

**Underground Piping and Tanks
Integrity Initiative
Implementation Report to NSIAC
January, 2013**

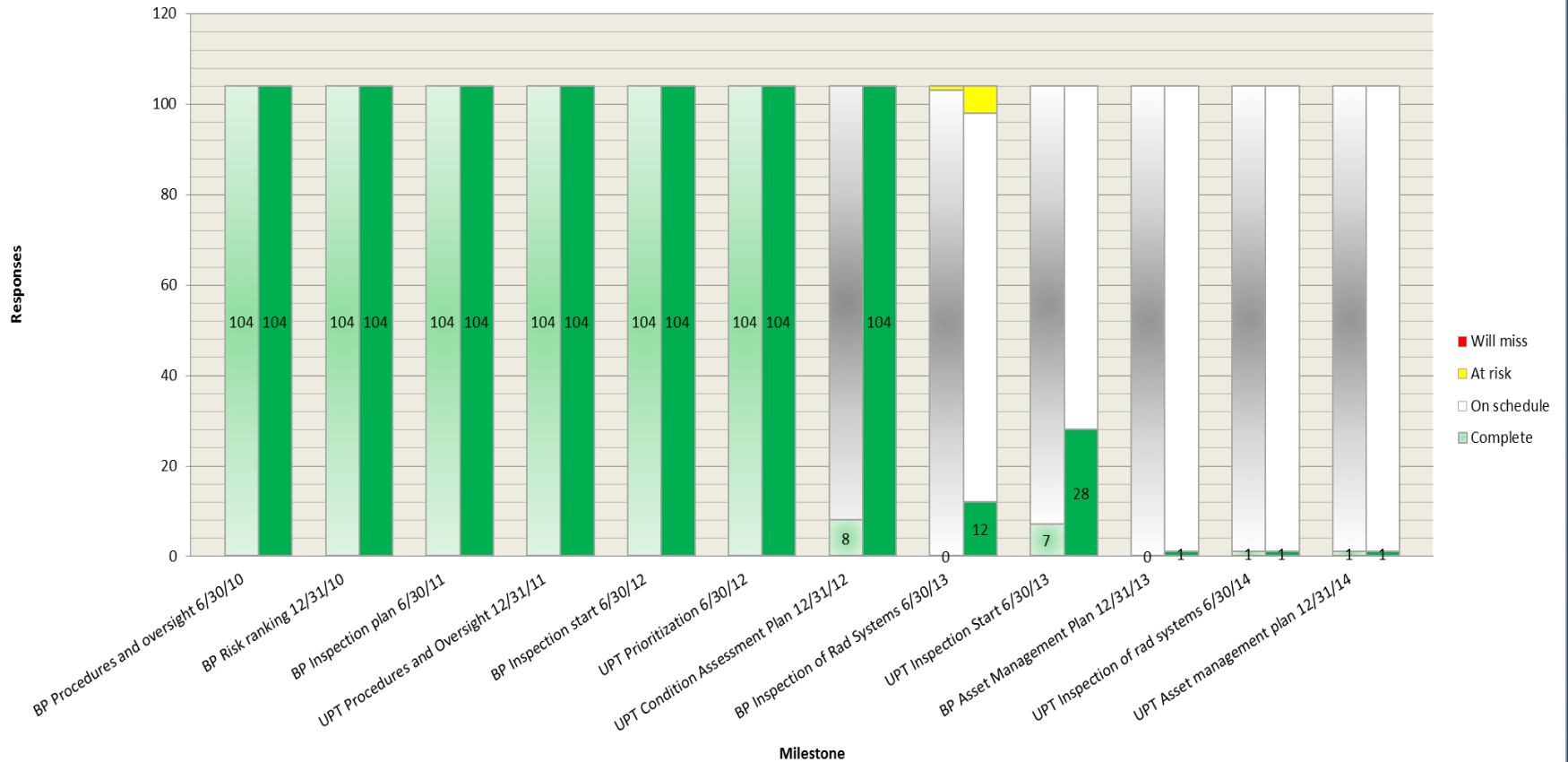
Jim Riley

April 25, 2013



Overall Implementation Status

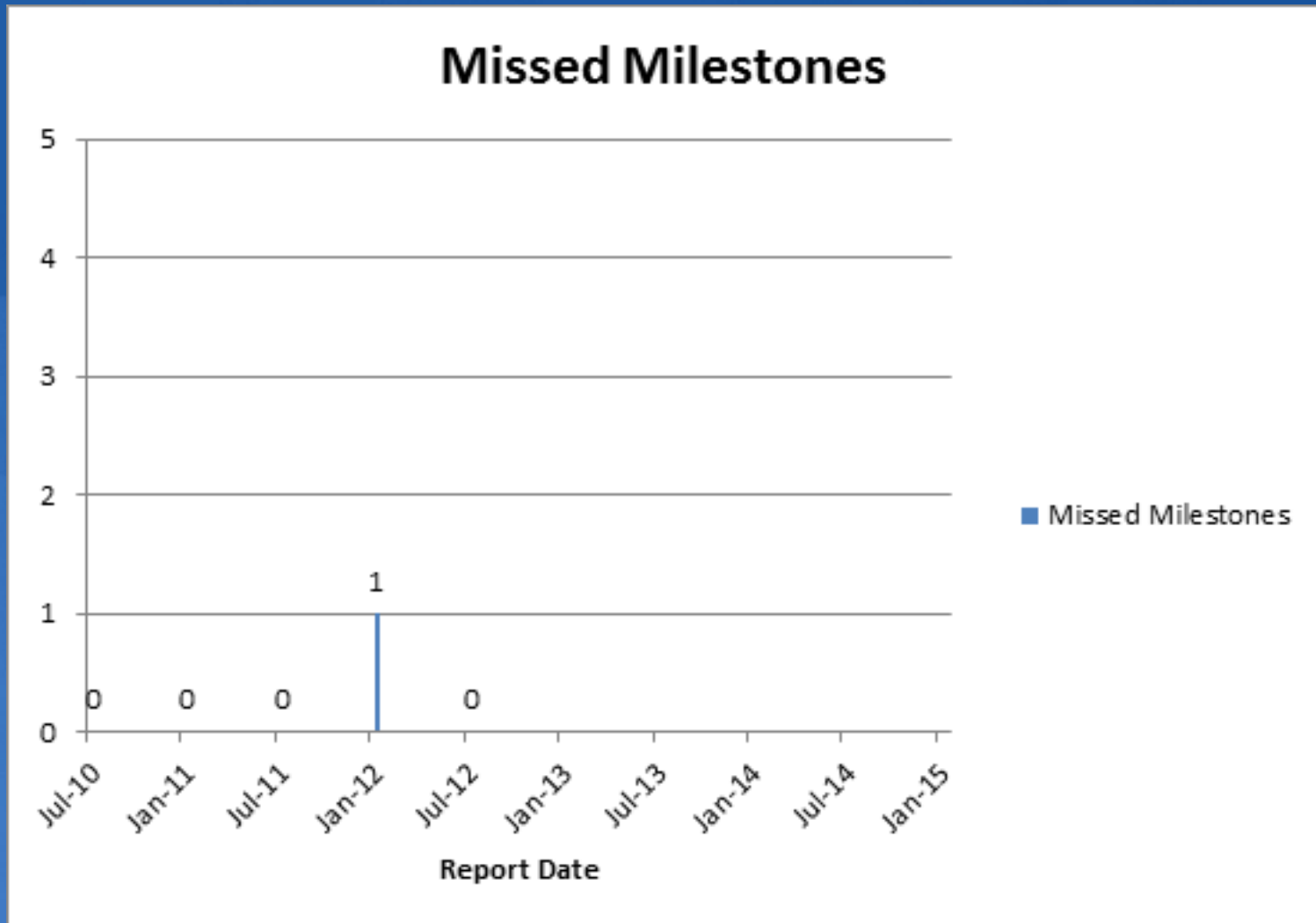
Status as of January 2013 (left bar in each pair is status from 6 months ago)



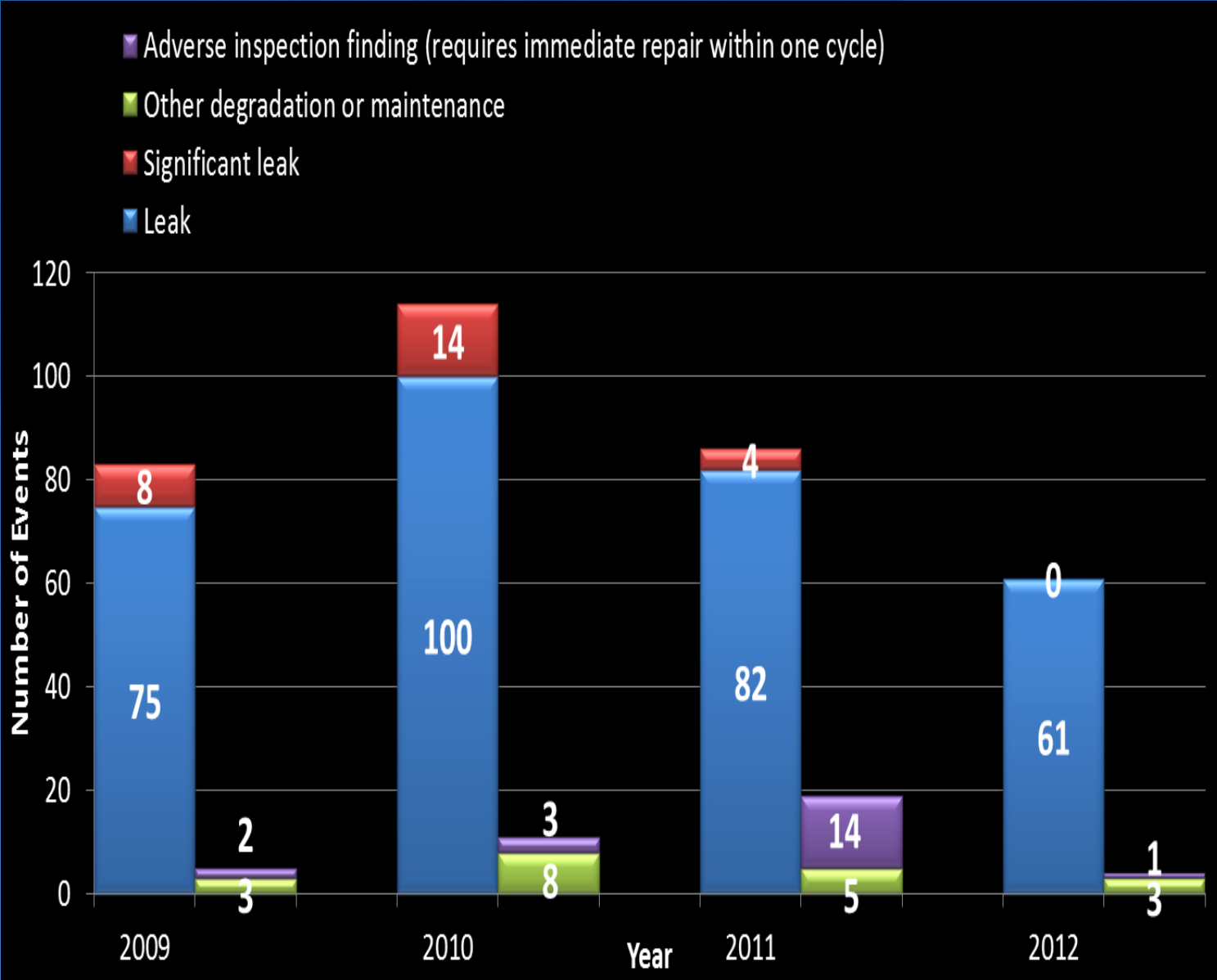
Overall Implementation Status

- **All plants have completed the first seven milestones.**
 - Inspections of buried piping containing licensed material at risk because of funding uncertainty, newly identified scope or inspection expansion due to findings.
- **Positive or stable trends are indicated on each milestone with the exception of the June 30, 2013 inspection completion milestone.**
 - Challenge should be reduced by the Initiative change
- **NSIAC approved a revision to the Initiative on January 30, 2013**
 - Focuses scope
 - Changes three of the Initiative milestones to December 31, 2014
 - Revised as part of the industry's efforts to address cumulative impact

Milestone Trends



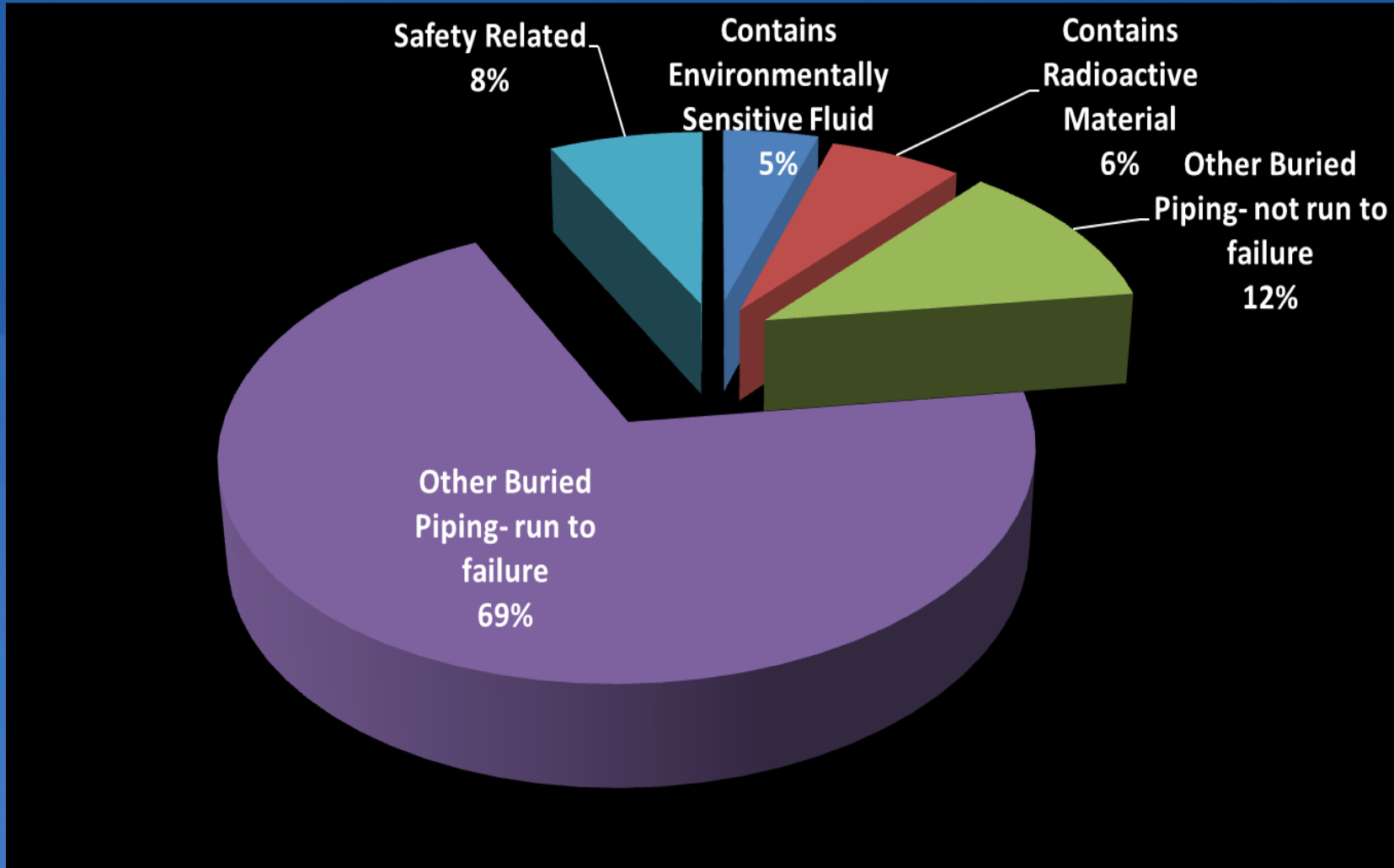
Operating Experience as of 12/31/12



Operating Experience as of 12/31/12

- **Number of reported events should not be interpreted as indicating any trends yet.**
 - Total number of events for each year continues to change as plants report events from previous years.
 - Note delay in reporting underground piping leaks because a 50 day average reporting criteria has been established.
- **Decline in significant leaks and one adverse inspection finding in 2012 requiring repair within one cycle**

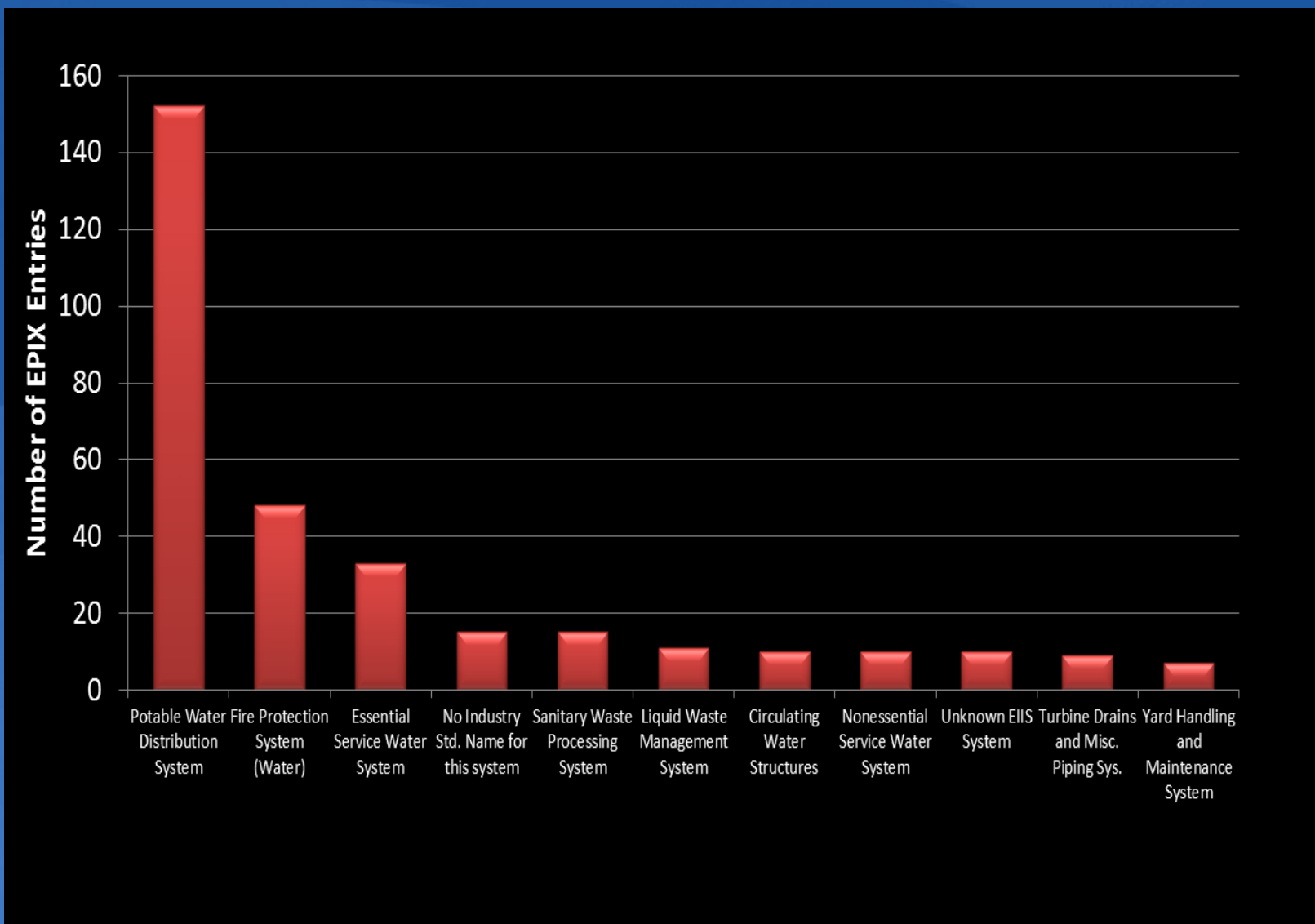
Operating Experience as of 12/31/12



Operating Experience as of 12/31/12

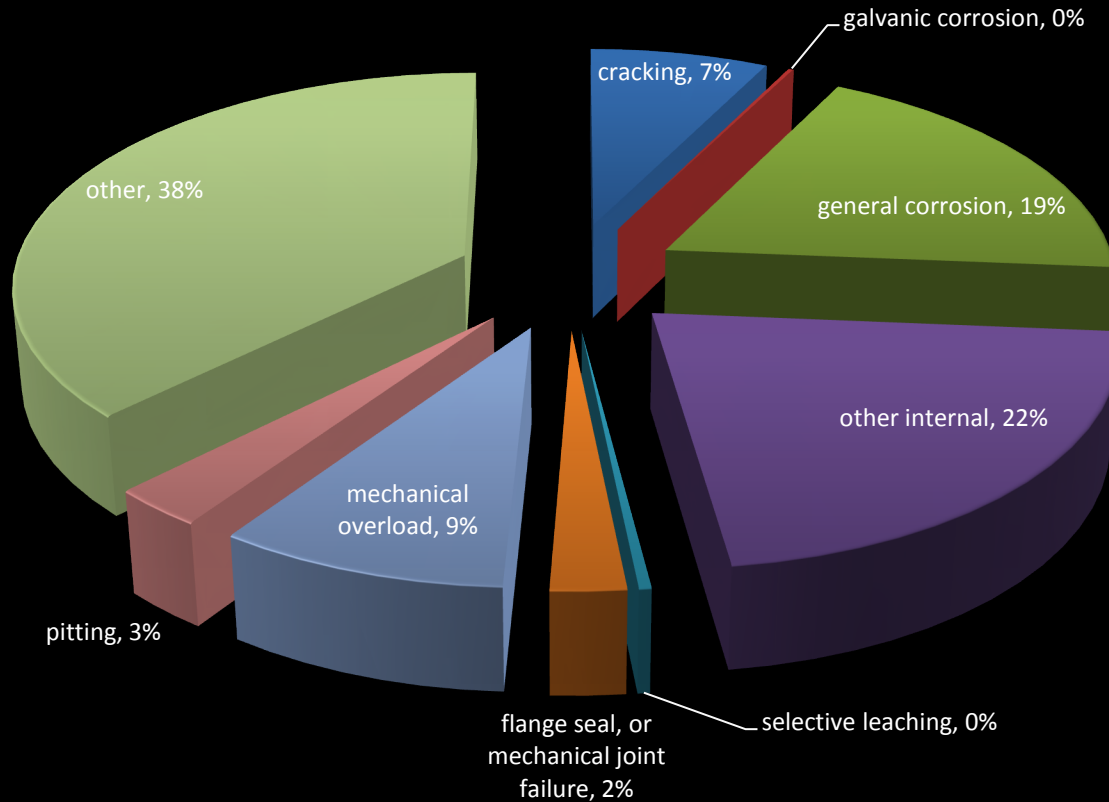
- **Plants characterize systems differently; especially which systems are “run to failure”. This different characterization makes interpretation of this data imprecise, but general observations are possible**
 - **The majority of buried and underground piping degradation is occurring on low risk or “run to failure” systems**
 - **About 20% of the piping degradation has been on piping that is safety related, or contains radioactive or environmentally sensitive materials**
 - **The relative percentages shown in the chart have not changed significantly since the industry began reporting the data**

Operating Experience as of 12/31/12



Operating Experience as of 12/31/12

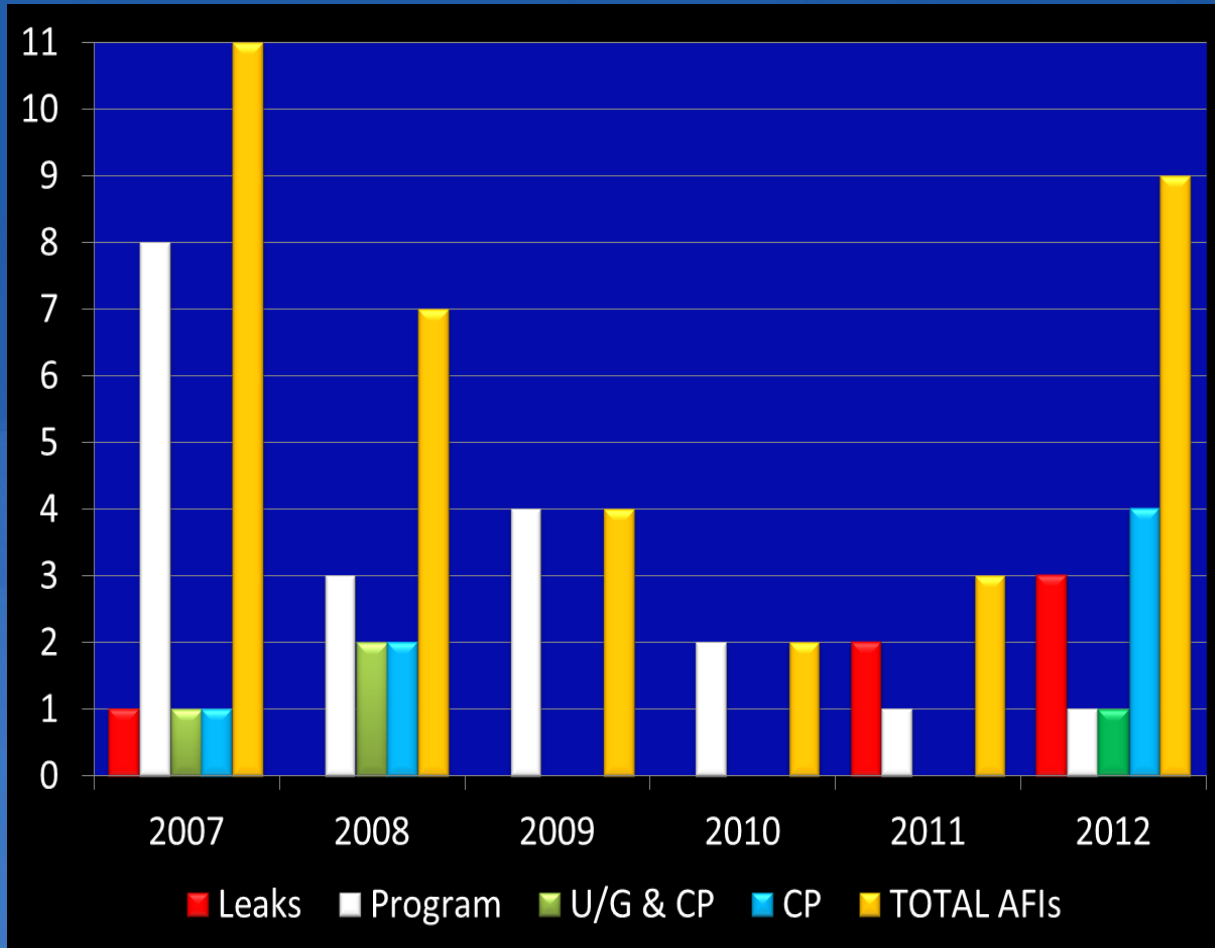
February 2013 UPTI Task Force Failure Cause Codes



Operating Experience as of 12/31/12

- The major reported failure cause in this chart is “other” (includes events that do not have a reported cause) Use of this categorization (essentially a default) makes an evaluation of failure trends difficult.
- Placing increased emphasis on the identification of causes
 - Utilities are doing a better job of categorizing events (53% of the causes were listed as “Other” in July 2011 versus 38% now).

AFI Review as of 12/31/12



- Definition of the four categories of AFIs
- **Leaks** – Area for improvement (AFI) written to address actions taken to address a leak
- **Program** - AFI written to address gaps in implementing elements found in the program or industry initiative
- **U/G & CP** - AFI written to address combination of leak, program, and cathodic protection (CP) gaps
- **CP** - AFI written exclusively for gaps in the cathodic protection program or equipment.

AFI Review as of 12/31/12

- Number of “Areas for Improvement” (AFIs) is indicative of the emphasis being placed on buried piping programs
- 2007 – 2009: AFIs identified a lack of underground piping program monitoring and health assessment.
- 2011 and 2012: shift occurred focusing on implementation of NEI 09-14 and specifically safety related service water or radioactive piping leaks and mitigation of leaks.
 - AFIs during this time addressed areas such as not completing a thorough risk analysis, not meeting industry reporting requirements, not understanding the cause for or source of leaks
- Gaps in the CP (cathodic protection) program have increased as the industry more clearly understands the role of cathodic protection.

NDE Technology as of 12/31/12

- **Continuing significant commitment to buried/underground and tank NDE development, plant implementation support, benchmarking capabilities, and providing resources to service providers to improve technologies and procedures. EPRI buried pipe reports issued in 2012 include:**
 - **Nondestructive Evaluation: Buried Pipe Nondestructive Evaluation Reference Guide—Revision 2 (1025220)**
 - **Nondestructive Evaluation: Buried Pipe NDE Technology Assessment and Development Interim Report (1025219) – Presents benchmarking of NDE results and phased array probe technical basis**
 - **Inspection Methods for Tanks and Containment Liners (1025215)**
 - **Buried Pipe Direct Examinations Through Coatings (1025228)**
 - **Guided Wave Analysis Tools Update (1025212)**
 - **Buried Pipe Structural Health Monitoring Sensitivity Studies (1025213)**
 - **Nondestructive Evaluation: Buried Pipe In-Line NDE Depth Sizing Procedure (1025231)**
- **In-line inspection technology development and assessment continues and is a viable option for implementation. In addition, in-line repair technology is also being developed using the current delivery vehicles.**

Buried Piping Inspection Results Database as of 12/31/12

- **Available in May 2012**
- **Contains inspection information collected since early 2011.**
- **Allows users to share and view buried pipe inspection results in the form of queries, tables, graphs and reports.**
- **Serves as a central repository for utilities to share buried pipe inspection results information and will provide patterns or trends to enhance inspection planning and prioritization.**
- **Currently includes data from over 2,500 inspections of buried pipe from the US nuclear fleet.**

Overall Observations as of 1/31/13

- **NRC informed of Initiative change**
- **Important that the revised milestones be met**
- **No major new observations on leakage trends or Initiative implementation**

Overall Observations

- **Significant advances in NDE technology development and adaption**
 - **Field use affected by the system modifications necessary to deploy the inspection tools**
- **BPITF considering ways to understand overall implementation**
 - **Initially, a rollup of INPO and BPIG information.**
 - **Task force will review**