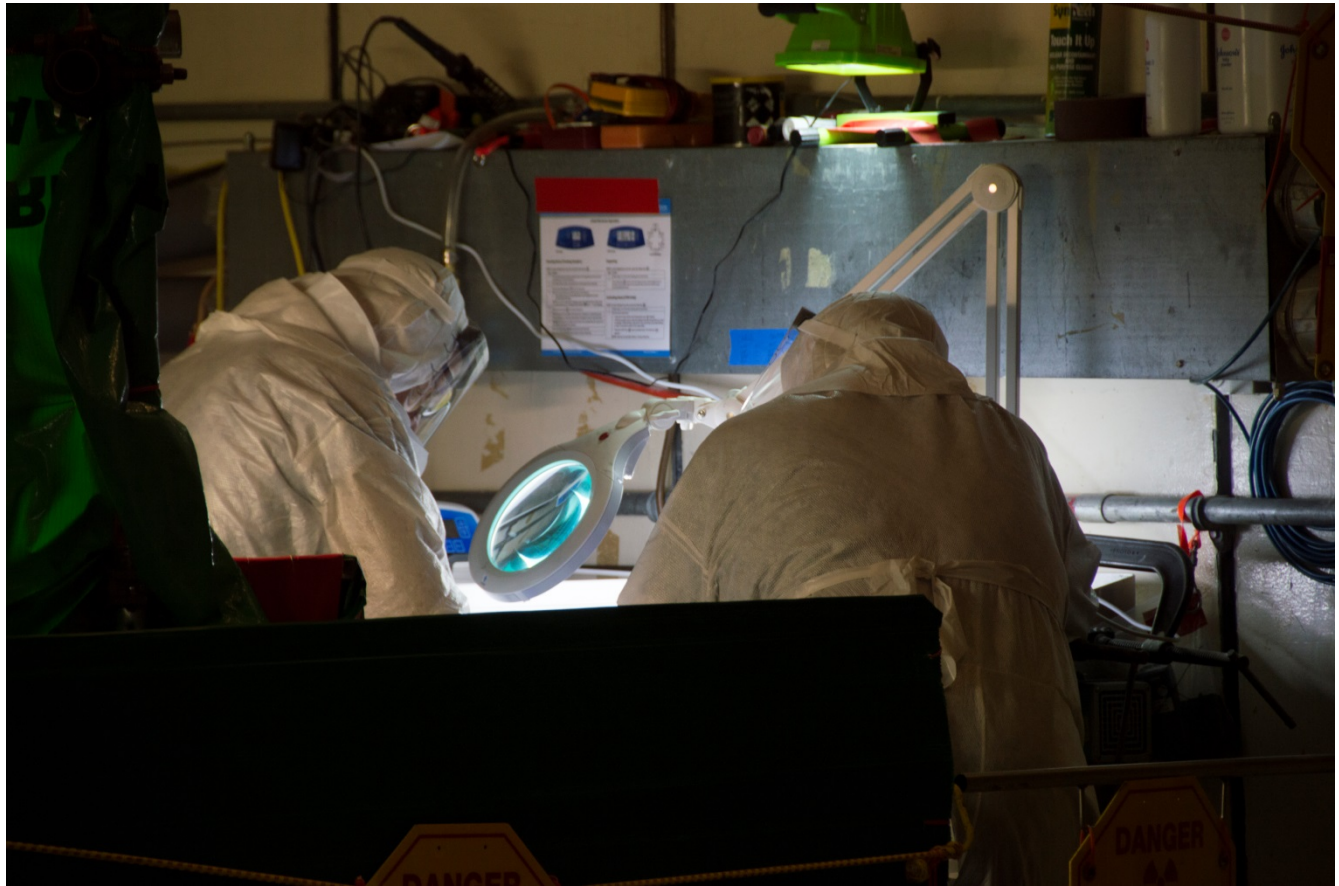


# View Looking South





# RP Technician Engagement/Innovation







# Overall Performance

- 100 percent ECT inspection, 201 bolts replaced
- 12.7 rem vs. 15 rem goal; One PCE > Level 1; Zero dose/dose rate alarms
- Extensive planning (to the extent practical); rigorous tool handling/removal process
- JIT training developed (by RPT) and delivered to all personnel supporting baffle bolts
- Solid ALARA plan with clear hold points and stop work criteria
- Five bolts shipped to off-site vendor for failure analysis
- Pre-job meeting with vendor to understand potential cultural differences
- Shiftly pre-job briefs/vendor engagement/teamwork
- Dedicated RP support, strong AEP ownership, strong technician ownership and engagement



# Lessons Learned

- Receipt of material – anticipate potentially higher dose rates and contamination levels
- Additional cavity cleanup through SFP demin not necessary
- Ensure accountability for tethered tools
- Monitor downdraft table and ultrasonic sink to maintain dose rates low
- Complete overhaul of FS 3 tool was very beneficial
- Demobilization plan needs to be thorough and must be adhered to
- If EDM is necessary, ensure capture of all debris and anticipate much higher dose rates on vacuum hoses during demobilization (2010 40 R/hr vs. 2016 200-400 mR/hr)
- Utilize a “tool pool” to hydrolaze tools underwater in parallel with other activities
- Lifting hook bent when demobilizing core plate FME cover



**Thank You**

Questions?

