

INPO

Institute of Nuclear Power Operations



INPO Perspective

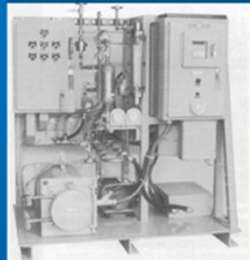
Groundwater Protection and RETS/REMP Meeting
June 2014

Joe Sears

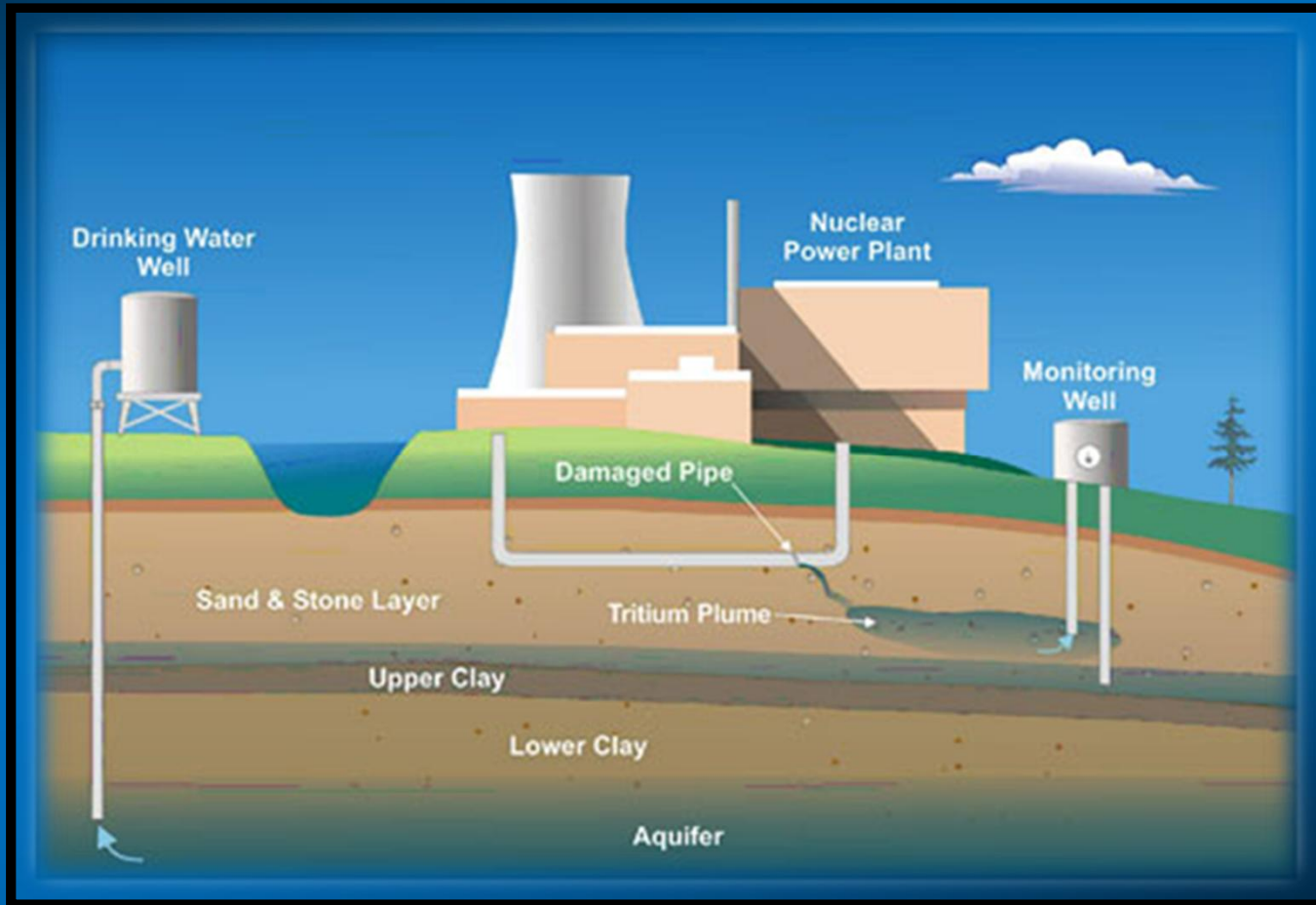
Manager, Nuclear Asset Protection

Key Topics

- Groundwater protection
- Underground piping and Tanks
- Process Radiation Monitoring Failures



Groundwater Protection



NRC File Image **INPO**

NEI 07-07, Industry Ground Water Protection Initiative

- Monitored pathway releases expected; includes tritium
- EPA
 - Safe drinking water standard: 20,000 pCi/l tritium-4 mrem/yr
- NRC
 - Drinking water reporting level: 20,000 pCi/l
- NEI 07-07 Groundwater Protection
 - Reporting
 - Objective 2.2 Voluntary Communication



NEI 07-07, Industry Ground Water Protection Initiative

- Precursor for underground piping and tank integrity review – NEI 09-14
- Initiative Effectiveness
 - Assessment process defined in NEI 07-07
 - Perform every 5 years
 - 11 objectives and 43 acceptance criteria
 - Shortfalls resolved through site corrective action program



Groundwater Tritium-Industry Expectations

- Zero tolerance: nuclear plants should not leak radioactive fluids
- Collaboration between stakeholders
- Leak source identified and remediated
- NEI 07-07 requirements adhered to
 - Ex. self-assessments; risk ranking performed
- Document leaks in CAP
- Effective oversight
 - Department manager/Nuclear oversight/Corporate



Tritium in Groundwater Wells

- Consolidated Data Entry
- Data Element Manual
- Data entry required since January 2013
- This is NOT a performance indicator but can be used for site to site comparison

Groundwater CDE Reporting

- Common Errors
 - Entering “0” for tritium
 - This should be your detection limit
 - Do not need to enter for multiple Units
 - Enter the data in one unit
 - Data is a site indicator not unit
 - Someone knowledgeable validating data

NEI 09-14 Underground Piping and Tank Integrity Initiative

- Licensed (radioactive) material/safety-related/environmentally hazardous
- INPO's Role
 - Evaluate program effectiveness
 - Communicate issues to the industry
 - Compile and report operating experience



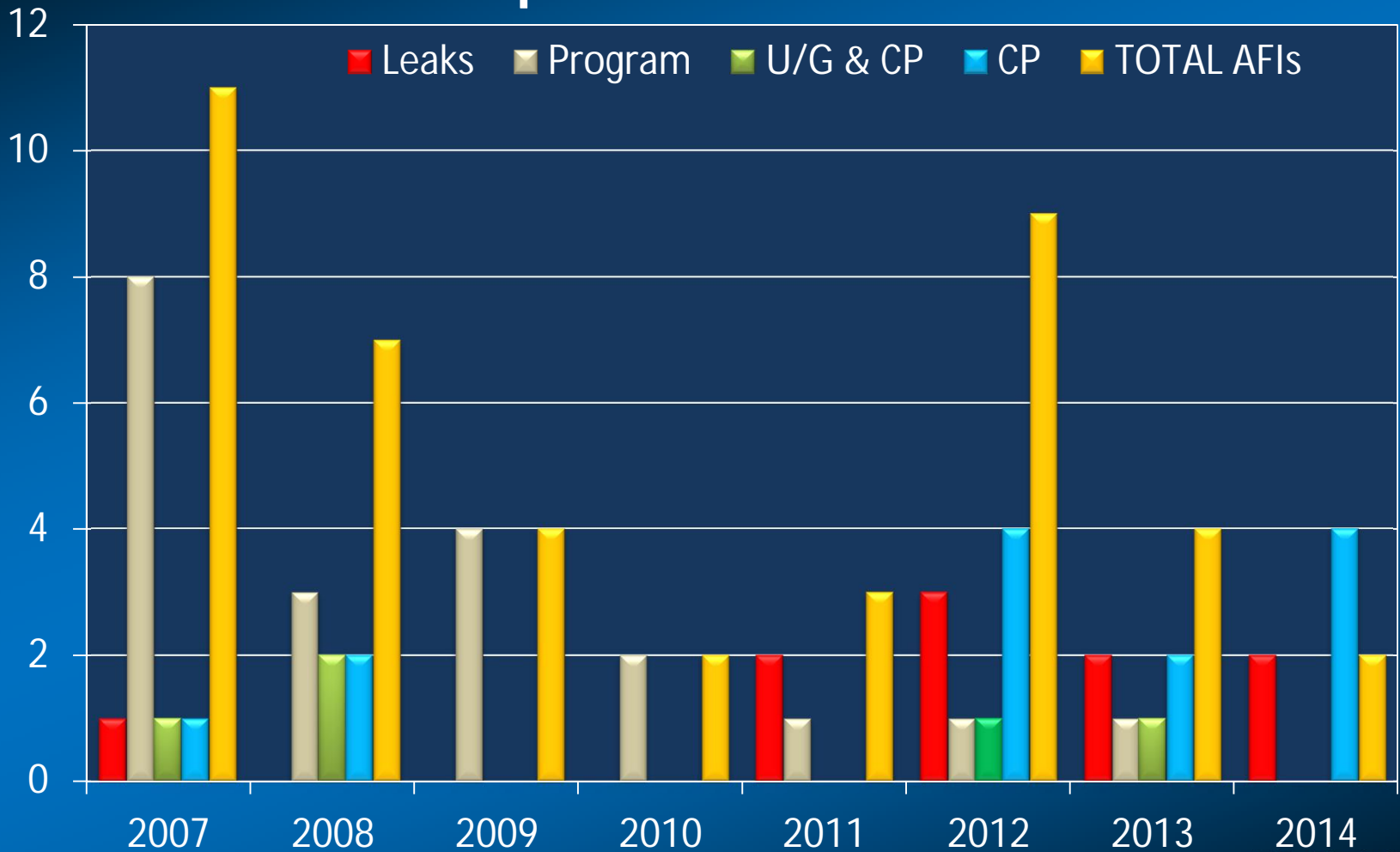
Plant Responsibilities ICES/NEI 09-14

- ❖ *Utilities will enter operating experience related to the items below into INPO's (EPIX now ICES) database when instances occur. Entries shall be made in a timeframe consistent with ICES timing requirements.*
- *Leaks from buried piping*
- *Significant leaks from buried piping: defined as those which meet either of the following criteria*
 - *Reportable under NRC, EPA, or state regulation or the Ground Water Protection Initiative, or*
 - *Result in the system or component being out of service*
- *Adverse inspection findings: defined as indications from inspections that require a major repair within one cycle*

Source: NEI 09-14 Appendix A



Areas for Improvement



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2012 AFI Summary

- Nine AFIs; Four Performance Deficiencies
 - Five – underground piping
 - Four - cathodic protection
- Improvement needed
 - Leak extent of condition addressed
 - Risk ranking review thoroughness
 - **Leaks occurring and the source is unknown**
 - Input results in ICES (small number unacceptable)
 - **Cathodic protection health or none installed**

2014 Summary

- Two AFIs; Four Performance Deficiencies
 - Two – underground piping
 - Four – cathodic protection
- Improvement needed
 - Degraded coatings and **cathodic protection not properly maintained**
 - Cathodic protection equipment work prioritization and completion
 - Cathodic protection site knowledge weaknesses
 - **Leaks occurring and the source is not determined**

NSIAC – industry oversight

- Chief Nuclear Officers
- Approved NEI 07-07 and 09-14
- Status implementation progress
- Discuss Trends
- Discuss Gaps

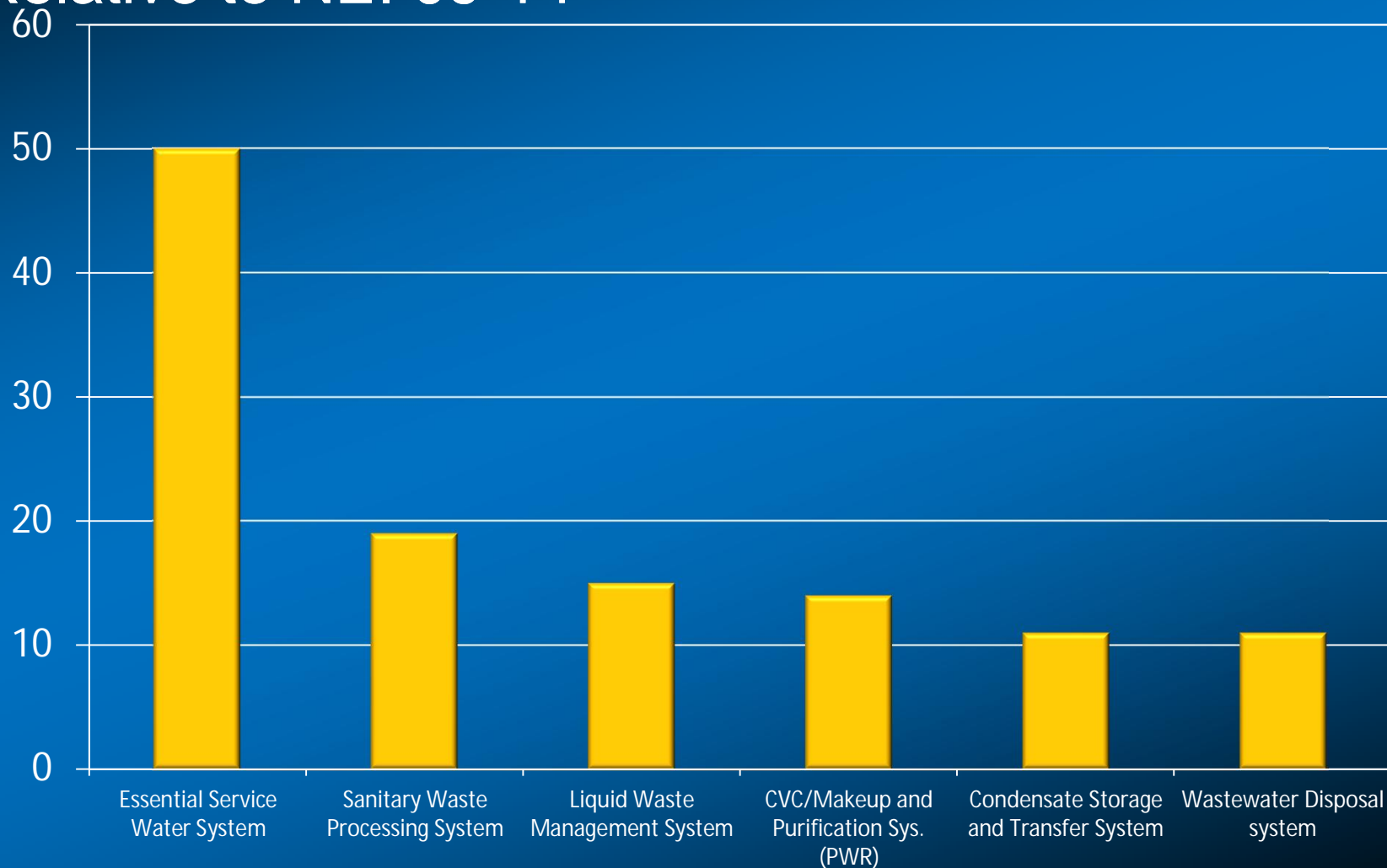


- **Expected outcome:** *Improved analytical capabilities result in an accurate and reliable picture of plant and industry performance and emerging trends*
- *Merges EPIX, Plant Events Database, LERs and NPRDS event reports into an integrated system*
- *Improves user access*
 - *INPO members and authorized participants*
 - *rapid access to information*
 - *eliminates current manual processing needed before data is usable*
- **Each station has an OE coordinator who is trained to enter your data**



Most Commonly Affected Systems Relative to NEI 09-14

Source: ICES 2008 -2014



Radiation Monitors (RMS)

Radiation Monitors (RMS)

- RMS equipment reliability is a focus area for many utilities
 - Radiation Monitor downtime could result in delay in S/G tube rupture detection and response
- NRC issued IN 2013 – 13, July 2013 - Effluent RMS Deficiencies
- 8 years since last NMAC-related product
 - 2003 System Guide – 1007909
 - 2005 Calibration Guide – 1011965



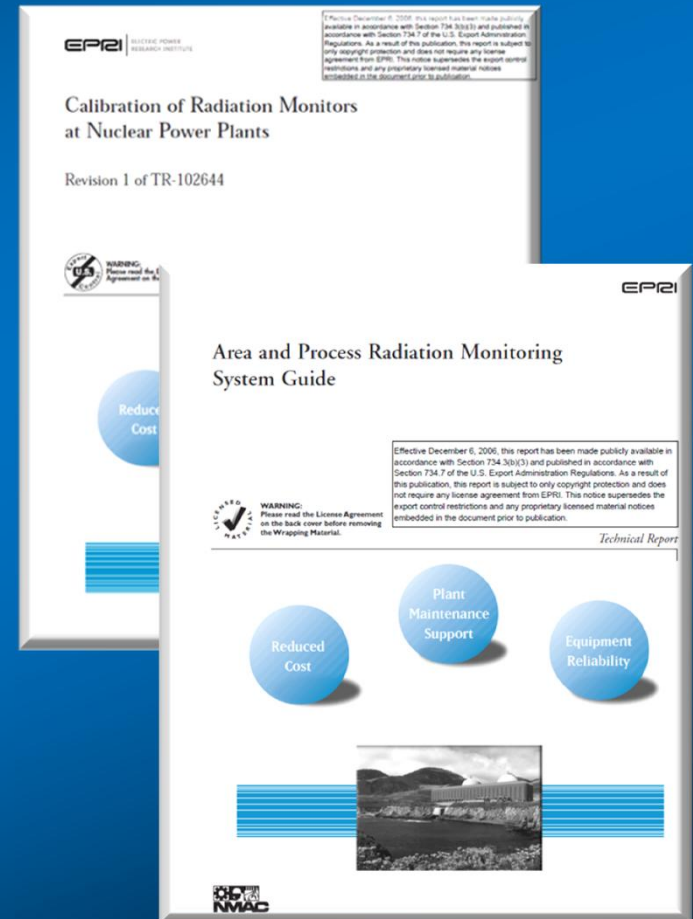
Industry guidance for RMS

2003 System Guide – 1007909

- Regulatory requirements summary
- Industry Operating Experience
- Troubleshooting guidance
- Equipment obsolescence

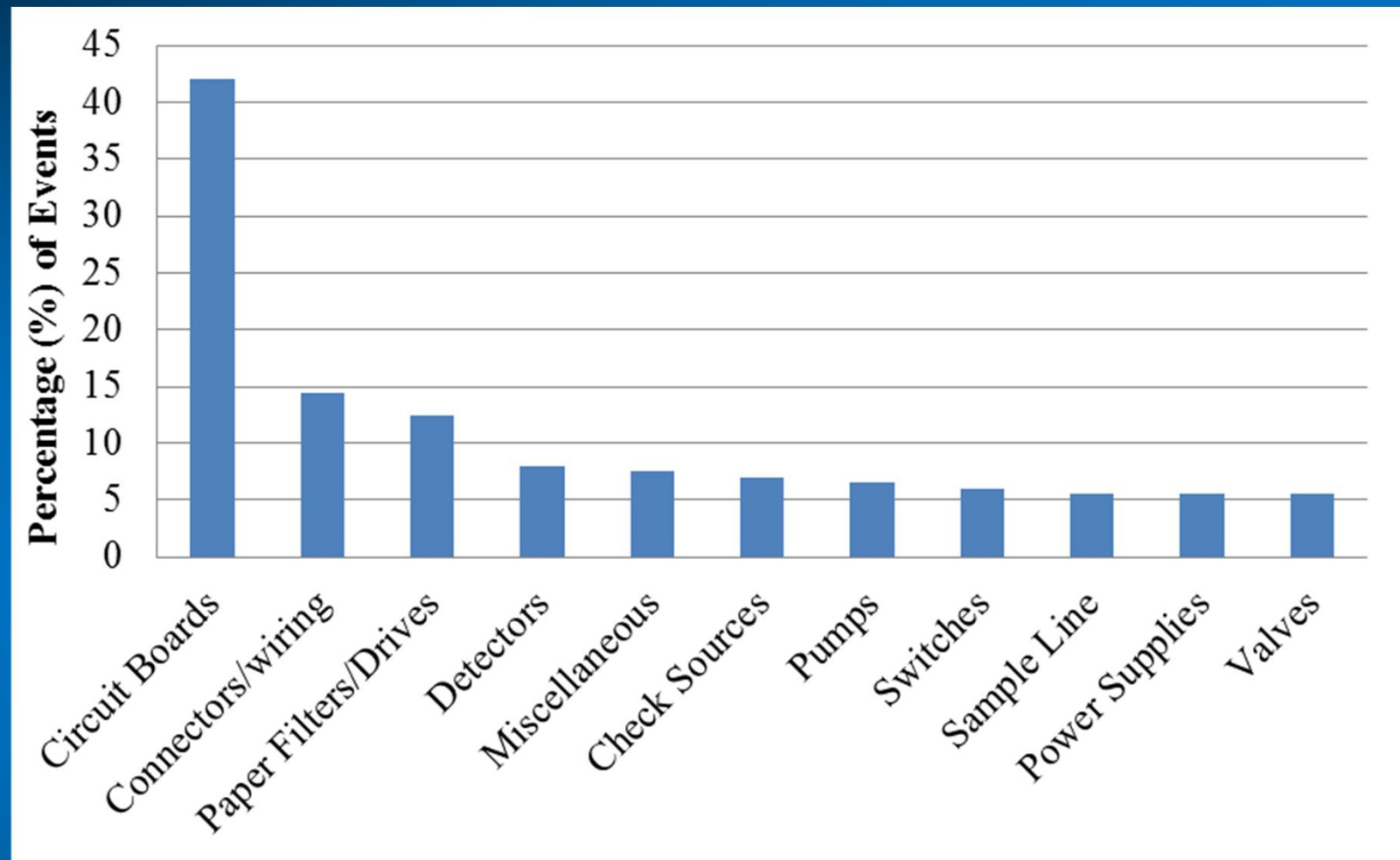
2005 Calibration Guide - 1011965

- Troubleshooting guidance
- Reference for calibration requirements and procedures



Radiation Monitors (RMS)

- ICES Reports 2009 through 2013



Radiation Monitors (RMS)

- Maintenance issues:
 - Not included in Maintenance Rule
 - Lack of PM templates
 - Sample line cleaning, filters, circuit boards
- Replacements and Obsolescence
 - Long lead times
 - Cost for upgrades

Radiation Monitors (RMS)



- Next steps
 - Work with EPRI and the industry on
 - INPO Event Report
 - Includes recommendations to improve reliability
 - Knowledge of currently available guidance
 - Possible NMAC PM template development

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Questions?



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***To promote excellence in the operation
of commercial nuclear power plants.***