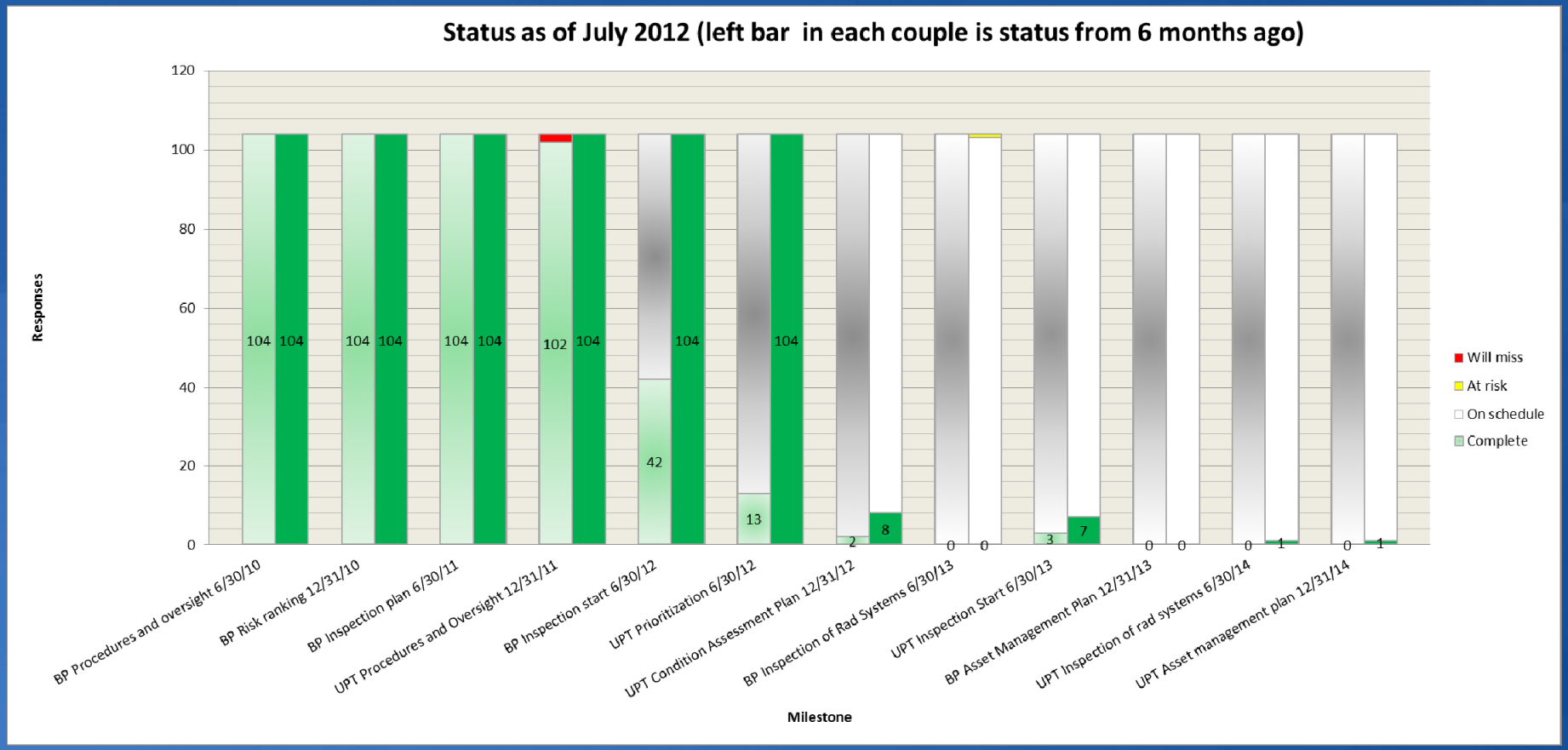
Underground Piping and Tanks Integrity Initiative Implementation Report to NSIAC June, 2012

Jim Riley

December 5, 2012

Overall Implementation Status

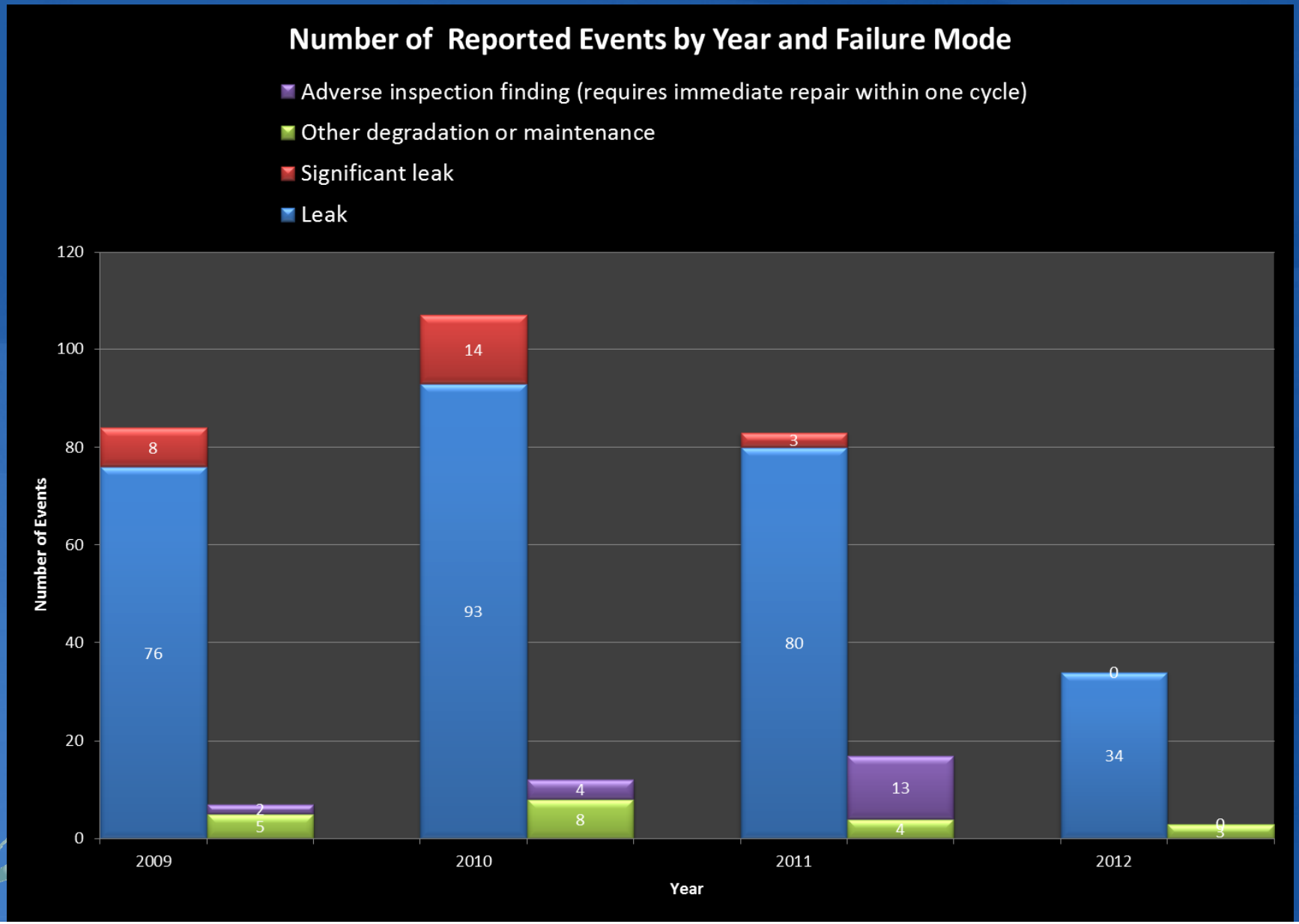


Overall Implementation Status

- As of the end of June 2012, all plants have met the first six milestones.
  - One plant reports that completion of inspections of buried piping containing licensed material by June 30, 2013 is at risk because of funding uncertainty.
  - One plant has reported all Underground Piping and Tank milestones as complete because they do not have any components within the scope of this part of the Initiative
- Positive or stable trends are indicated on each milestone
- One deviation in January 2012. The December 31, 2011 milestone was missed due to an administrative problem
  - Utility processed a justification for deviation on this issue
  - Procedures were in place by the end of January
- All plants currently report that they are on schedule for future milestones

NEI

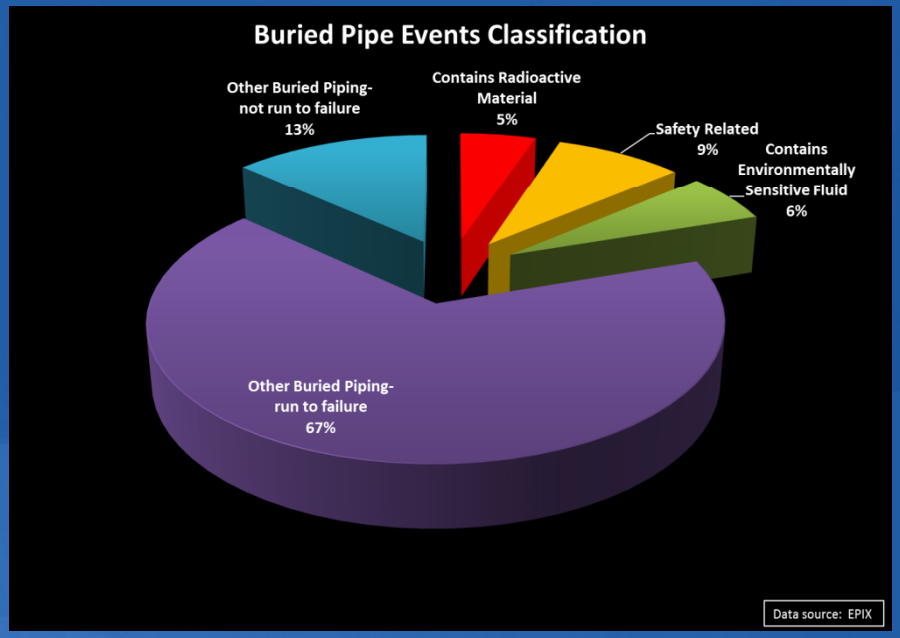
Operating Experience



Operating Experience

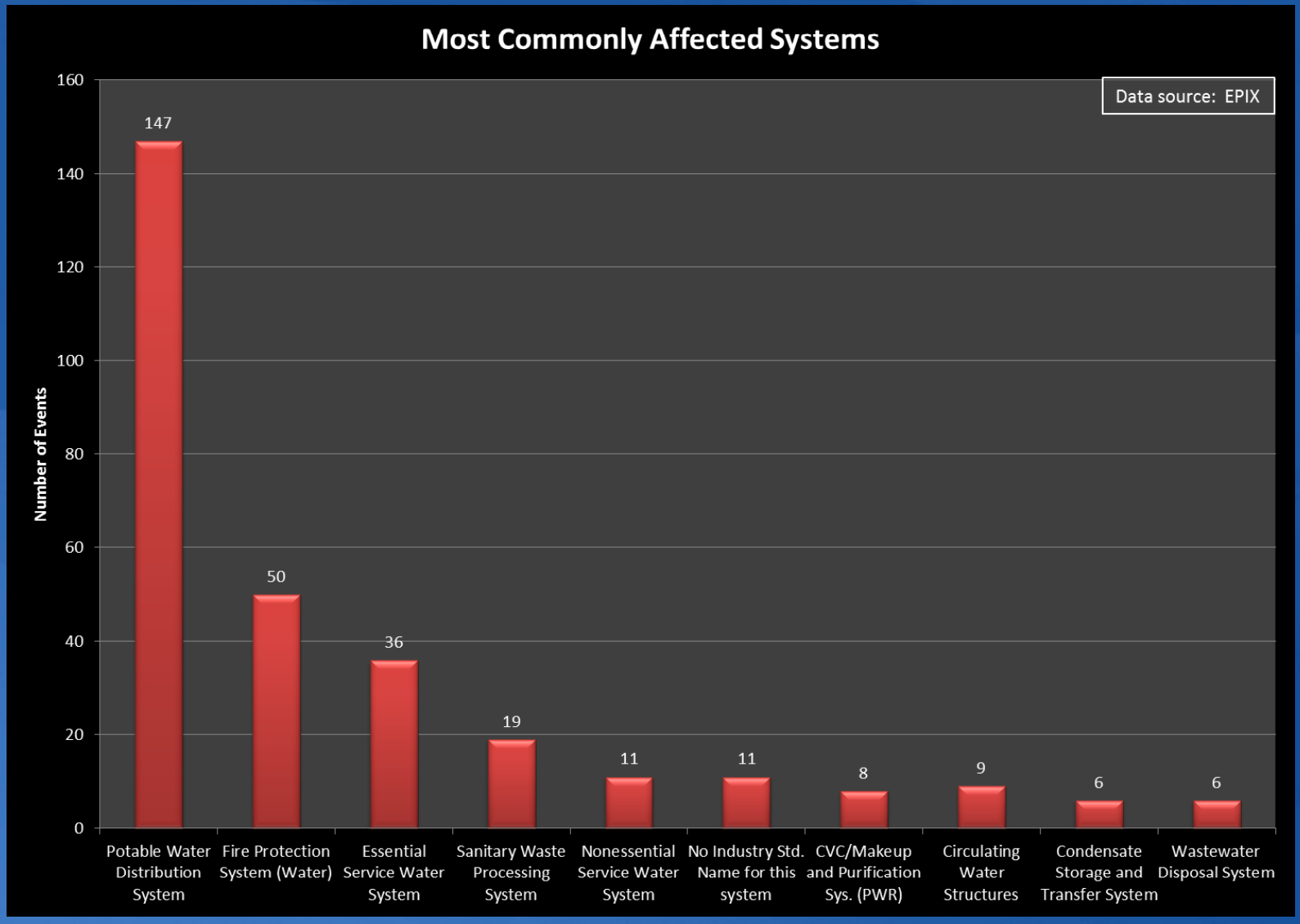
- Reported in EPIX as of June, 2012
- Totals for past years change as reports continue
- Too early to trend leakage overall
- Chart of systems most affected has not changed significantly
- Legend
  - Significant leaks
    - Exceed NRC or EPA limits,
    - Reportable under the Ground Water Protection Initiative,
    - Result in a system or component being out of service
  - Adverse inspection findings require repairs within one cycle

Operating Experience

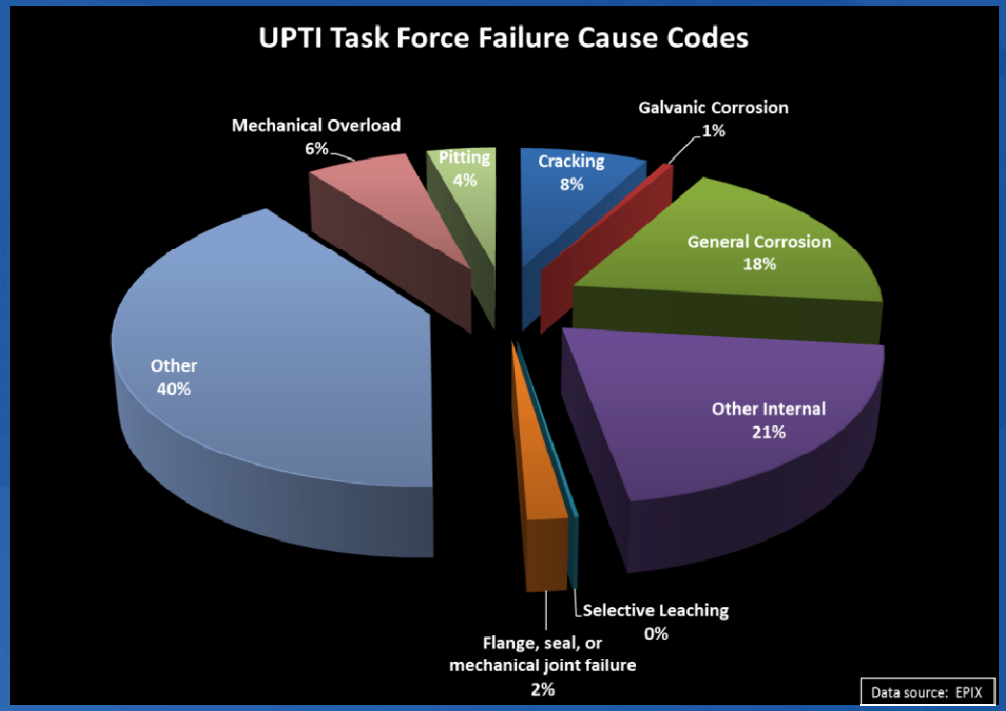


- Plants characterize systems differently; especially which systems are “run to failure”
- The majority of buried and underground piping degradation is occurring on low risk or “run to failure” systems (see next slide)
- Relative percentage of events in the different categories has not changed significantly
- About 20% of the piping degradation has been on piping that is safety related, or contains radioactive or environmentally sensitive materials

Operating Experience



Operating Experience



- The major reported failure causes was “other”. This category includes events that do not have a reported cause. Use of this categorization (essentially a default) makes an evaluation of failure trends difficult.
- Efforts are underway to encourage more detailed cause determinations and this is having some effect; 53% of the causes were listed as “Other” in July 2011

NDE Technology

- Conducted a Buried Pipe NDE Workshop on May 21st, 2012 in Seattle WA
  - Facilitated an industry goal to reduce the communication gap between NDE and buried pipe subject matter experts.
- Completed the development of a remote field in-line depth sizing technology in July.
- Completed a technical basis for a new phased array ultrasonic technology that increases examination speed and improves wall degradation detection and characterization capabilities
- Structural health monitoring technology (permanent guided wave sensors) provides a potentially powerful tool to permanently monitor buried piping systems
- Assessed two internal self-propelled robotic piping inspection systems to benchmark NDE sensor technology and to a limited degree robotic capability
- Initiated a project to produce flaws in high-density polyethylene (HDPE) piping so that NDE technologies can be developed and evaluated
- EPRI has joined the Pipeline Research Council International (PRCI) to leverage EPRI resources on buried piping issues relating to NDE, corrosion, materials, and repair

Overall Observations

- There are no major new observations on leakage trends or Initiative implementation this period.
  - Utilities are implementing the Initiative milestones as scheduled.
  - Only one deviation to the Milestones or to the expectations in NEI 09-14 has been reported
- Significant advances in NDE technology development
- There are no definite trends in event occurrence so far