KEEPING THINGS GOING

PREVENTATIVE MAINTENANCE, INSTRUMENT REPAIR AND TROUBLESHOOTING

PQAO TRAINING 2019
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WHAT DO THESE HAVE IN COMMON?
OVERVIEW

- Elements of an Effective Maintenance Program
- Preventative Maintenance
- Instrument Repair
- Equipment Replacement
- Troubleshooting
- Instrument Repair (PROTIPS)
- Takeaways!
- Exercises
ELEMENTS OF AN EFFECTIVE MAINTENANCE PROGRAM

- Equipment Replacement Schedule
- Legally Defensible DATA!
- Maintain Spare Equipment and Parts
- Equipment Inventory
- Maintenance Records
- Sources of Repair
- Established Maintenance Schedules
PREVENTATIVE MAINTENANCE

- What is PM?
- Ongoing Element of QC
- Scheduled Activities
- Every Organization
- Review and Update
INSTRUMENT REPAIR

➢ Repair/test facilities
➢ Equipped to test, repair and troubleshoot
➢ Dedicated area to repair/test
➢ No modification of equipment
➢ In-house repair vs service agreements
EQUIPMENT REPLACEMENT

- Life Span
- Old/Outdated equipment
  - Performance quality
  - Too costly to maintain
  - Potential loss of DATA
  - No support
- New equipment features
TROUBLESHOOTING

- Instrument manuals
- Remote monitoring
- Vendor provided support
- Contact SME’s
INSTRUMENT REPAIR (PROTIPS)

- Power
- Easy ►► Hard
- Other instruments
- Configuration
- Diagnostic values
- Operating Principle
- Error and Warning
- Power Outage
- Who to Contact
- Maintenance RECORDS
TAKEAWAYS!!

➤ HOW IS OUR AGENCIES PM PROGRAM?

➤ IS IT ADEQUATE?

➤ WHAT CHANGES DO WE NEED TO MAKE?
TROUBLESHOOTING EXERCISES
EXAMPLES

- Thermo Scientific 2025i
- TAPI 400 Ozone
- Met-One BAM 1020
THERMO 2025I

➢ Shuttle Error
FIRST STEPS

- Do I have other issues or problems?
  - Failed Leak Check

- Are there error flags/codes?
  - Hall Sensor Error

- What does Instrument Manual state?
CORRECTIVE ACTIONS

- Technical Bulletins
  - Partisol iSeries Shuttle Errors initial conditions
  - TS0043 2025i Low Pump Pressure
    Sintered Filter Replacement
- Better Upkeep and Maintenance
TAPI 400 OZONE ANALYZER

➢ O3 Reading Drift
FIRST STEPS

- Do I have other problems?
- Are there error flags/codes?
  - LAMP STABILITY WARN.
  - SAMPLE FLOW WARN.
- What does Instrument Manual state?
CORRECTIVE ACTIONS

- Instrument Manual Trouble Shooting
  - Sec. 12. TROUBLESHOOTING & SERVICE
- Better Upkeep and Maintenance
BAM 1020 COMMON ISSUES

- Failed Leak/Flow Check
- Membrane Errors
FIRST STEPS

 What other problems do I have?

 Are there BAM error flags/codes?
   N-Nozzle Error,
   F-Flow Error
   R-Reference Membrane Error

 Maintenance/Repair history?
CORRECTIVE ACTIONS

- Instrument Manual Troubleshooting
  - Sec. 7. Maintenance, Troubleshooting
- Better Upkeep and Maintenance
QUESTIONS?

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