



Risk Categorization of Issues at LLNL

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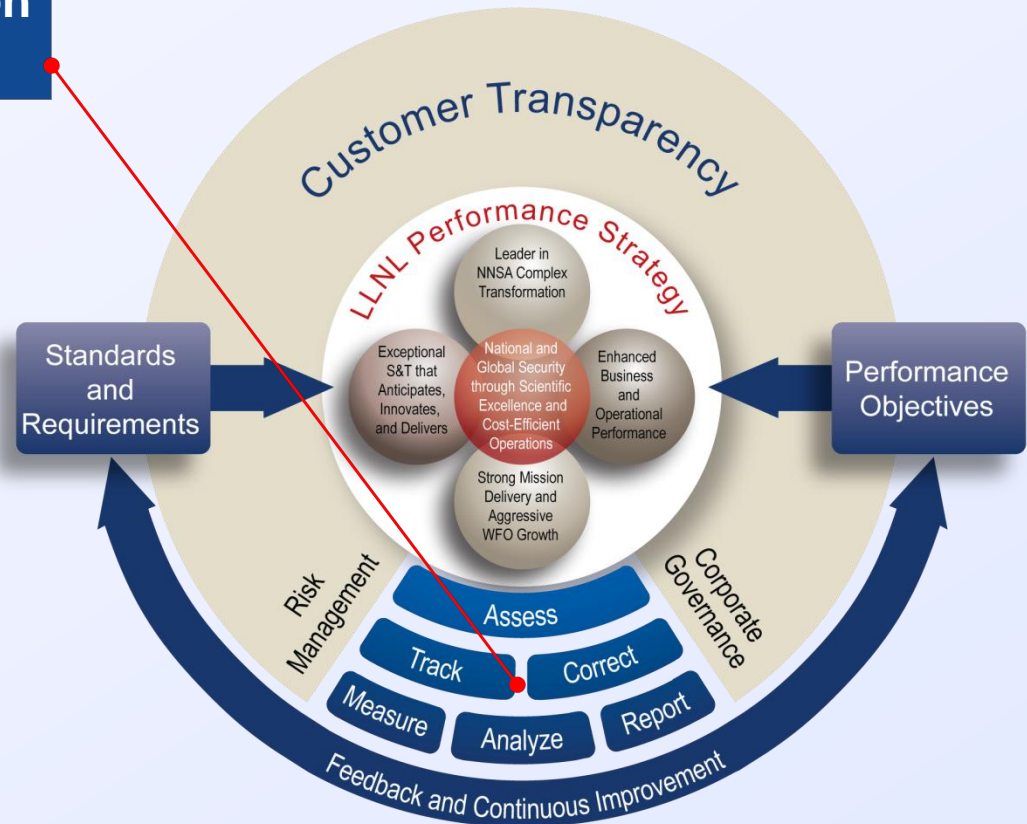
Topics

- Overview of process
- Risk tables
- Analysis after 1 year of use



Issues and corrective action management is a core piece of LLNL's Contractor Assurance System

Issues and Corrective Action Management

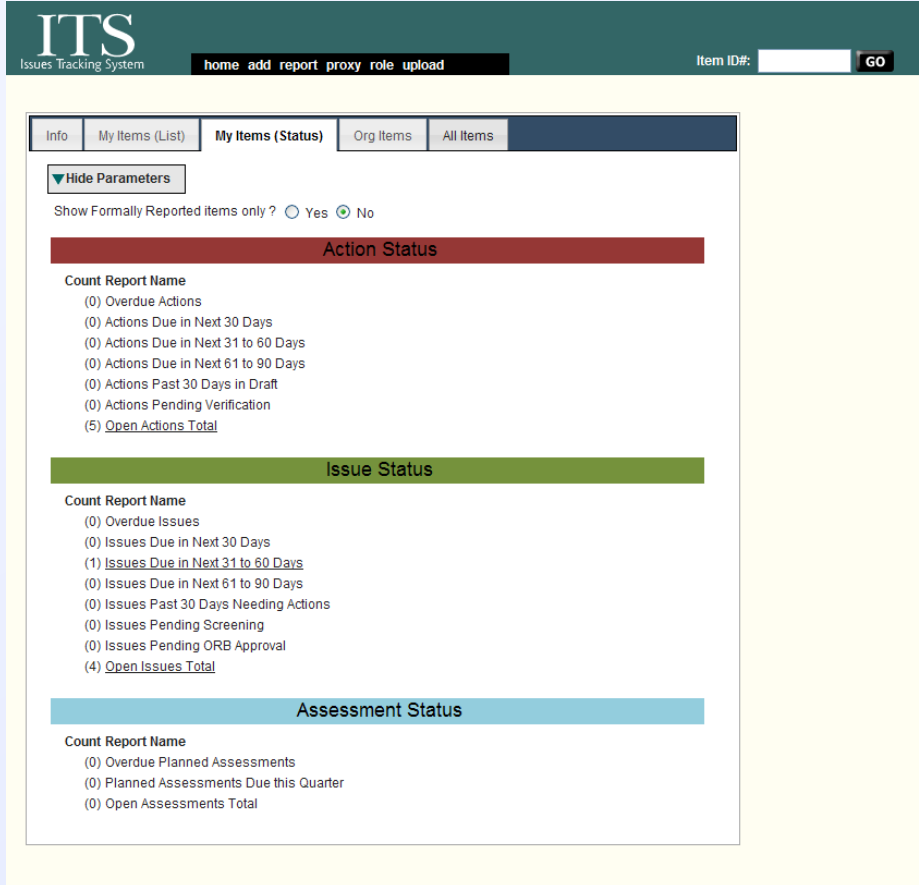


LLNL just completed a 2 year effort to upgrade issues tracking processes and software

To achieve:

- Single, integrated system with improved user interface
- Enhanced transparency
- Improved governance and line accountability
- A graded approach for disposition of issues
- Effective binning, trending, and reporting

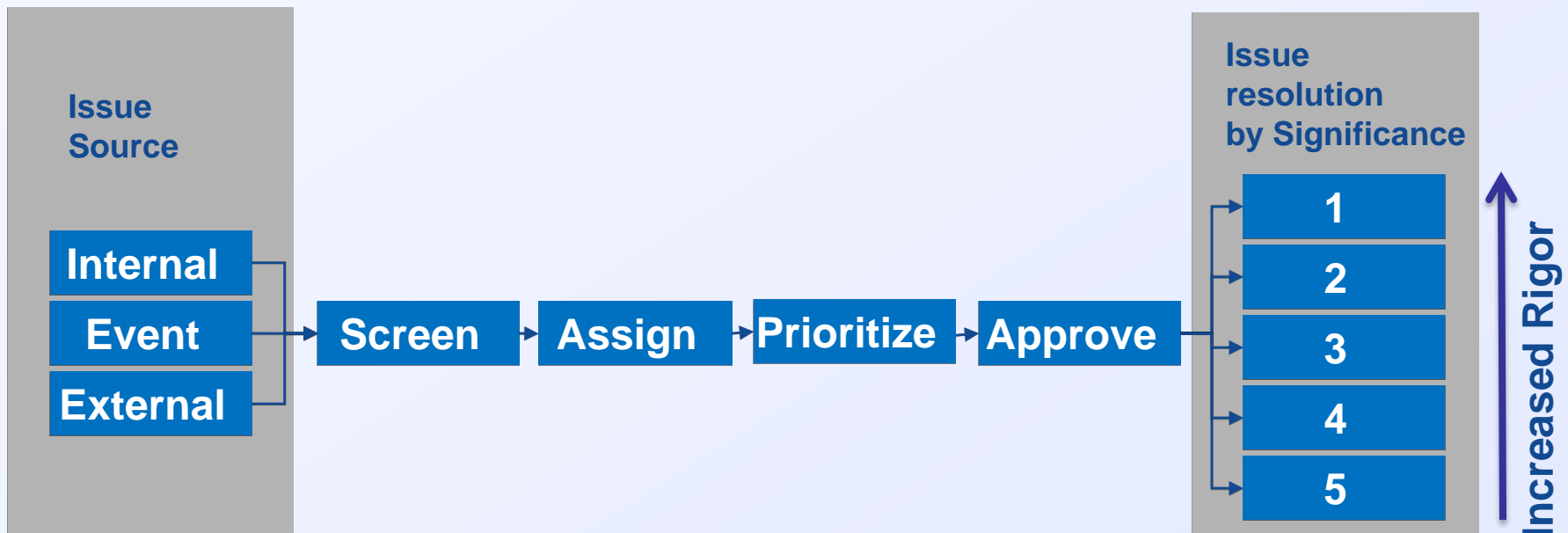
Issues Tracking System (ITS) Home Screen



The screenshot displays the ITS Home Screen. At the top, the ITS logo is visible, along with navigation links: home, add, report, proxy, role, and upload. An 'Item ID#' field with a 'GO' button is on the right. Below the navigation bar, there are tabs for 'Info', 'My Items (List)', 'My Items (Status)', 'Org Items', and 'All Items'. A 'Hide Parameters' button is present. A filter option 'Show Formally Reported Items only?' is set to 'No'. The main content area is divided into three sections: 'Action Status' (red header), 'Issue Status' (green header), and 'Assessment Status' (blue header). Each section lists various counts and report names, such as 'Overdue Actions', 'Actions Due in Next 30 Days', and 'Open Actions Total'.

LLNL's revised process includes line management accountability and discretion

- Early collaboration with LANL provided the general structure

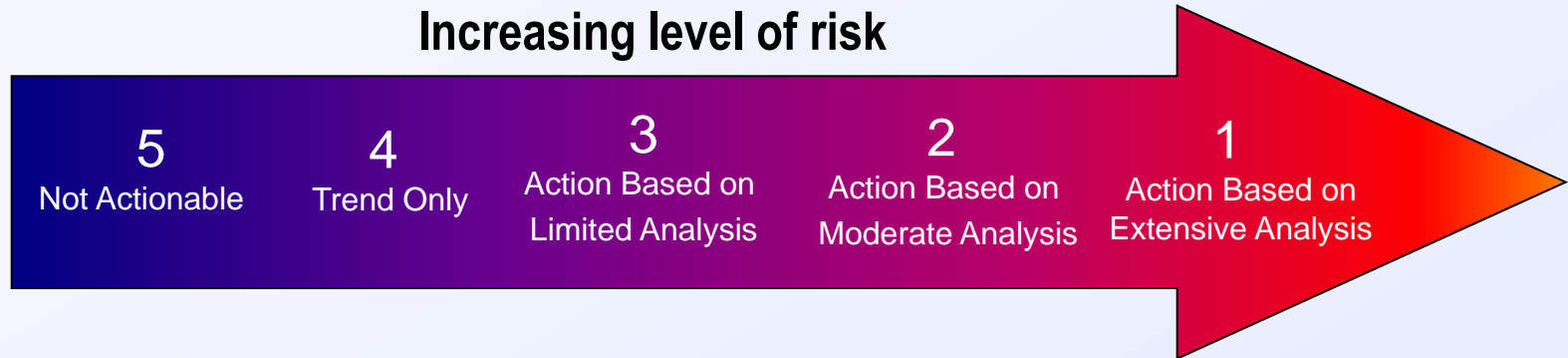


Issue significance is determined during issue screening

- Issue screener(s) prepare issues for organizational approval by their Operations Review Board (ORB)
- Determinations include:

- Issue type
- Issue ownership
- Directorate / organization or institutional in extent
- Required response elements
- Site or external reporting
- Functional Area
 - Drill-down to compliance code, when available
 - **Issue significance**

Each issue is assigned a significance commensurate with its risk



- **Assigned according to the risk associated with not correcting the issue**
- **Risk is based upon the highest combination of consequence and probability**

The intersection of consequence and probability provide the issue significance

- Issue significance ranges from 1 to 4 on risk matrix

Consequence	Catastrophic	2	2	1
	High	3	3	2
	Medium	4	3	3
	Low	4	4	3
	Negligible	4	4	4

- Significance 5 issues are a duplicate of another issue, referred to a management system outside of the issues tracking system, or were inappropriate for entry

The severity of consequence is categorized by LLNL's six standard risk types

- Assume that the issue is unmitigated
- Use the highest issue severity identified for application to the risk matrix

		Severity of Consequences				
		Catastrophic	High	Medium	Low	Negligible
Types of Consequences	Financial	≥\$50M	\$50M to >\$10M	\$10M to >\$500K	\$500K to >\$50K	<\$50K
	Strategic – Security of information and material	•Permanent loss or theft of Category I or II special nuclear material (SNM) or national security info. or controlled media	•Loss or theft of retrievable Category I or II SNM or national security information or controlled media	•Loss or theft of Category III or IV SNM or classified information	•Loss of UCNI or business sensitive information	No loss
	People - Safety and health	•1 fatality or terminal injury/illness •3 or more employees, contractors, or visitors admitted to a hospital •Personnel exposure that starts lethality and/or domino effects	•3 or more personnel having days away, restricted work, or transfers to another job •Prolonged hospitalization within 24 hours of injury •Personnel exposure with effects	•Restricted work •Medial treatment or hospitalization •Personnel exposure above exposure limits	•Injury or illness that results in first aid, but had the potential for a more severe injury •Personnel exposure above the action levels	•A minor injury or illness that results in first aid and no potential for a more severe injury •Personnel exposure below action levels
	Environment	•Off-site release that causes damage and is likely to result in an enforcement action (violation notice, fine, or penalty) •Off-site unmitigated loss, destruction, extinction of cultural or natural resources	•On-site release that causes damage and is likely to result in an enforcement action •Off-site release of radiological material •On-site unmitigated loss, destruction, extinction of cultural or natural resources	•On-site release that does not cause damage, but is likely to result in enforcement action •Off-site release above the reportable quantity or permit limits •Habitat loss or severe unmitigated impacts on cultural or natural resources	•On-site release above the reportable quantity •On-site release causing damage not likely to result in enforcement action •Medium deviations from established protocols and mitigation measures that have medium impact on natural/cultural resources	•Release that does not reach the environment •Release reported to outside agency in a routine periodic report only •Minor deviations from established protocols and mitigation measures that have minor impact on natural/cultural resources
	Brand - Political and public trust	Very politically sensitive and will negatively affect the Lab's public image (national and local), and will require senior level LLNS/DOE/NNSA, etc. management to be involved with resolution and image repair	Politically sensitive and could result in whistleblower actions and/or violations that could 1) be negatively publicized by the public, or 2) cause loss of trust by DOE/NNSA, regulators or public	Politically sensitive and could result in violations that could be negatively publicized by limited public groups, but would not affect the trust with DOE/NNSA and regulators	Somewhat politically sensitive, but minor in nature	Negligible if any press or local press interest
	Product – Deliver on mission	Will shutdown mission function for the long term or have a major sponsor impact	Will seriously reduce ability to perform mission or may result in serious sponsor impact	Will reduce efficiency in mission performance or increase operating costs; may result in some sponsor impact	Will have only minor or local impact on mission performance	Negligible impact on mission performance



Assigning the probability is less precise

- Probability ranges from:
 - Extremely unlikely
 - Unlikely
 - Likely
 - Frequent

Consequence	Catastrophic	2	2	1
	High	3	3	2
	Medium	4	3	3
	Low	4	4	3
	Negligible	4	4	4

- Estimate the probability of realizing the negative outcome (consequence) of the condition

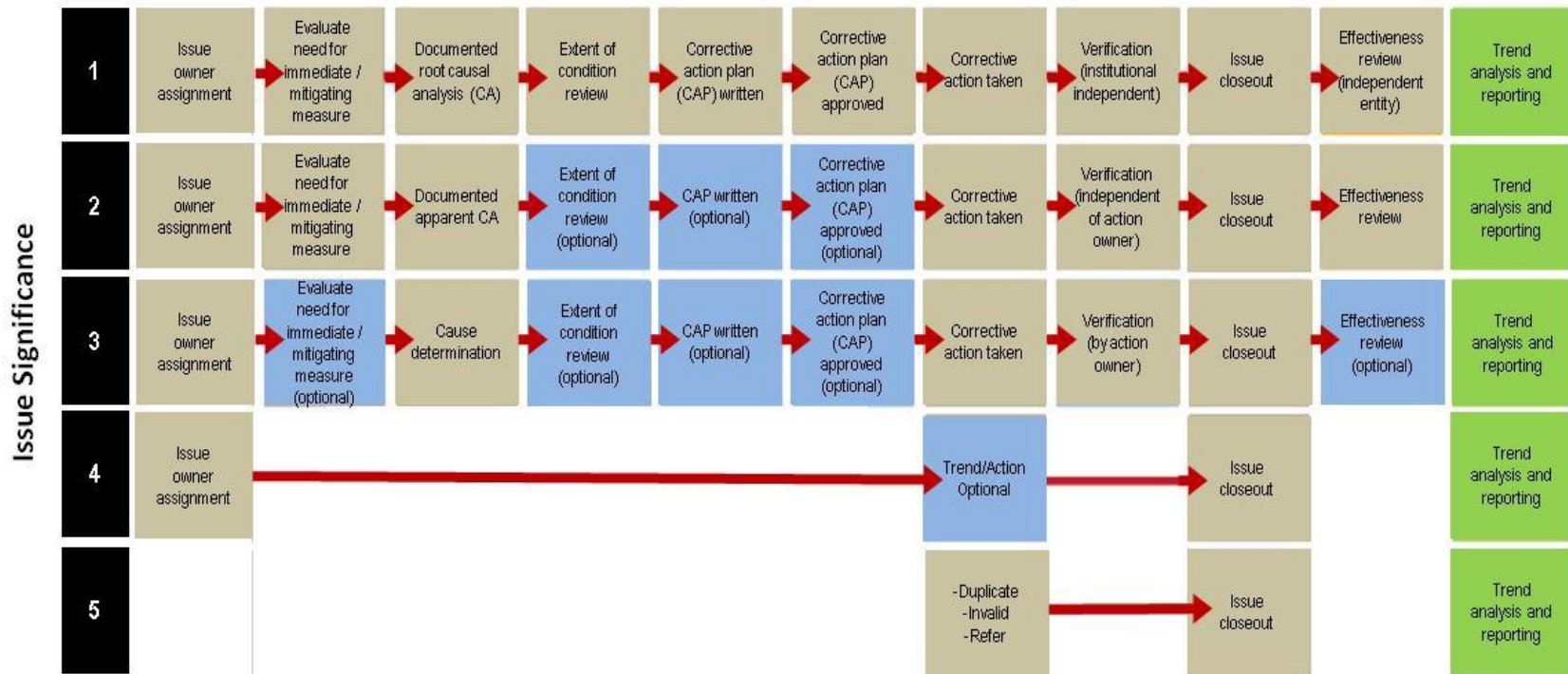
The following characteristics should be considered

- **Frequency of the operation/activity**
- **Complexity of the operation/activity**
- **Number of different locations in which the operation/activity is performed**
- **Number of interfaces between organizations**
- **Number of employees potentially exposed to the adverse effects**
- **Error tolerance of plan, procedure, or process**
- **Duration and extent of the adverse/negative condition**
- **Employee proximity or potential proximity to the hazard(s)**
- **Working conditions that may increase the likelihood of an accident**
- **Recent changes made to the process**
- **Frequency of regulatory inspection**
- **Type of work (whether it is skill-rule-knowledge based)**



The issue significance sets the rigor with which an issue is resolved

Response Elements



Issue significance levels

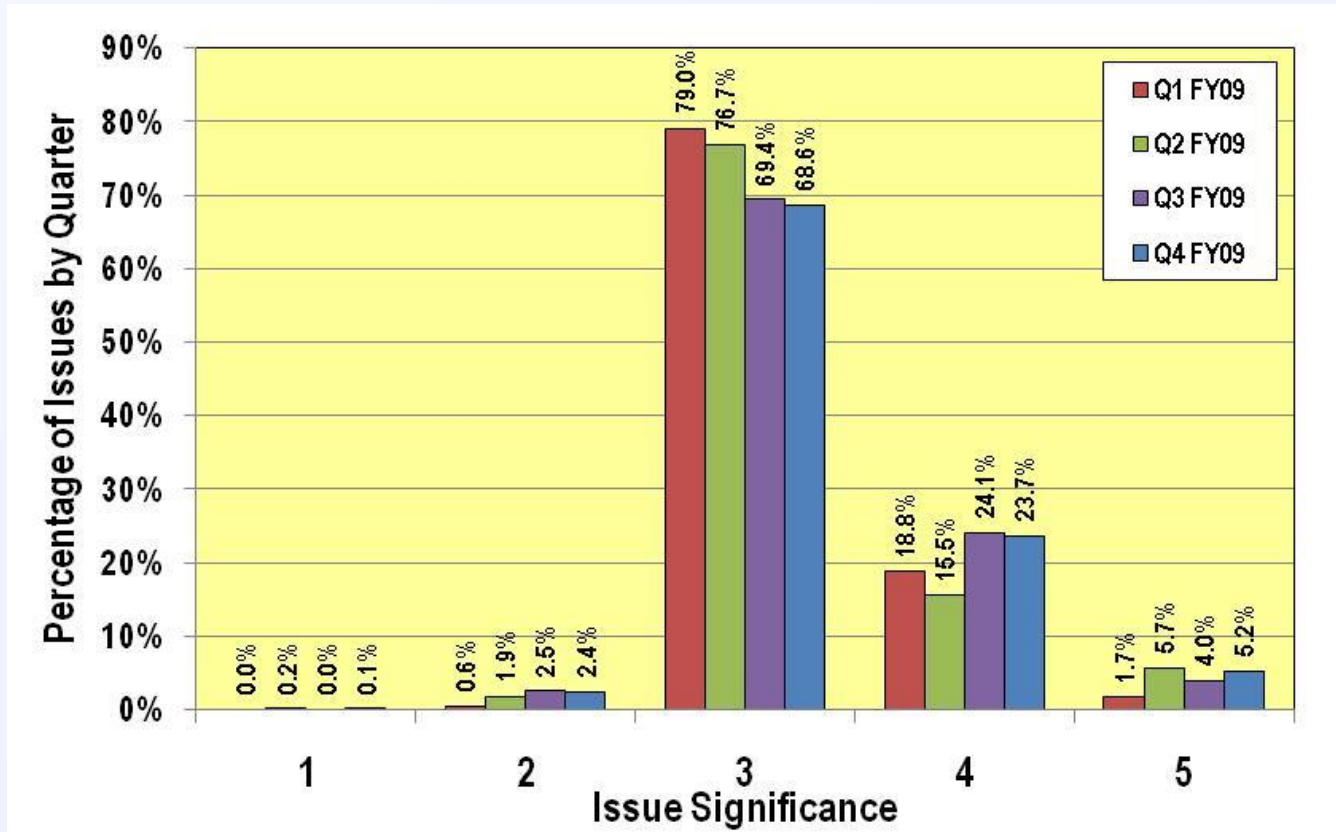
- 1 Action with extensive analysis and follow-up
- 2 Action with moderate analysis and follow-up
- 3 Action with limited analysis and follow-up
- 4 Trend / Action optional
- 5 Not actionable



Note: Additional issue response elements beyond those indicated by the issue significance may be required for certain issues (e.g., ORPS, NTS, issues in external assessments)



After one year of use, the issue significance results are still adjusting



- LLNL dispositions nearly 3,500 issues per year
- The majority are issue significance 3

We are asking ourselves questions regarding this data

- ***Are users avoiding the higher significance to avoid the extra work?***
 - **Probably not - Random samples of issues of significance 3 show that ~2 in 100 are under-prioritized**
- ***We have over 2,000 issues of significance 3 each year. Many are housekeeping or fix-it types. Should those really be issue significance 3?***
 - **Maybe not – The prior prioritization system pre-selected significance based on type of issue and users may not yet feel comfortable selecting lower significances**
- ***The consequence/probability matrix drives high consequence, extremely unlikely issues to a significance 3. Should we expand the matrix for issues that are very, very unlikely to have a high consequence?***
 - **Maybe – A Six Sigma project is underway to analyze data and evaluate options**

Issues management is a ideal target for continuous improvement

- **Awaiting HS-64 (Bob Compton) report from recent ISMS Phase II re-verification assessment of LLNL**
- **I welcome suggestions, questions, or comments:**

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