



Emerging Contaminants Directorate

Scan-Watch-Action Process for Emerging Contaminants (ECs)

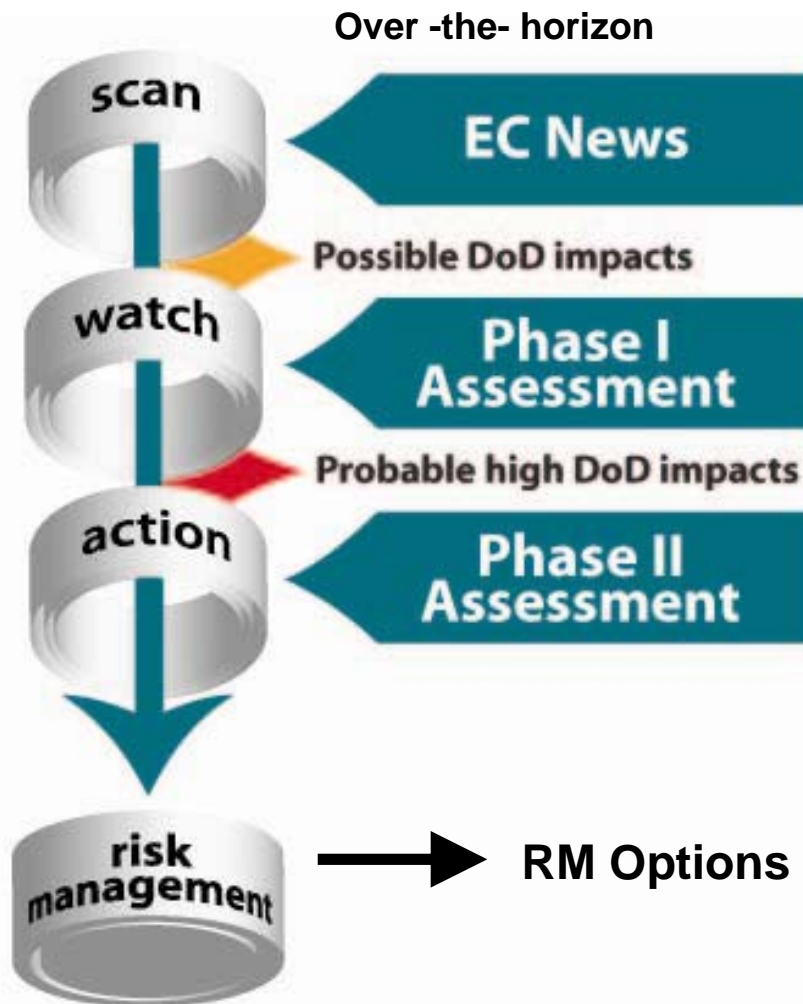
JSEM Conference
May 23, 2007

Paul Yaroschak, P.E.
Deputy Director, Emerging Contaminants
Office of the Deputy Under Secretary of Defense
(Installations & Environment)

Objectives

- **Provide early warning of ECs of possible interest to DoD**
- **Assess impacts to DoD**
- **Develop risk management options for investment decisions**

EC “Scan-Watch-Action” Process


















Review literature, periodicals, regulatory communications, etc.

Monitor events; Conduct Phase I qualitative impact assessment

Conduct Phase II quantitative impact assessment with risk management options

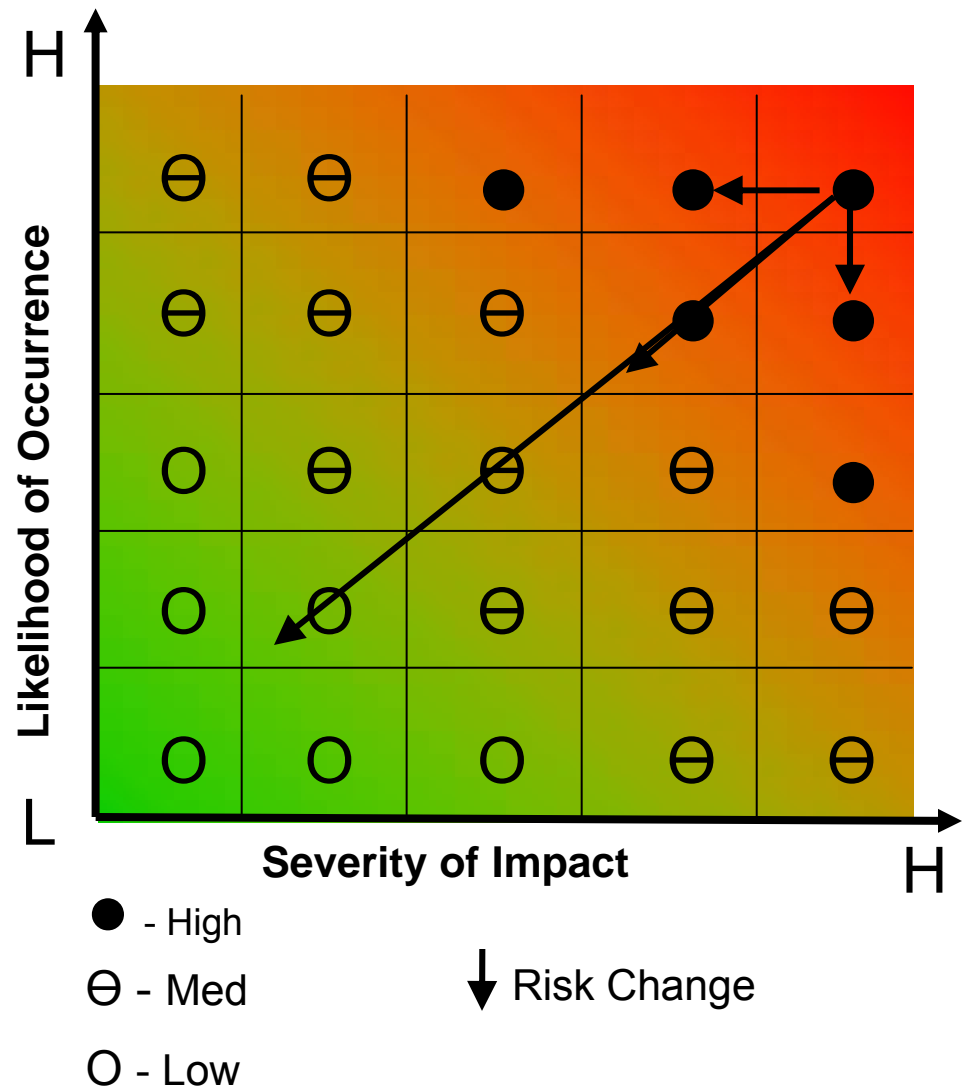
Phase I EC Impact Assessment

1.	Probability of Change in Toxicity/Regulatory Status				
2.	Impact on DoD Functional Categories				
	Environment Safety & Health	Readiness & Training	Acquisition	O&M of DoD Assets	Cleanup
					
					
					

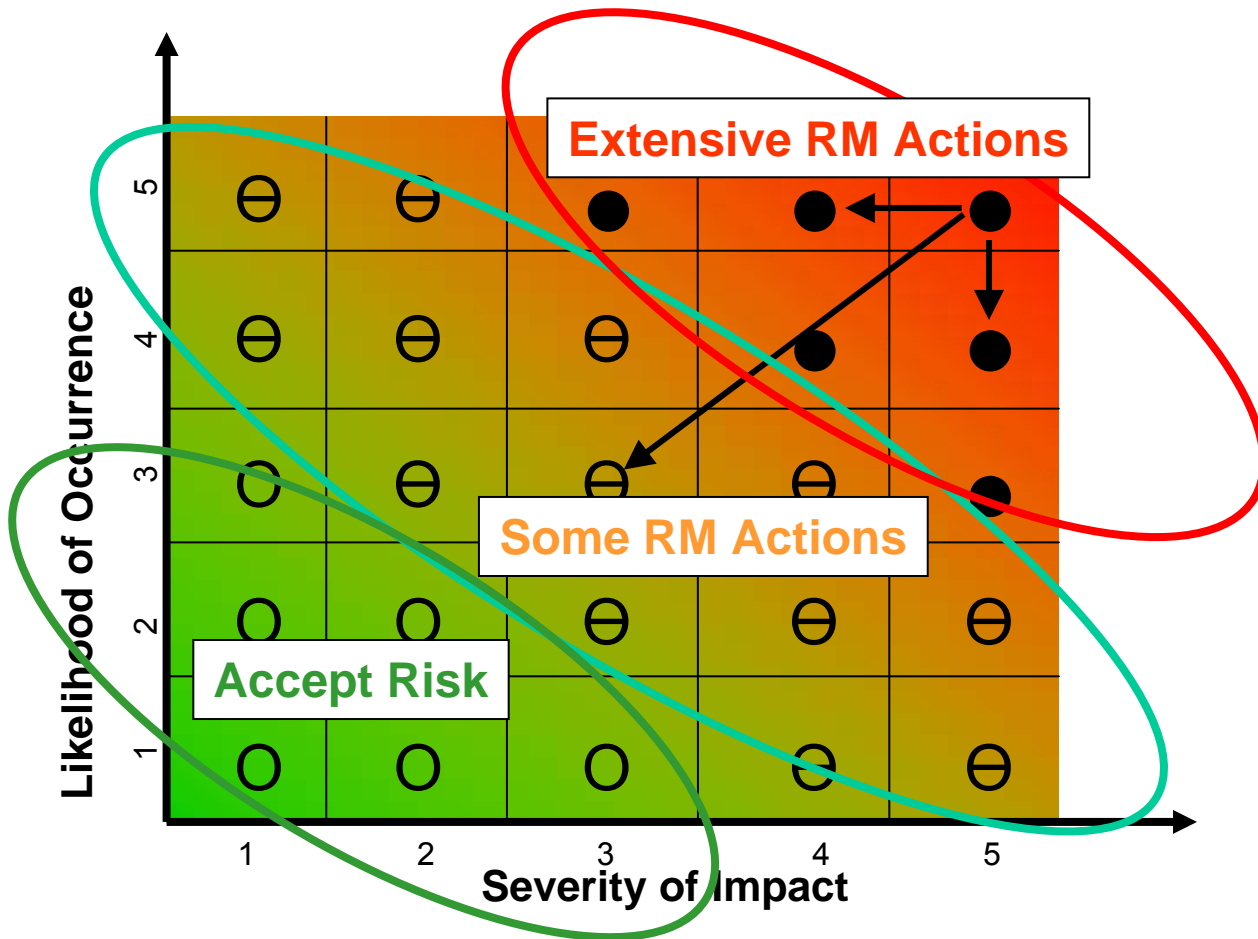
3. **Results** →
- **Decision – Move to Action List?**
 - **Initial Risk Management Options**

Plotting EC Risk to DoD

- High risk at top right
- Risk management actions move ECs to lower left...lower risk
- Seek to quantify risk reduction



Developing Risk Management Options



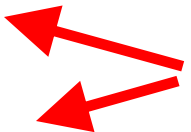
RM Options

- Fill tox science gaps
- RDT&E
- Material substitution
- Process changes
- Regulatory engagement
- Stockpile material
- Exposure assessment & monitoring
- Personal Protective Equipment (PPE)
- Acquisition changes
- Benchmark with industry
- Risk communication
- Training

- Turning Options to Actions - Perchlorate Risk Management Actions

- DoD & EPA synchronized policies
 - Requires sampling in various media
 - Sets a “level of concern” based on NRC peer review
- California Site Prioritization Protocol
 - Joint DoD-State initiative to cull & prioritize sites for sampling & risk management
- \$114 M in Perchlorate RDT&E
 - ◆ Water treatment
 - ◆ Cleanup
 - ◆ Sources & analytical procedures...isotopic analysis
 - ◆ Material substitution...simulators, flares, rocket fuel

EC Watch List

- ✓ Tungsten
 - ✓ Tetrachloroethylene
 - ✓ Dioxin
 - ✓ N-nitrosodimethylamine (NDMA)
 - ✓ 1,4-dioxane
 - ✓ 1,2,3-trichloropropane (TCP)
 - Nanomaterials
 - ✓ Impact assessments completed
 - ✓ Perfluorooctanoic acid (PFOA)
 - ✓ Perfluorooctyl sulfonate (PFOS)
 - ✓ Dichlorobenzenes
 - ✓ Beryllium
 - ✓ Polybrominated biphenyl ethers (PBDEs)
 - ✓ Di-nitrotoluenes (DNT)
 - ✓ Lead
 - ✓ Nickel
- Recently added**
- 

EC Action List

- **Perchlorate**
- **Royal Demolition eXplosive (RDX)**
 - Cyclotrimethylenetrinitramine
- **Trichloroethylene (TCE)**
- **Hexavalent Chromium**
- **Naphthalene**

**Elevated from
Watch List**

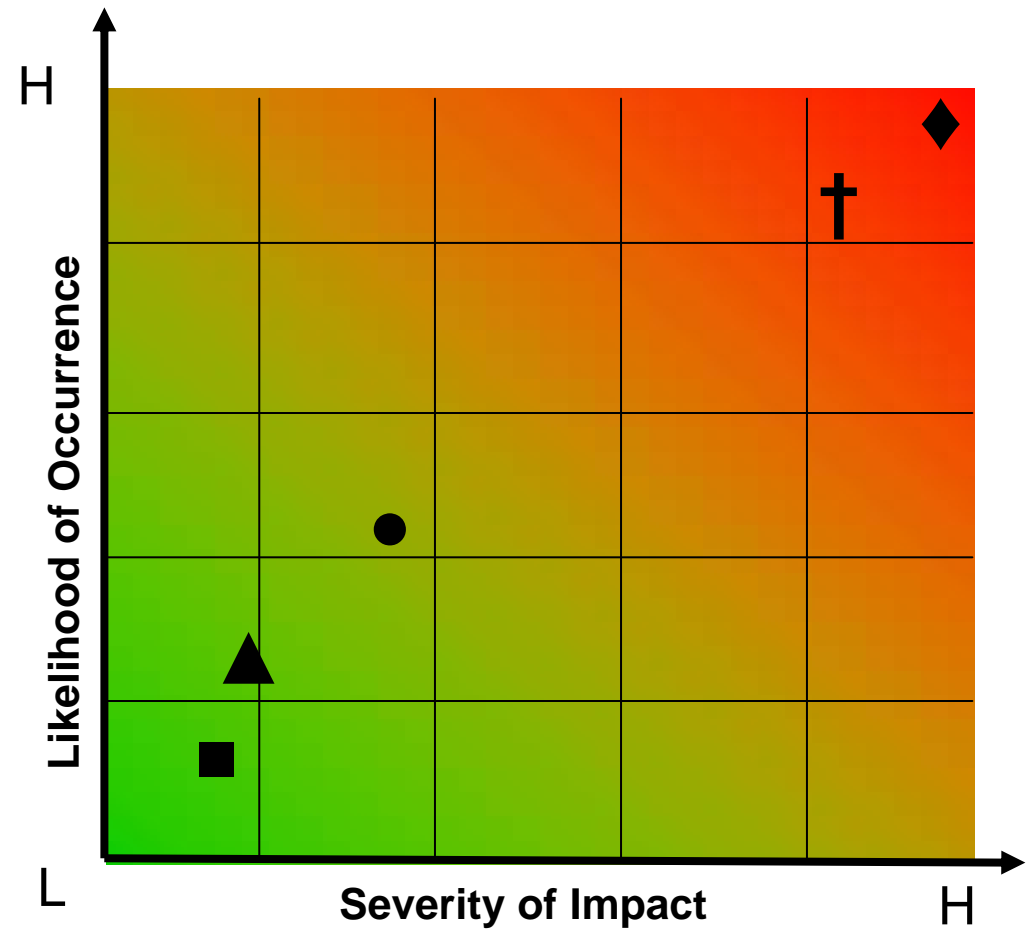


Notes: - Some risk management actions underway including research on toxicity, substitutes, & treatment.

TCE Phase 1 Impact Assessment

Completed October 2006

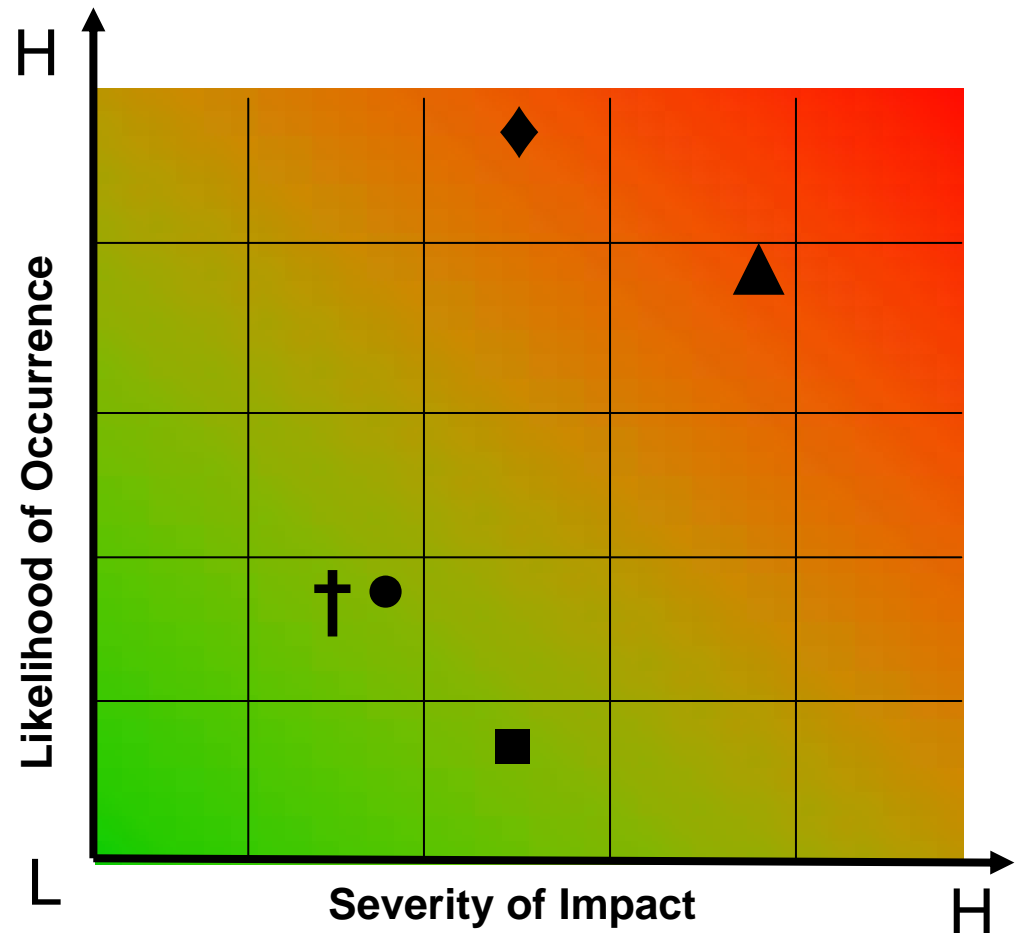
- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



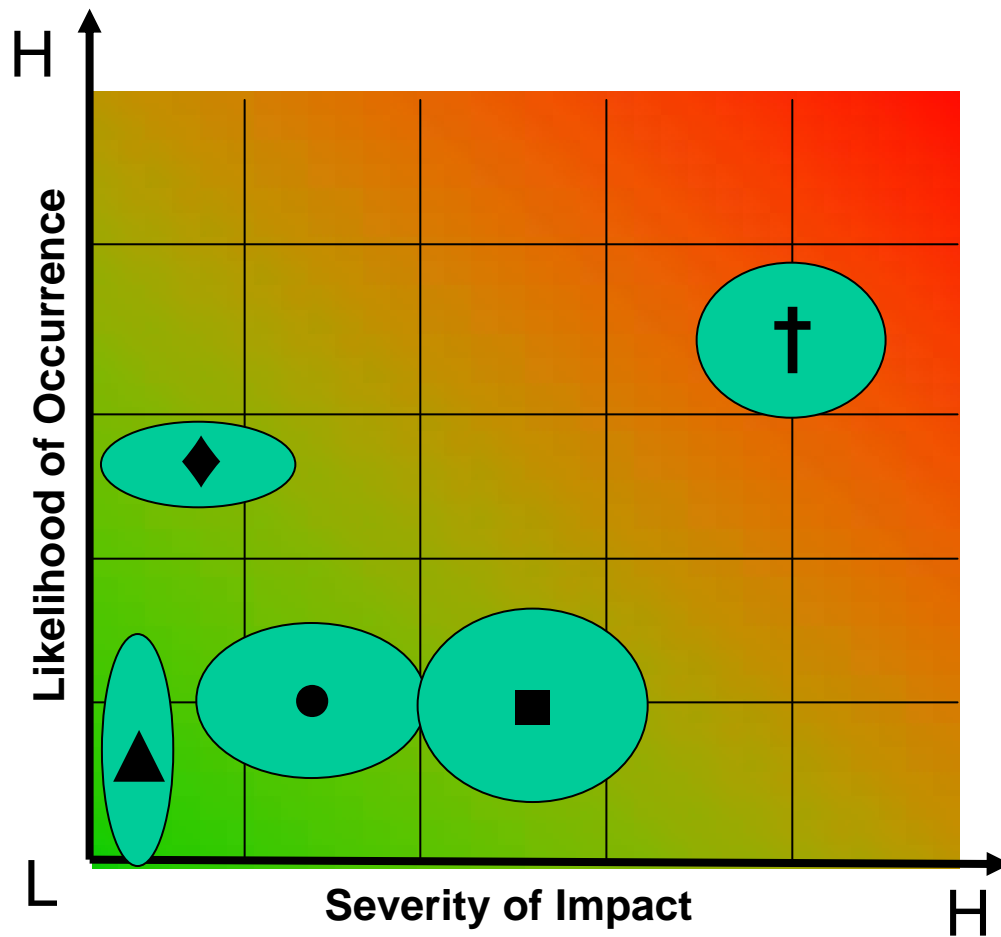
PFOA Phase I Impact Assessment

Completed January 2007

- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



How Can We Display Uncertainty in Impact Assessments?



Functional Areas

- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/ RDT&E
- O&M of Assets
- † Cleanup

Degree of Uncertainty

Summary

Either stay ahead of the curve.....



Or get overtaken by it.....

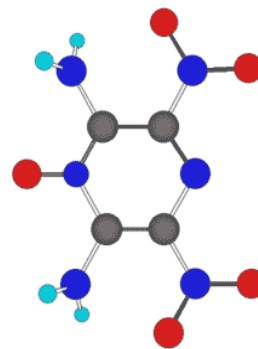


Stay Ahead of ECs with “Scan-Watch-Action”



Emerging Contaminants Directorate

Questions & Discussion





Emerging Contaminants Directorate

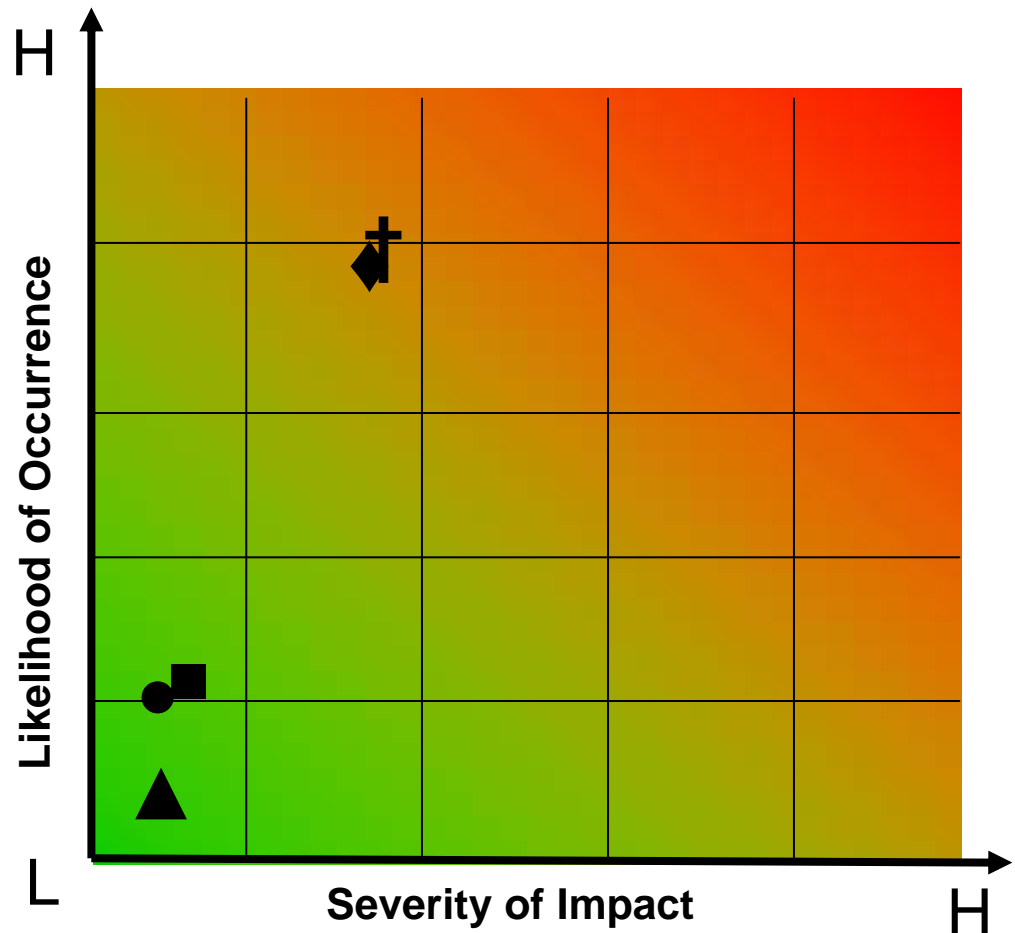
Backup Slides

More Impact Assessment Results

1,2,3-TCP Phase 1 Impact Assessment

Completed November 2006

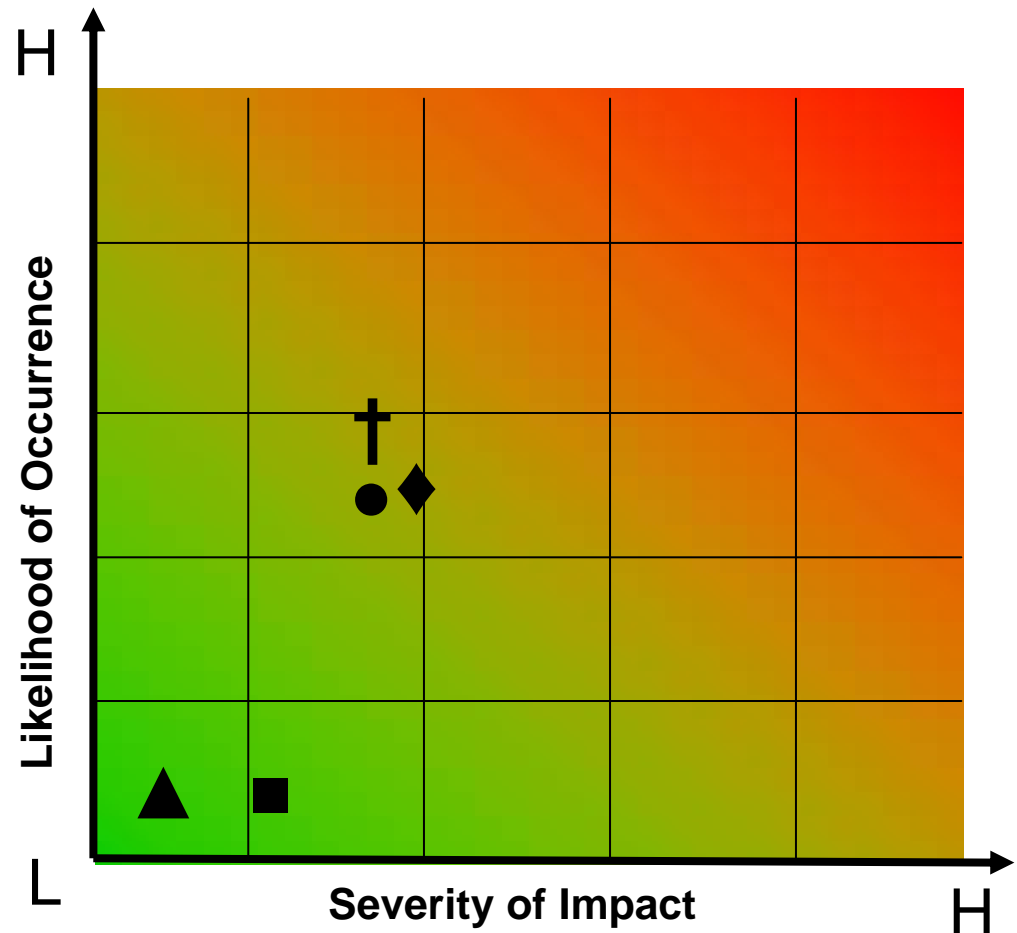
- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



NDMA Phase 1 Impact Assessment

Completed November 2006

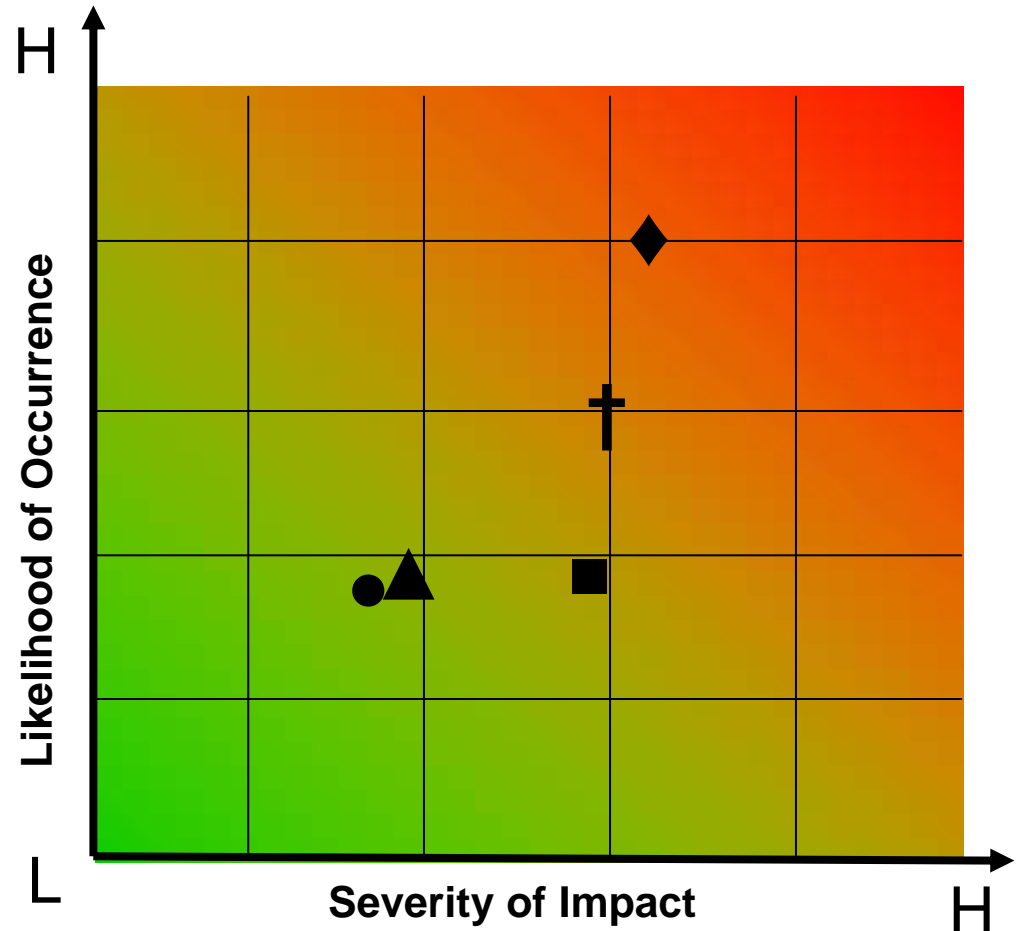
- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



1,4-Dioxane Phase I Impact Assessment

Completed December 2006

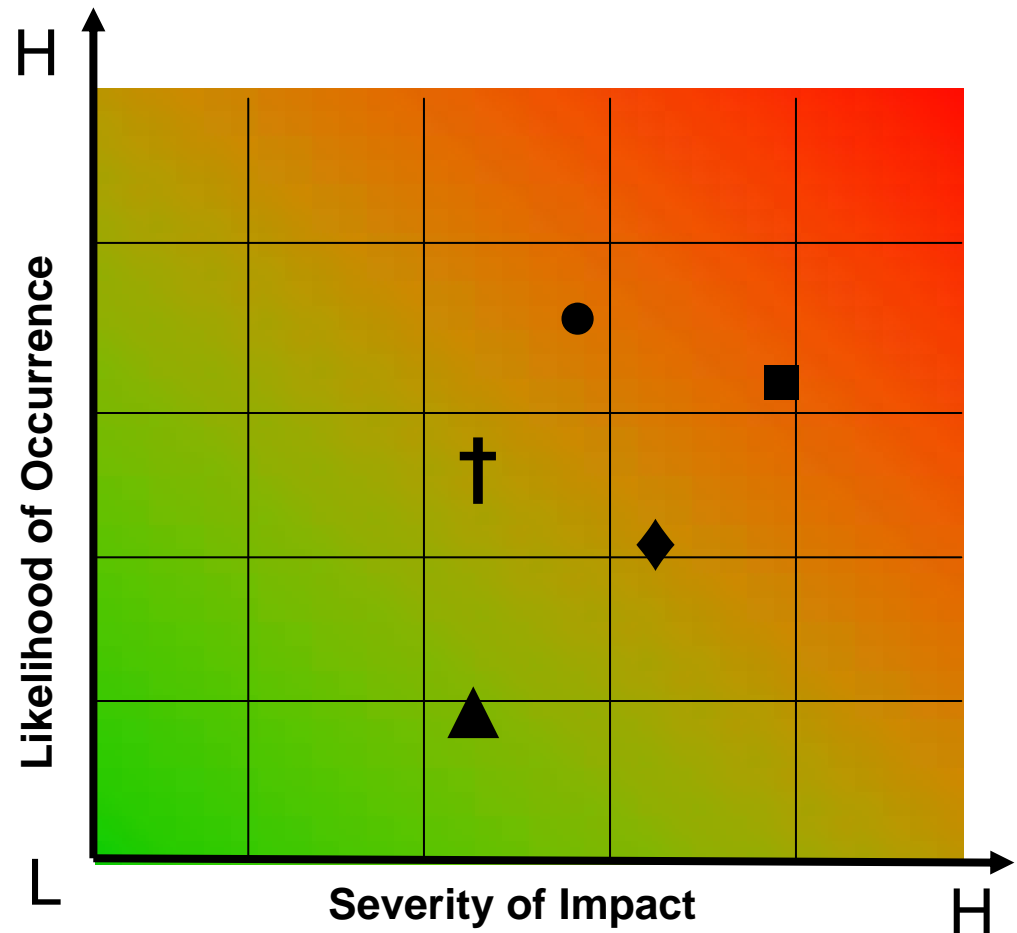
- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



DNT Phase I Impact Assessment

Completed December 2006

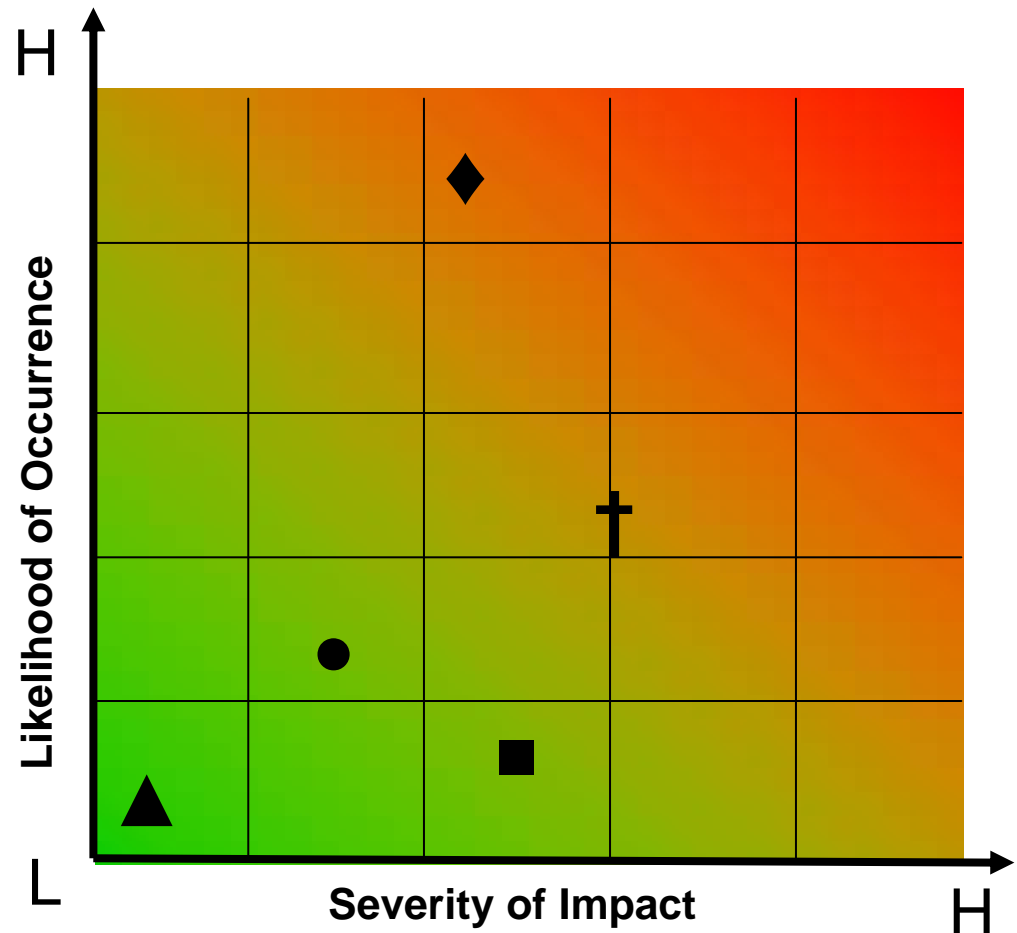
- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



PFOS Phase I Impact Assessment

Completed January 2007

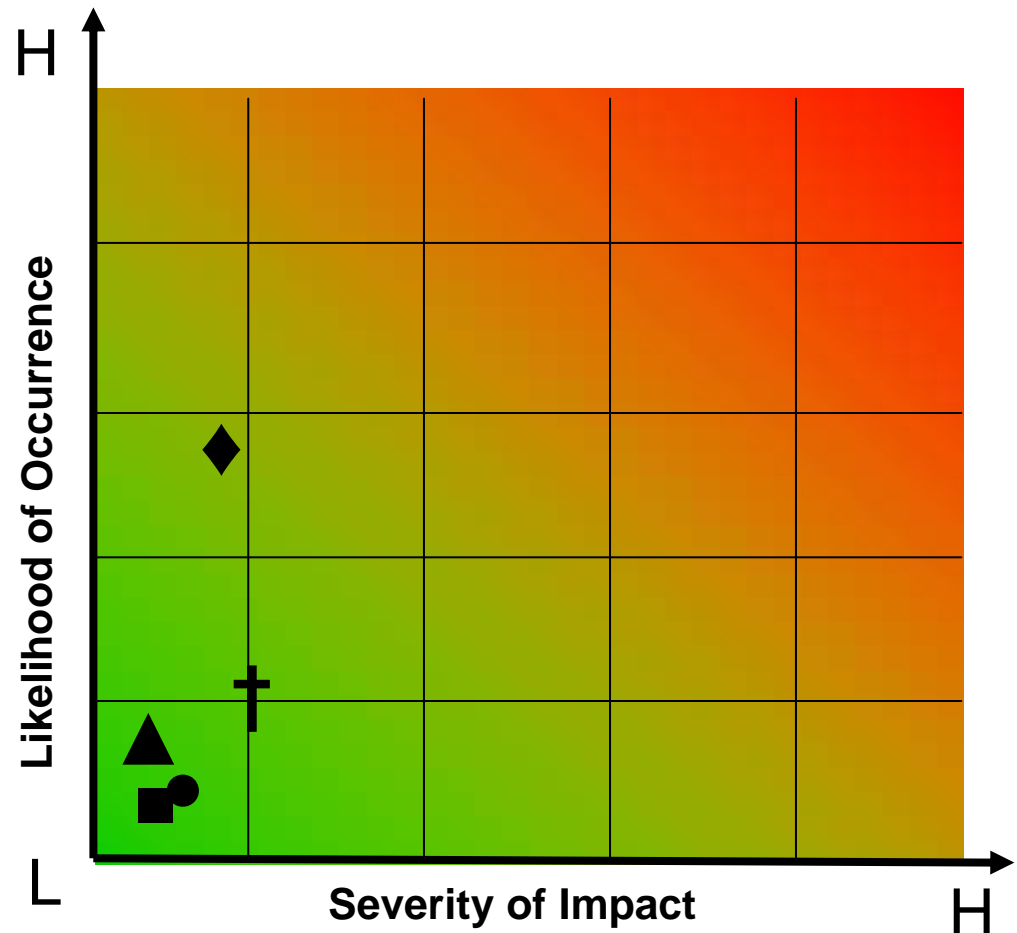
- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



PBDE Phase I Impact Assessment

Completed January 2007

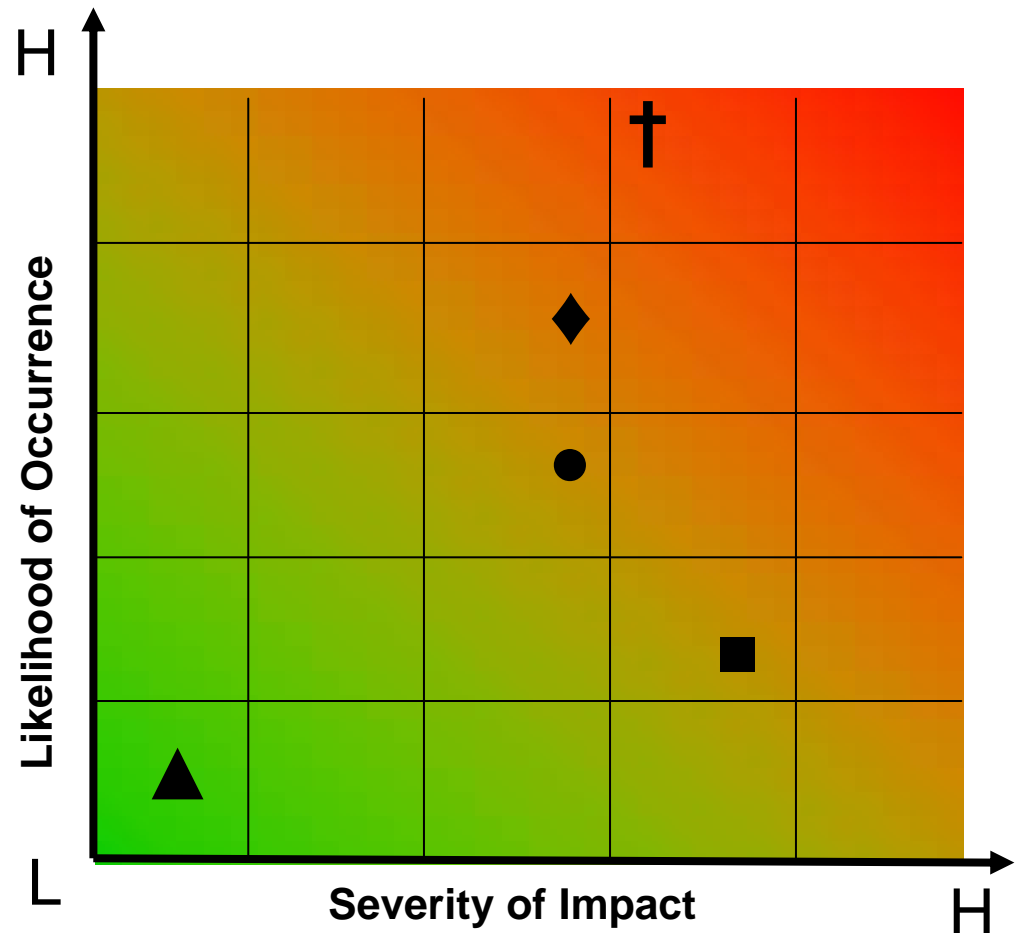
- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



Dioxin Phase I Impact Assessment

Completed February 2007

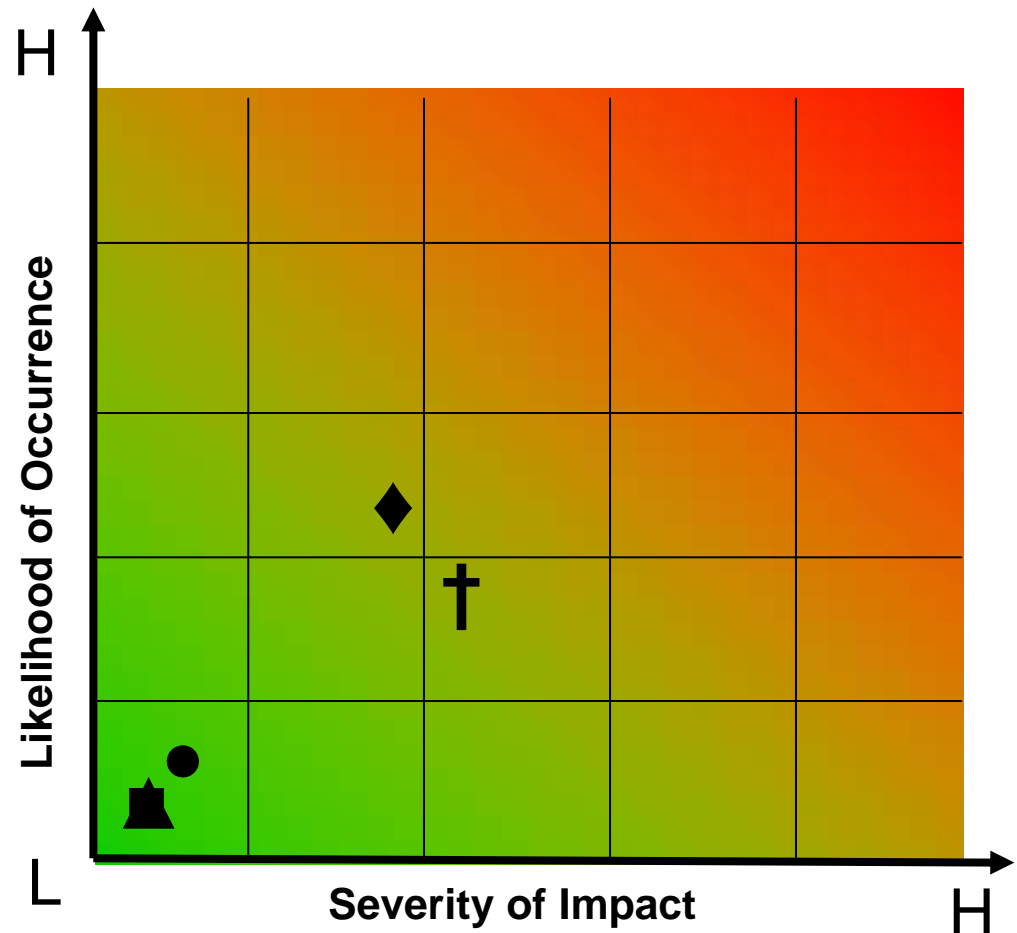
- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



PCE Phase I Impact Assessment

Completed February 2007

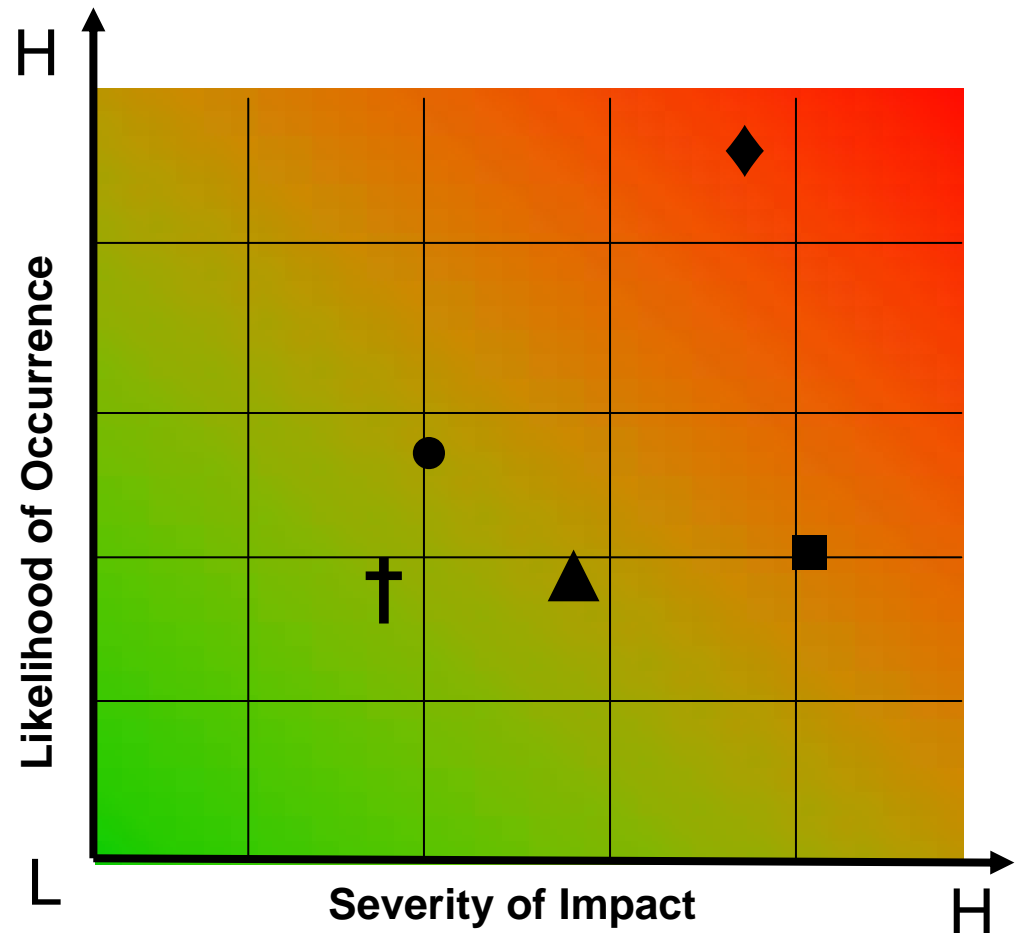
- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



Beryllium Phase I Impact Assessment

Completed March 2007

- ◆ ES&H
- Readiness & Training
- ▲ Acquisition/RDT&E
- O&M of Assets
- † Cleanup



Differences in Watch/Action Lists

Watch List

- May impact DoD
- Limited analysis of impact – more qualitative
- Monitor external actions
- Updated regularly
- Short info sheets developed
- Minimal resources expended

Action List

- Likely to impact DoD
- Detailed analysis of impact – more quantitative
- Take RM actions
- Executive info sheets developed
- Significant resources may be expended
- “Material champion” assigned