NATIONAL RECONNAISSANCE OFFICE

Managing with the Best Possible Data: Enabling Effective and Risk-Based EVMS Across Industry

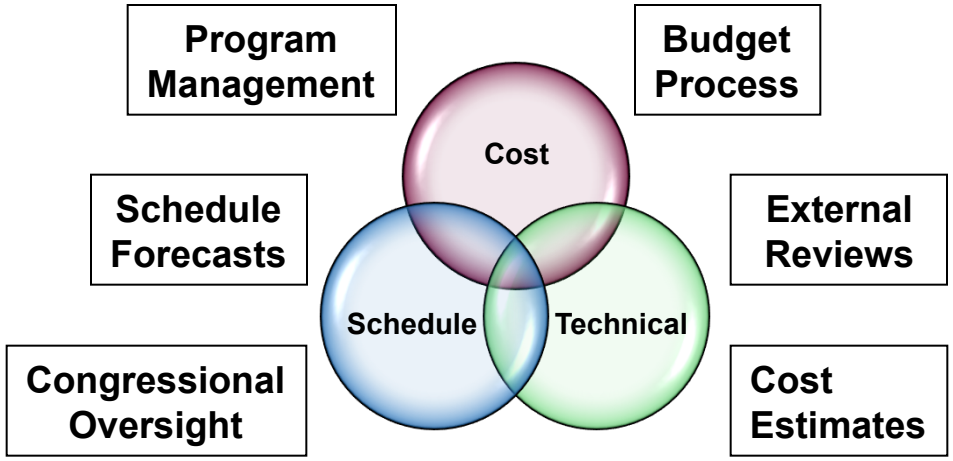
A Risk Management Assessment of EVMS Health & Reliability

April 2015

SUPRA ET ULTRA

The Need

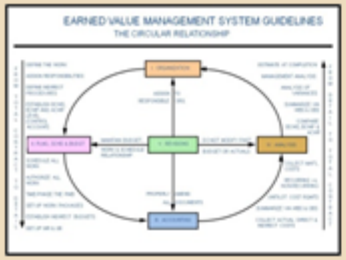
Reliable Data is Essential for Effective Program Management Decisions



The EVMS Surveillance Review is the best approach available to ensure reliable high quality data is available to the National Reconnaissance Office (NRO)

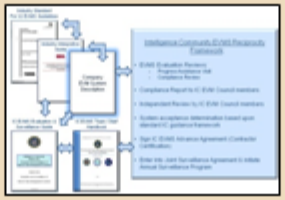
NRO EVMS Evaluation Framework

Application of 32 Guidelines Across Industry

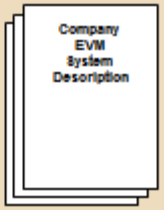


Compliance Framework

IC Interpretative Guidance



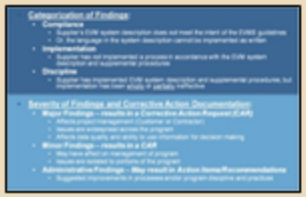
Command Media Review



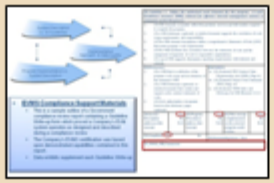
Process Mapping & Subsystems Integration

Mission Partner Coordination

Communication Framework



Tools & Methods to Prove Compliance



Validation & Reciprocity (AA & JSA)

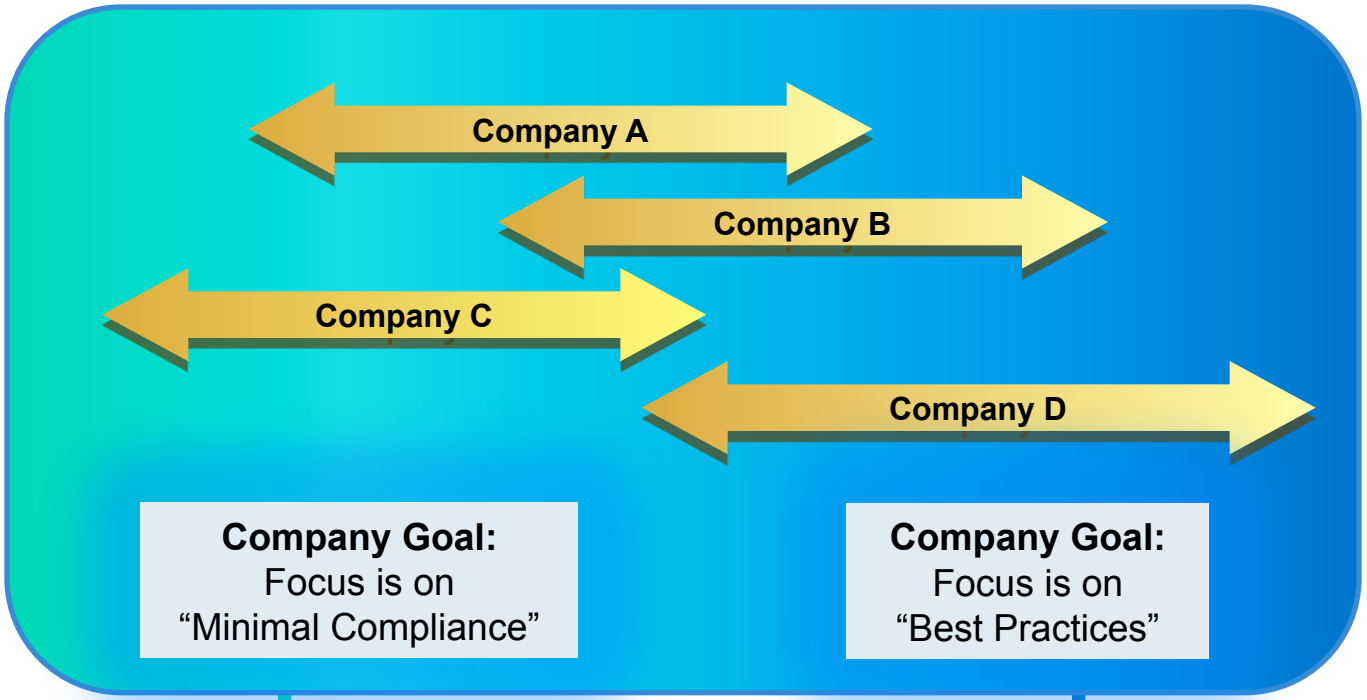
Effective Root Cause Analysis & Corrective Action

DCAA Audit Support

Company Commitment and Knowledge Drives EVMS Engagement Strategy

Low Engagement And Reactive Actions Requiring "Heroics and Brilliance"

High Engagement and Corporate Commitment



EVMS Implementation Spectrum

Enforcement ⟷ **Surveillance Focus** ⟷ **Collaboration**

EVMS Surveillance Enhancements

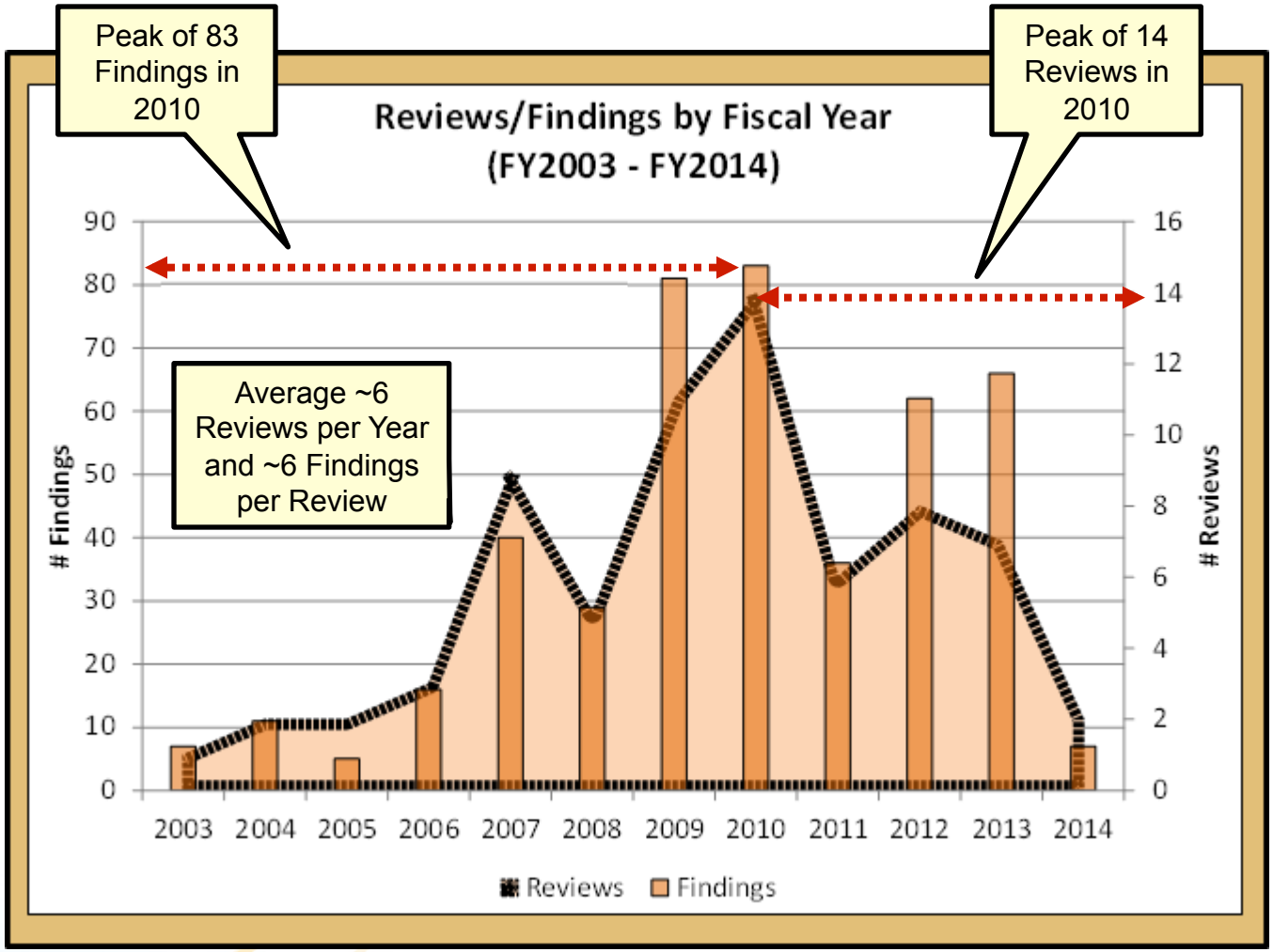
In order to promote **EVM Best Practices**, receive **Timely, Reliable and Accurate Data**, and ensure **EVMS Compliance**, is there a better way to:

1. Make the Evaluation Process more *Meaningful and Relevant* for all Stakeholders?

2. Use Historical Data and the Review Process to identify the most *Significant Corporate Problems* affecting the NRO?

3. Make Future Reviews more *Efficient*?

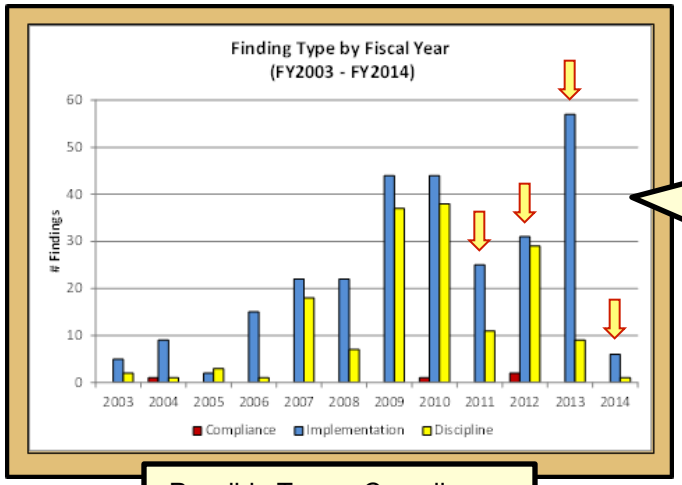
NRO Surveillance Reviews (2003-2014)



NRO has been collecting Corrective Action Request (CAR) Finding Data for 12 years (2003-2014)

70 Reviews
----
440 Findings
----
10 Companies
17 Business Units
42 Programs

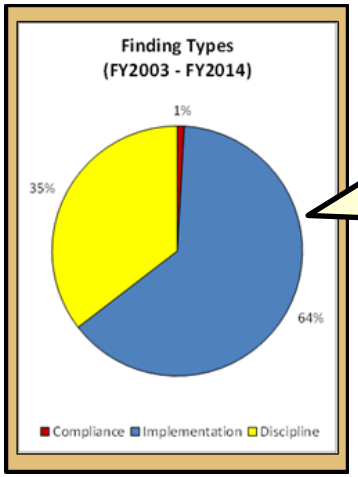
Industry Finding Types and Categories (2003-2014)



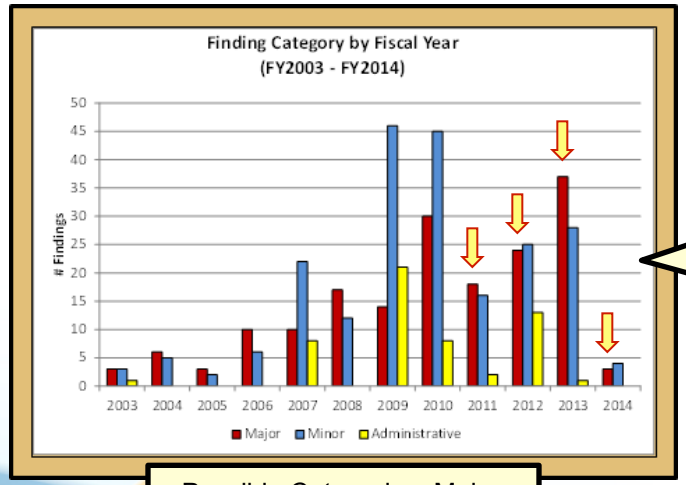
Possible Types: Compliance, Implementation, Discipline

Type

During the past three years, Findings are trending towards Implementation



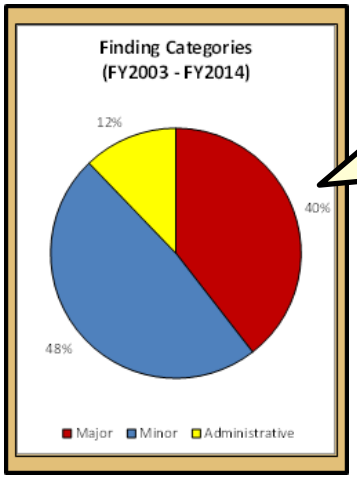
Industry Finding Types are really split between Implementation (64%) and Discipline (35%)



Possible Categories: Major, Minor, Administrative

Category (Severity)

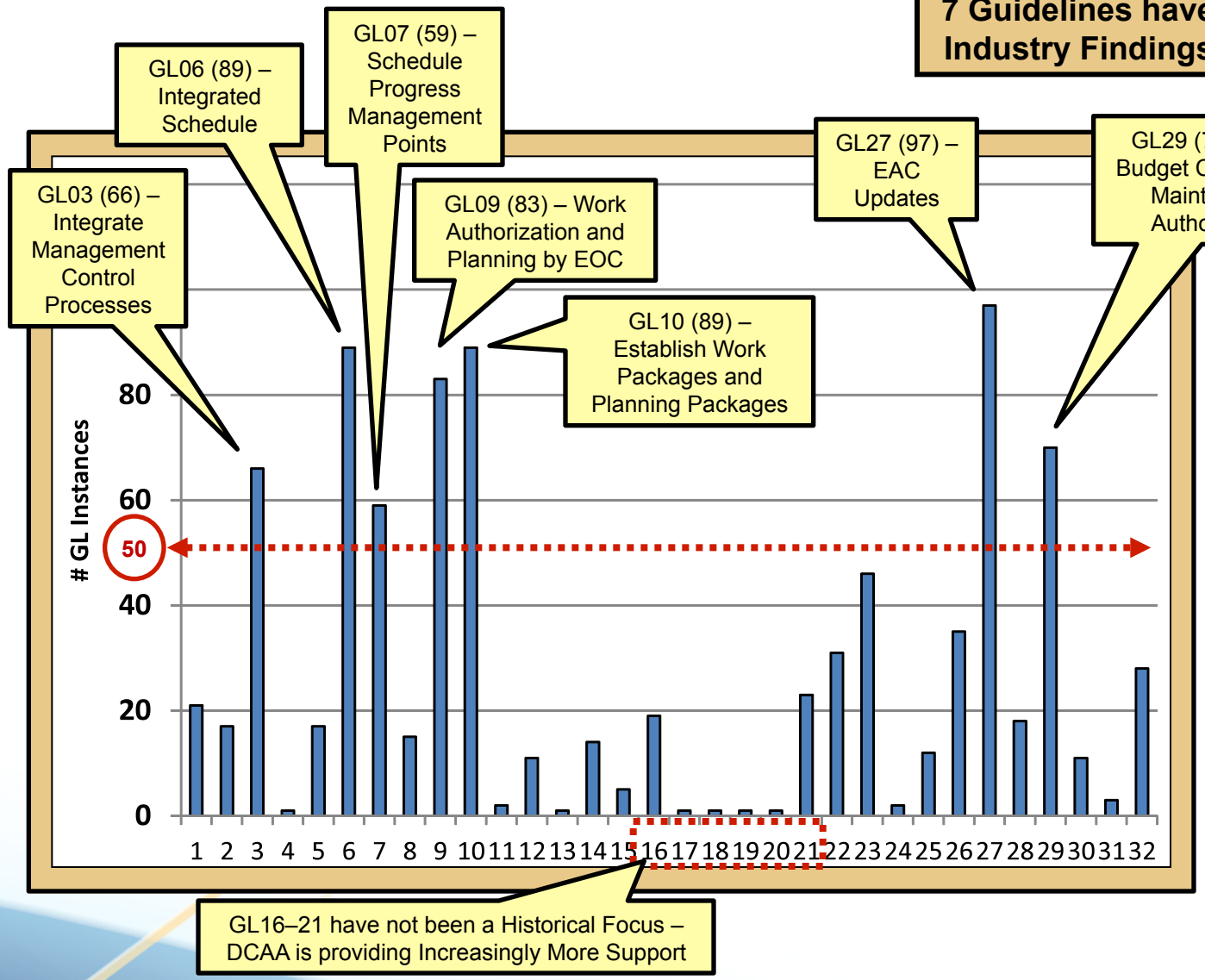
During the past three years, Findings are trending towards Major



Category (Severity) is largely split between Minor (48%) and Major (40%)

Industry Guideline References on NRO Contracts (2003-2014)

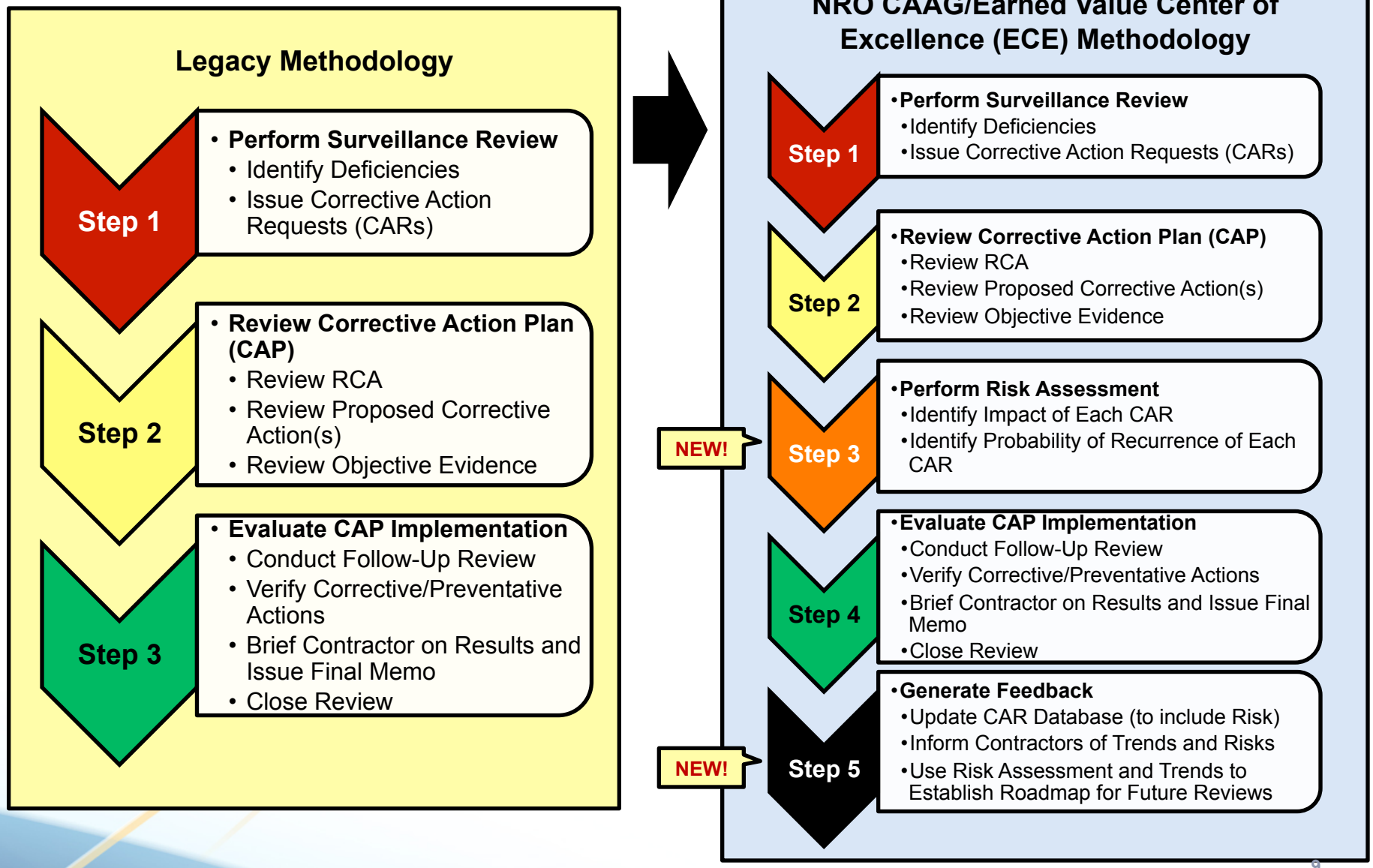
7 Guidelines have been referenced in Industry Findings more than 50 times



NRO CAR Database identifies 889 Guideline References (~13 GL References per Review)

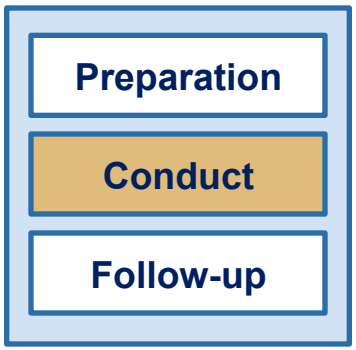
Are these the primary focus areas for future reviews?

CAAG/ECE Approach to EVMS Health and Reliability

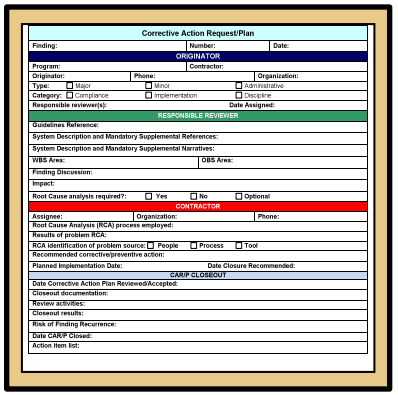


Predictive EVMS Health and Reliability Process

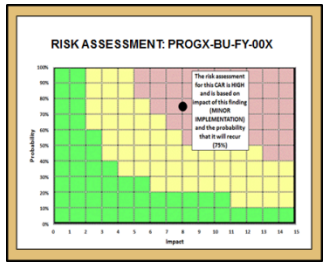
Routine surveillance is conducted based on validated EVMS and AA/JSA



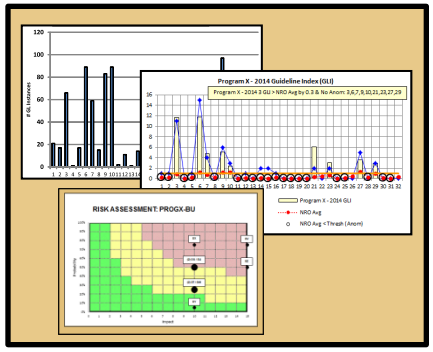
CARs are written identifying Deficiencies and associated Guidelines



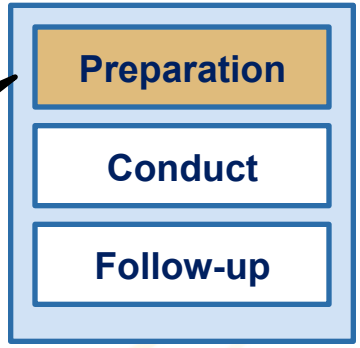
During final phase, CAP is assessed for Impact and Probability of Recurrence



Risk Assessment is completed on each CAR that is closed



Feedback is provided to Contractor and Information is archived in CAR database



Risk Assessment is reviewed to prepare for subsequent reviews

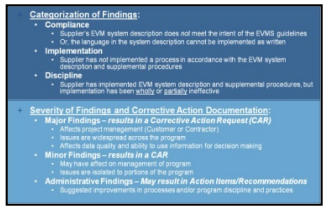
3 Phases of EVMS Compliance / Surveillance Reviews

Assessing Risk

Risk Assessment identifies Potential Areas where Significant Findings are Likely to Occur in the Future

Impact

Category and Type



Impact is determined based upon IC framework for finding Category & Type (Severity)

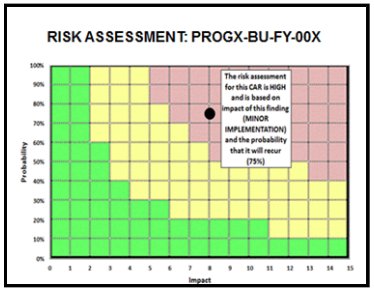
Impact Assessment

Major	5	Minor	3	Administrative	1
Compliance	10	Implementation	5	Discipline	1

Note: CAAG/ECE Risk Methods are based on NRO SED Risk Management Criteria

Risk Assessment

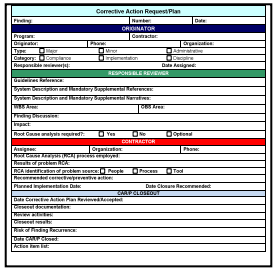
Risk Assessment



Impact is based on Severity of Problem and Probability is based on Maturity and Complexity of Solution

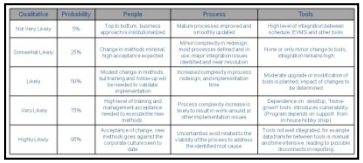
Probability of Recurrence

CAR/P Form



ECE Review Lead documents how CAP implementation was verified to support closing CAR and assesses risk of recurrence based upon root cause analysis categories & effectiveness of CAP

Probability of Recurrence Assessment



Impact Assessment Criteria

Combination of Type and Category determines the Impact

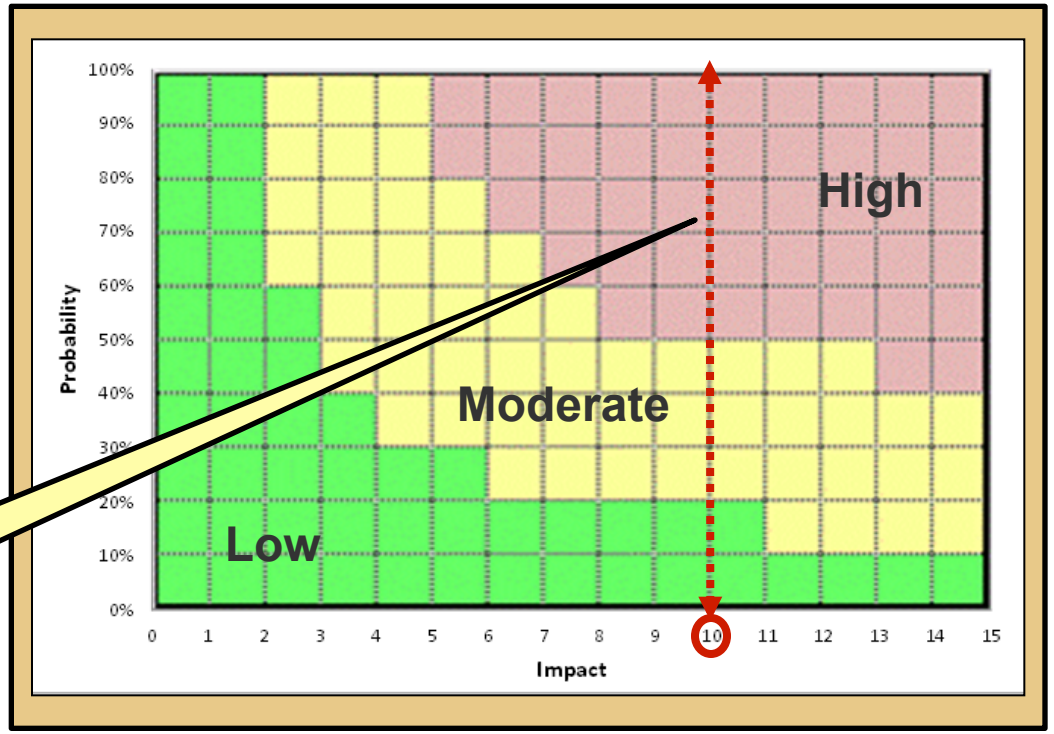
Type	Major	5	Minor	3	Administrative	1
Category (Severity)	Compliance	10	Implementation	5	Discipline	1

Example – A *Major Implementation* CAR would have an *IMPACT* Assessment of *10*

Major	5	Minor	3	Administrative	1
Compliance	10	Implementation	5	Discipline	1

Major = 5
+ Implementation = 5
Impact = 10

The overall Risk Assessment could still be Low, Moderate, or High, depending on the Combination of Impact and Probability of Recurrence



Probability of Recurrence Matrix

Five Possible Probability Ratings

Three Categories (From RCA Identification of Problem Source in CAR)

Maturity and Complexity of Solution determine the Probability of Recurrence of Future Unresolved Deficiencies

Probability	People	Process	Tools
Not Very Likely (5%)	Top to bottom, business approach is institutionalized	Mature processes improved and smoothly updated	High level of integration between schedule, EVMS and other tools
Somewhat Likely (25%)	Change in methods minimal, high acceptance expected	Minor complexity in redesign; most processes defined and in use; major integration issues identified and near resolution	None or only minor change to tools, integration remains high
Likely (50%)	Modest change in methods, but training and follow-up will be needed to validate implementation	Increased complexity in process redesign; implementation time will be lengthy	Moderate upgrade or modification of tools is planned, impact of changes to be determined
Very Likely (75%)	High level of training and management acceptance needed to execute the new methods.	Process complexity increase is likely to result in work-around or other implementation issues	Dependence on desktop, "home-grown" tools introduces vulnerability. (Program depends on support from in-house hobby shop)
Highly Likely (95%)	Acceptance of change, new methods goes against the corporate culture seen to date	Uncertainties exist related to the viability of the process to address the identified root cause	Tools not well integrated, for example data transfer between tools is manual and time intensive, leading to possible disconnects in reporting

Assessing Probability of Recurrence

Risk Assessment

CAR Name / Number: PROGX-BU-FY-00X

Finding Title: Ineffective Schedule Risk Analysis

Impact: 8

Probability: 75%

Finding Descrition: XXX XXX XXX XXX XX XXX XX XXX XXX XXX XXX XX XXX XXX XXX XXX XXX XX XXX X XXX XXX XXX XXX XX XXX X

People/Process/Tools: ☑ People ☑ Process ☑ Tools

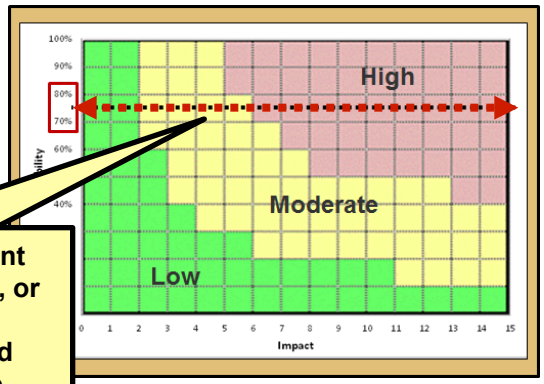
HIGH: The risk assessment for this CAR is HIGH and is based on impact of this finding (MINOR IMPLEMENTATION) and the probability that it will recur (75%)

Risk Notes

People		Process		Tools	
☐ 5%	Top to bottom, business approach is institutionalized	☐ 5%	Mature processes improved and smoothly updated	☐ 5%	High level of integration between schedule, EVMS and other tools
☑ 25%	Change in methods minimal, high acceptance expected	☐ 25%	Minor complexity in redesign; most processes defined and in use; major integration issues identified and near resolution	☐ 25%	None or only minor change to tools, integration remains high
☐ 50%	Modest change in methods, but training and follow-up will be needed to validate implementation	☐ 50%	Increased complexity in process redesign; implementation time will be lengthy	☑ 50%	Moderate upgrade or modification of tools is planned, impact of changes to be determined
☐ 75%	High level of training and management acceptance needed to execute the new methods	☑ 75%	Process complexity increase is likely to result in work-around or other implementation issues	☐ 75%	Dependence on desktop, "home-grown" tools introduces vulnerability. (Program depends on support from in-house hobby shop)
☐ 95%	Acceptance of change, new methods goes against the corporate culture seen to date	☐ 95%	Uncertainties exist related to the viability of the process to address the identified root cause	☐ 95%	Tools not well integrated, e.g., data transfer between tools is manual and time intensive, leading to possible disconnects in reporting

Example – The Highest Rating for People, Process, or Tools is used to determine the Probability of Recurrence

People = 25%
Process = 75%
Tools = 50%
Max Value = 75%



The overall Risk Assessment could still be Low, Moderate, or High, depending on the Combination of Impact and Probability of Recurrence

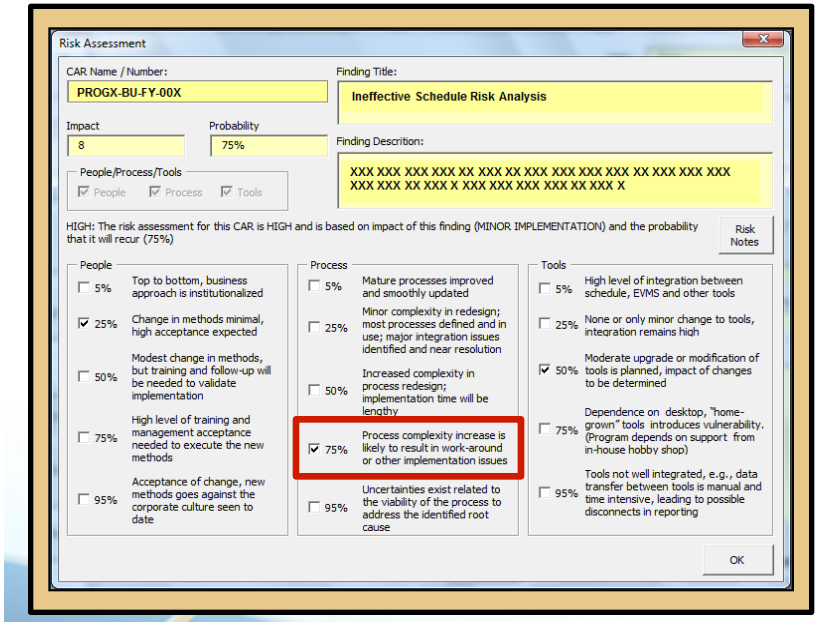
Impact + Probability = Risk Assessment

Corrective Action Request/Plan

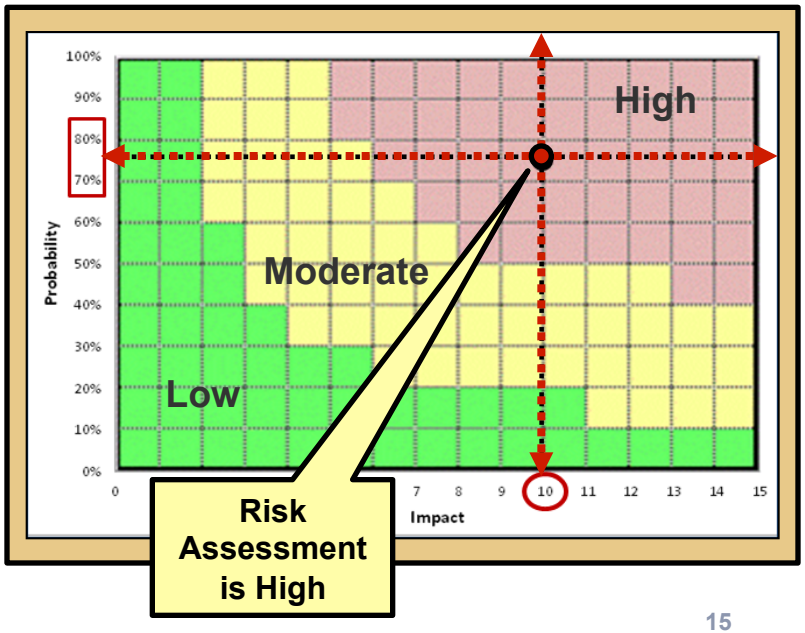
Finding: Ineffective Schedule Risk Analysis.	**Number:** PROGX-BU-FY-00X	**Date:** MM/DD/YYYY
ORIGINATOR		
Program: Program X	**Contractor:** Contractor B	
Originator: Ivan Rembers	**Phone:** 571-307-5710	**Organization:** BPD/CAAG/ECE
Type: ☒ Major	☐ Minor	☐ Administrative
Category: ☐ Compliance	☒ Implementation	☐ Discipline
Responsible reviewer(s): Reviewer X		**Date Assigned:** MM/DD/YYYY
RESPONSIBLE REVIEWER		
Guidelines Reference: 6, 23, 27		
System Description and Mandatory Supplemental References: Contractor B Earned Value Management System (EVMS) Description dated MM/DD/YYYY, sections: X ,Y, and Z		

Risk Assessment Identifies Potential Areas where Significant Findings are Likely to Occur in the Future

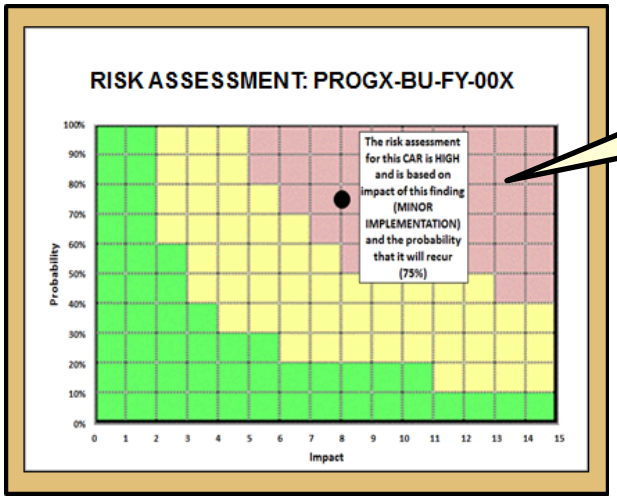
Impact = 10



Probability = 75%

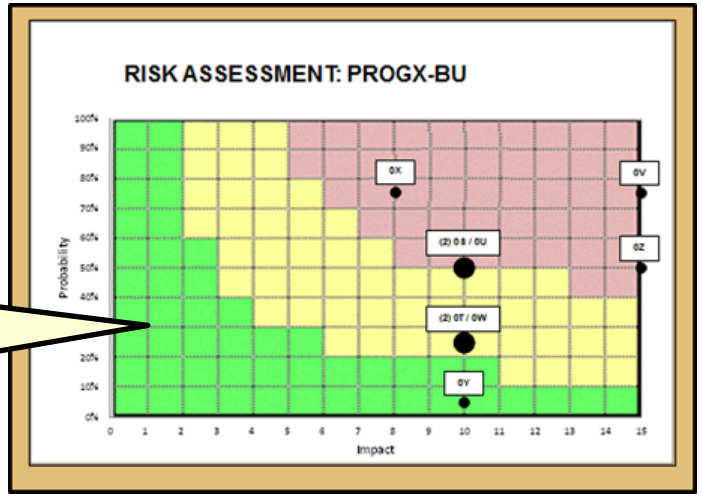


Sample Risk Assessment Plots



Individual CAR Risk Assessment

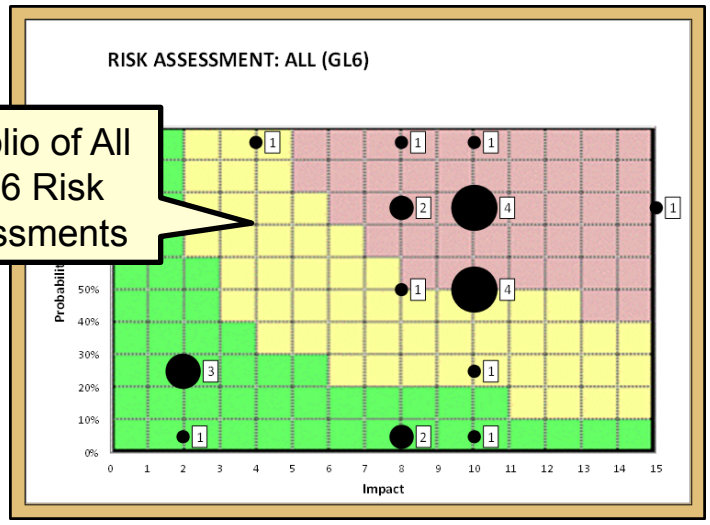
Portfolio of All CAR Risk Assessments for a specific Business Unit



Each CAR has its own Risk Assessment which provides insight into the likelihood whether a Significant Finding will occur again during future Review Cycles

Risk Assessments can also be reviewed as a Portfolio to identify potential future issues for a Program, Business Unit, Company, or even for a specific Guideline

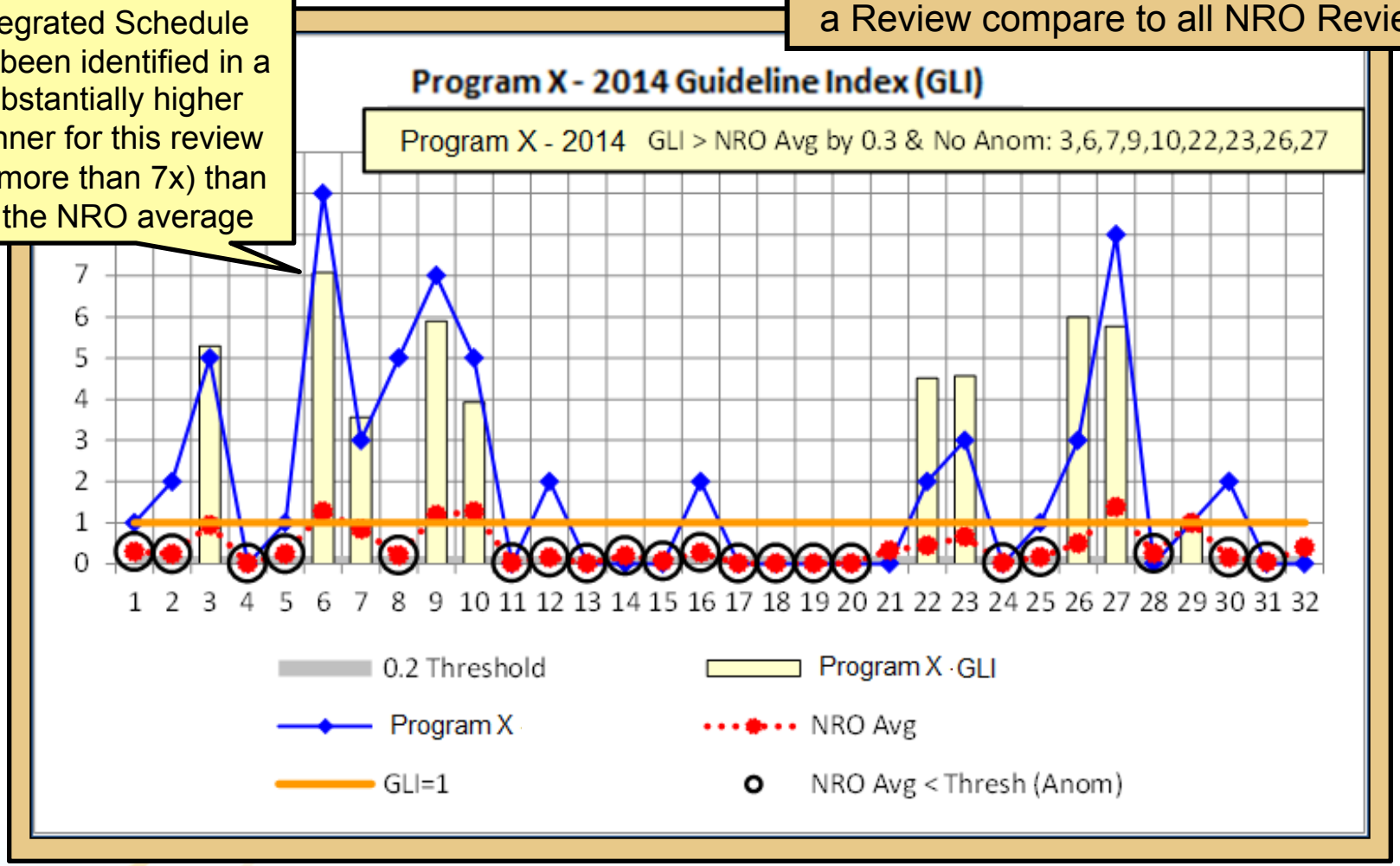
Portfolio of All GL06 Risk Assessments



An Example GLI Chart

Guideline 06 – Integrated Schedule has been identified in a substantially higher manner for this review (by more than 7x) than for the NRO average

Identifies how Guideline References for a Review compare to all NRO Reviews



Are there consistencies between Risk Assessments and High GLIs?

Putting It Together

- CAR Database provides history of Finding Type, Severity, and Guideline Reference to assess Industry Trends across NRO Supply Chain
- GLI provides ability to share comparative metrics to contractor without providing sensitive details
- Risk Assessment provides the NRO with likelihood of a Significant Finding during the next Surveillance Review
  - Provides Roadmap in determining which Contractors and/or Programs should be reviewed in Future
  - Provides NRO and Contractor with Points of Emphasis for Future Reviews
- Total Package provides information regarding the complete history of deficiencies regarding any specific guideline, the trending patterns of those deficiencies, and the risk of that guideline being problematic in the future
- Overall Value is Better Project Performance Management by Understanding the Major Data Quality Problems facing the NRO

NRO CAAG/ECE EVMS Evaluation Framework

Now

Portfolio

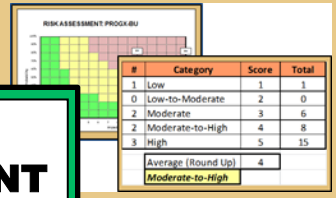
Program / Business Unit / Contractor / Enterprise

Program

REVIEW

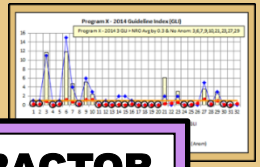
- CAR Type
- CAR Category (Severity)
- Guideline Reference
- CAP
- Root Cause

RISK ASSESSMENT



#	Category	Score	Total
1	Low	1	1
0	Low-to-Moderate	2	0
2	Moderate	3	6
2	Moderate-to-High	4	8
3	High	5	15
	Average (Round Up)	4	
	Moderate-to-High		

CONTRACTOR FEEDBACK



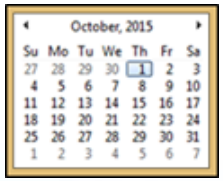
CAR DATABASE

TREND ANALYSIS

FUTURE ROADMAP

Impacts Schedule for Future Reviews & Establishes Points of Emphasis

Future



CAR DATABASE

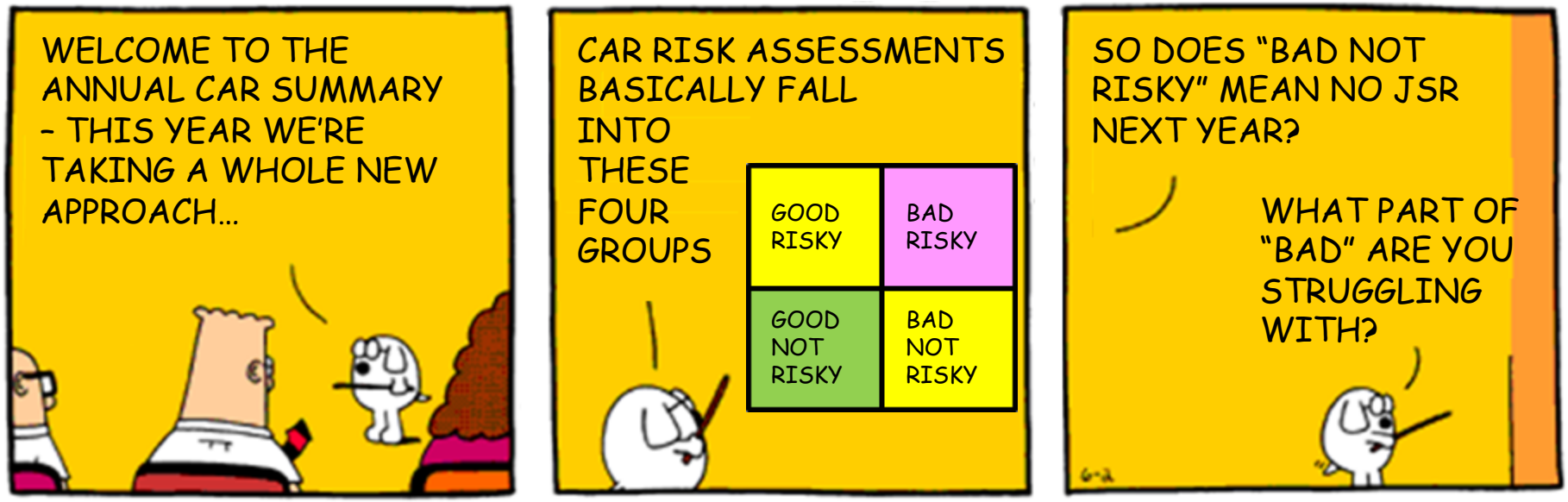
TREND ANALYSIS

FUTURE ROADMAP

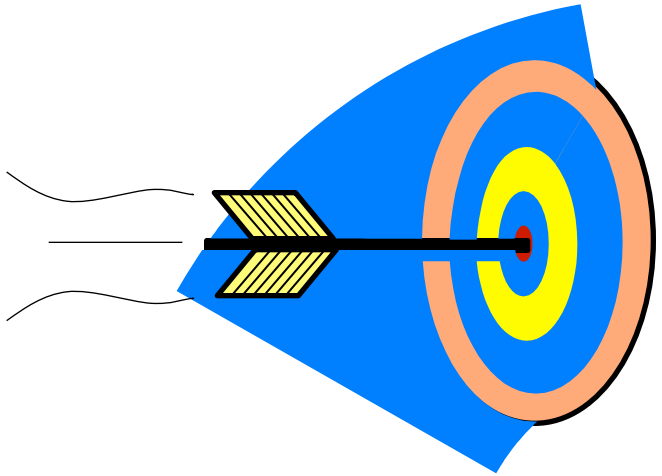
TIMELY, RELIABLE, & ACCURATE DATA

Impacts Schedule for Future Reviews & Establishes Points of Emphasis

The Risk Process

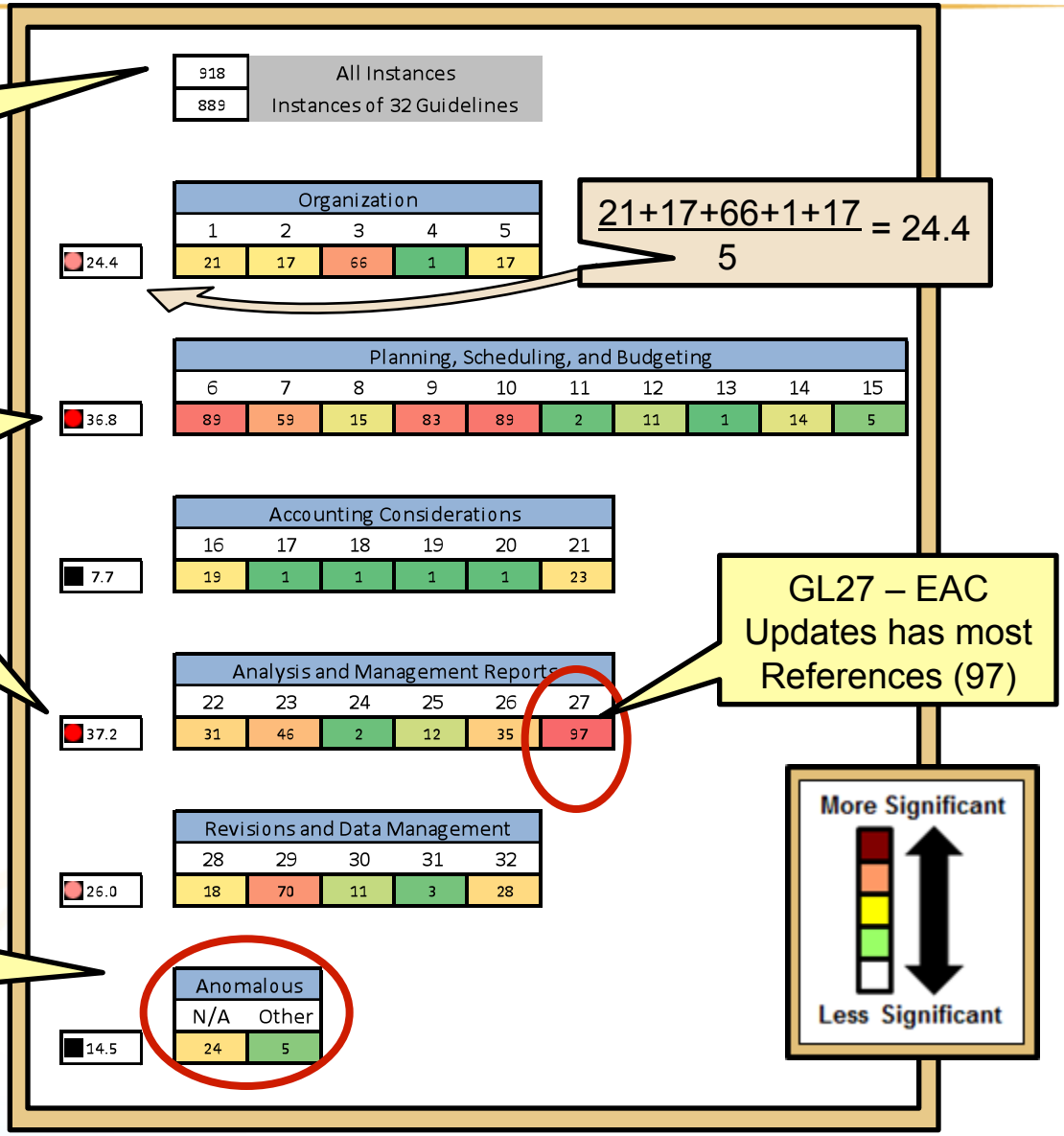


Significantly more sophisticated than the older method…



BACKUP

Grouping the Guideline References (2003-2014)

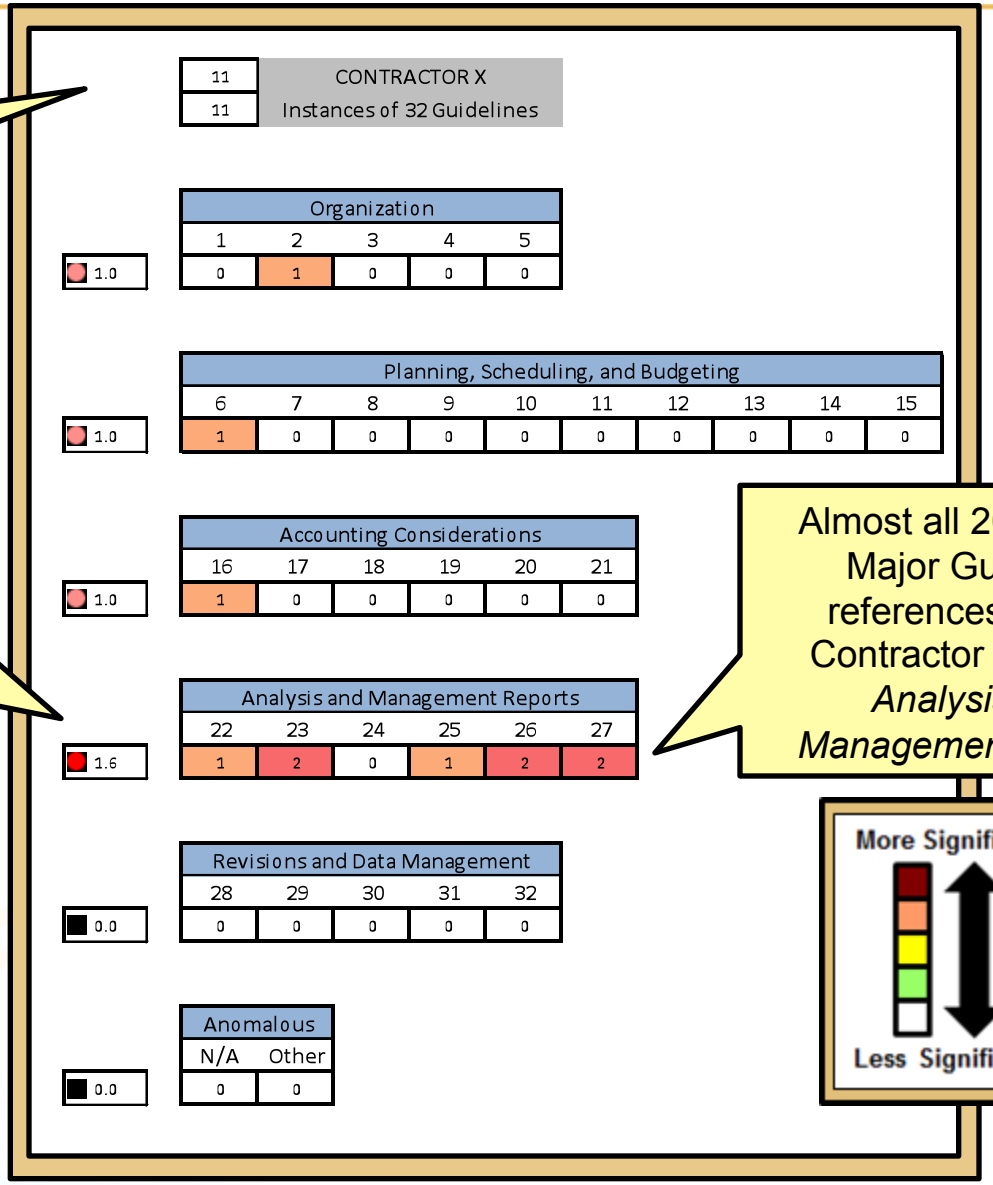


Grouping the Guideline References by Contractor (Filtered for 2013, Major, and Open)

11 Total References for this Contractor using the Filters

Analysis and Management Reports has the highest number of References per Guideline for this Contractor using the Filters

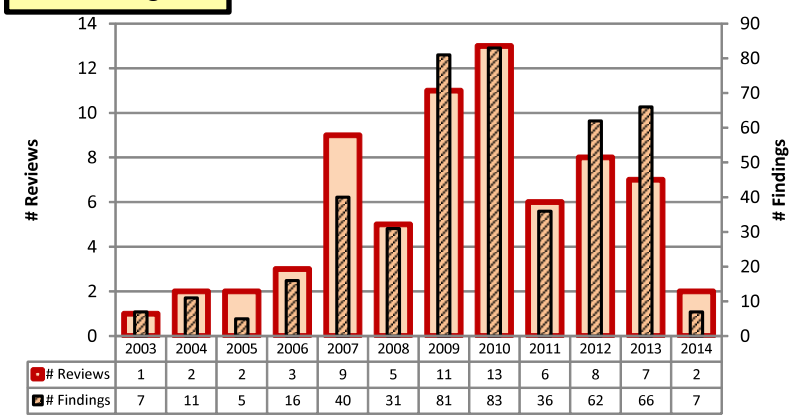
Almost all 2013 Open Major Guideline references for this Contractor are from *Analysis and Management Reports*



Reviews, Findings & GL References (2003-2014)

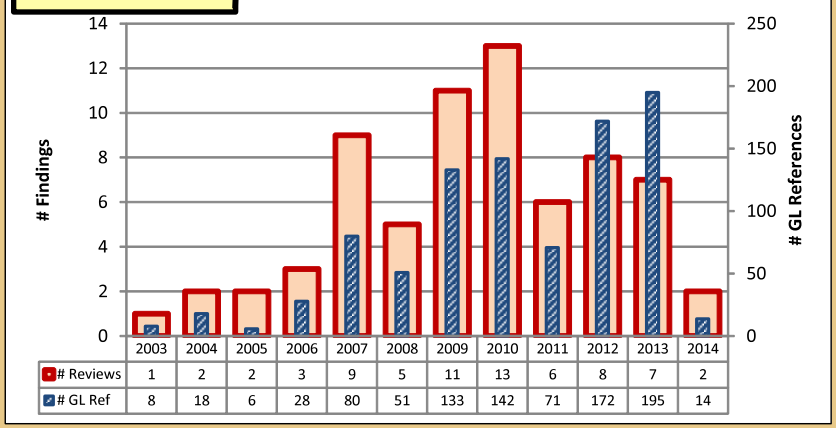
CAR Database provides many ways to review the data

Reviews vs Findings



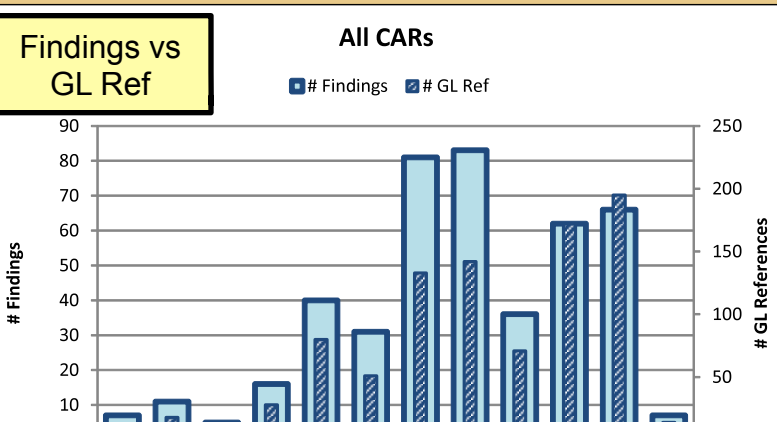
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
# Reviews	1	2	2	3	9	5	11	13	6	8	7	2
# Findings	7	11	5	16	40	31	81	83	36	62	66	7

Reviews vs GL Ref



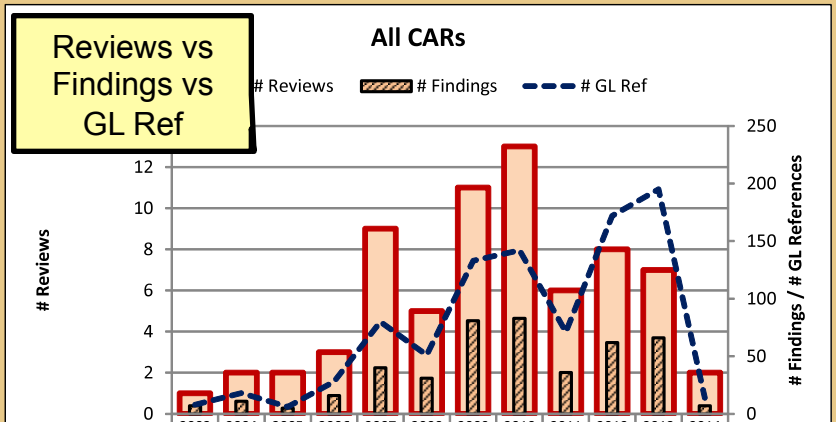
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
# Reviews	1	2	2	3	9	5	11	13	6	8	7	2
# GL Ref	8	18	6	28	80	51	133	142	71	172	195	14

Findings vs GL Ref



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
# Findings	7	11	5	16	40	31	81	83	36	62	66	7
# GL Ref	8	18	6	28	80	51	133	142	71	172	195	14

Reviews vs Findings vs GL Ref

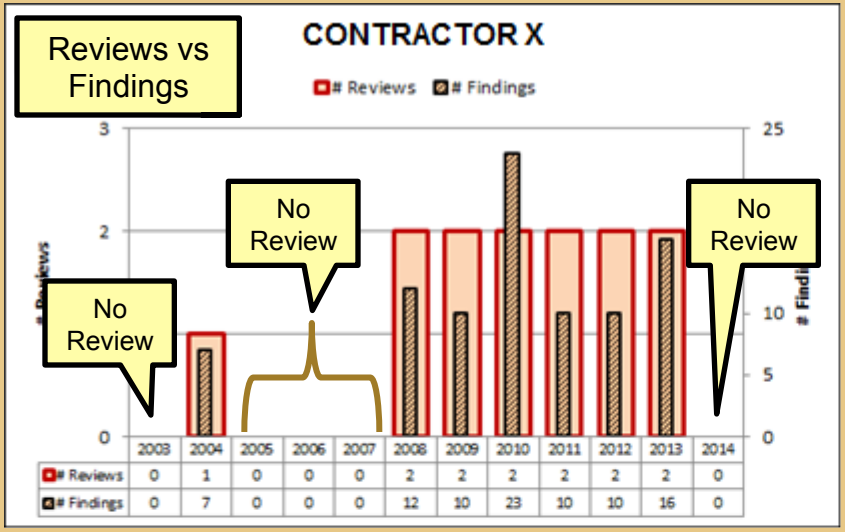


	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
# Reviews	1	2	2	3	9	5	11	13	6	8	7	2
# Findings	7	11	5	16	40	31	81	83	36	62	66	7
# GL Ref	8	18	6	28	80	51	133	142	71	172	195	14

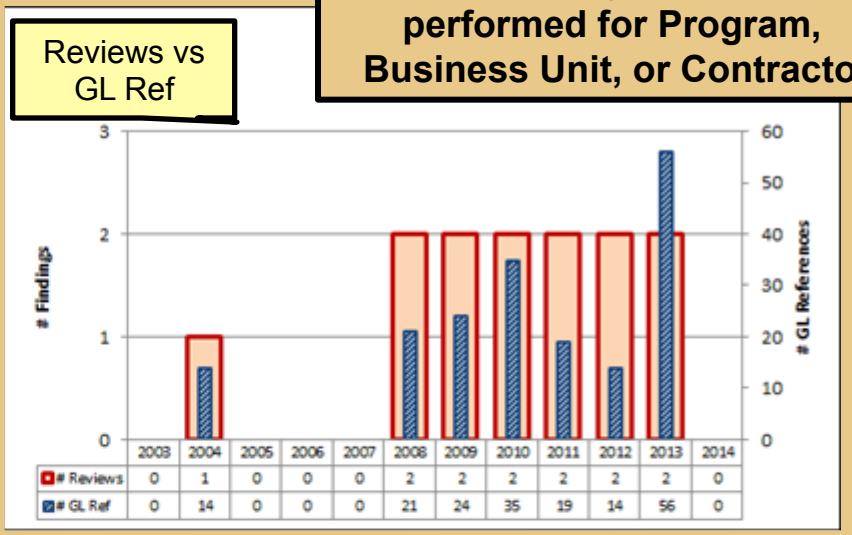
Reviews, Findings & GL References by Contractor (2003-2014)

Same Analysis can be performed for Program, Business Unit, or Contractor

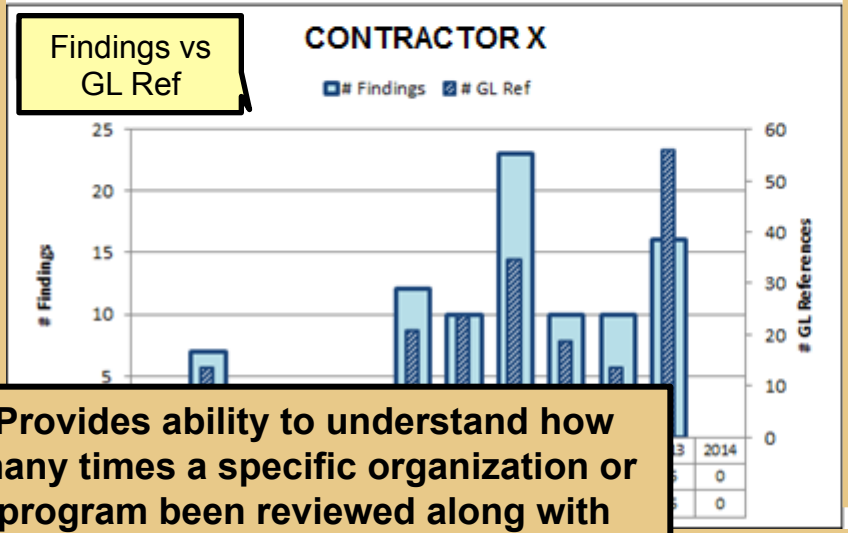
Reviews vs Findings



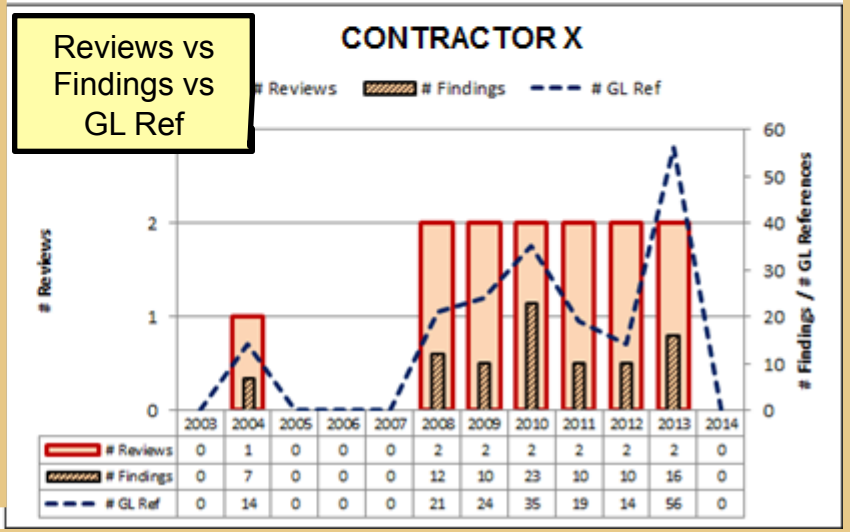
Reviews vs GL Ref



Findings vs GL Ref



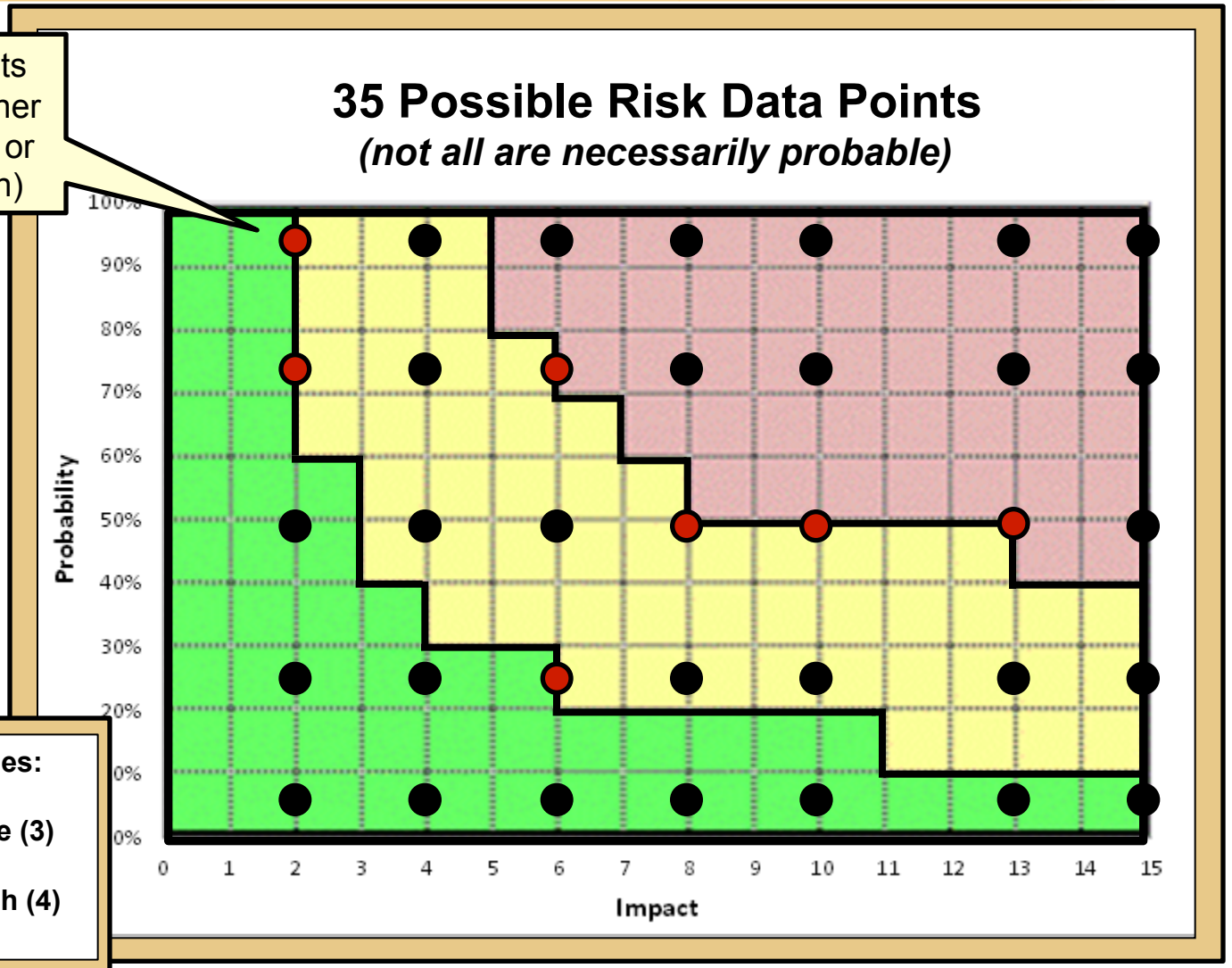
Reviews vs Findings vs GL Ref



Provides ability to understand how many times a specific organization or program been reviewed along with any associated Trends

Potential Risk Assessment Values

Seven Data Points are on border (either Low-to-Moderate or Moderate-to High)



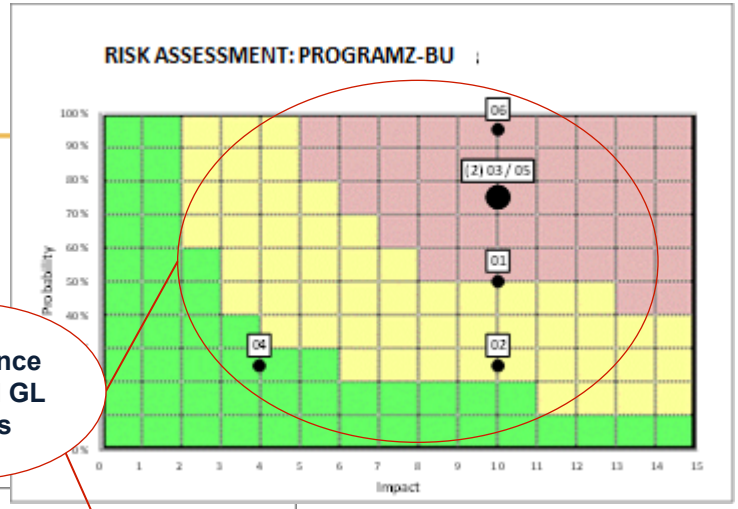
35 Possible Outcomes:

- **Low (10)**
- **Low-to-Moderate (3)**
- **Moderate (8)**
- **Moderate-to-High (4)**
- **High (10)**

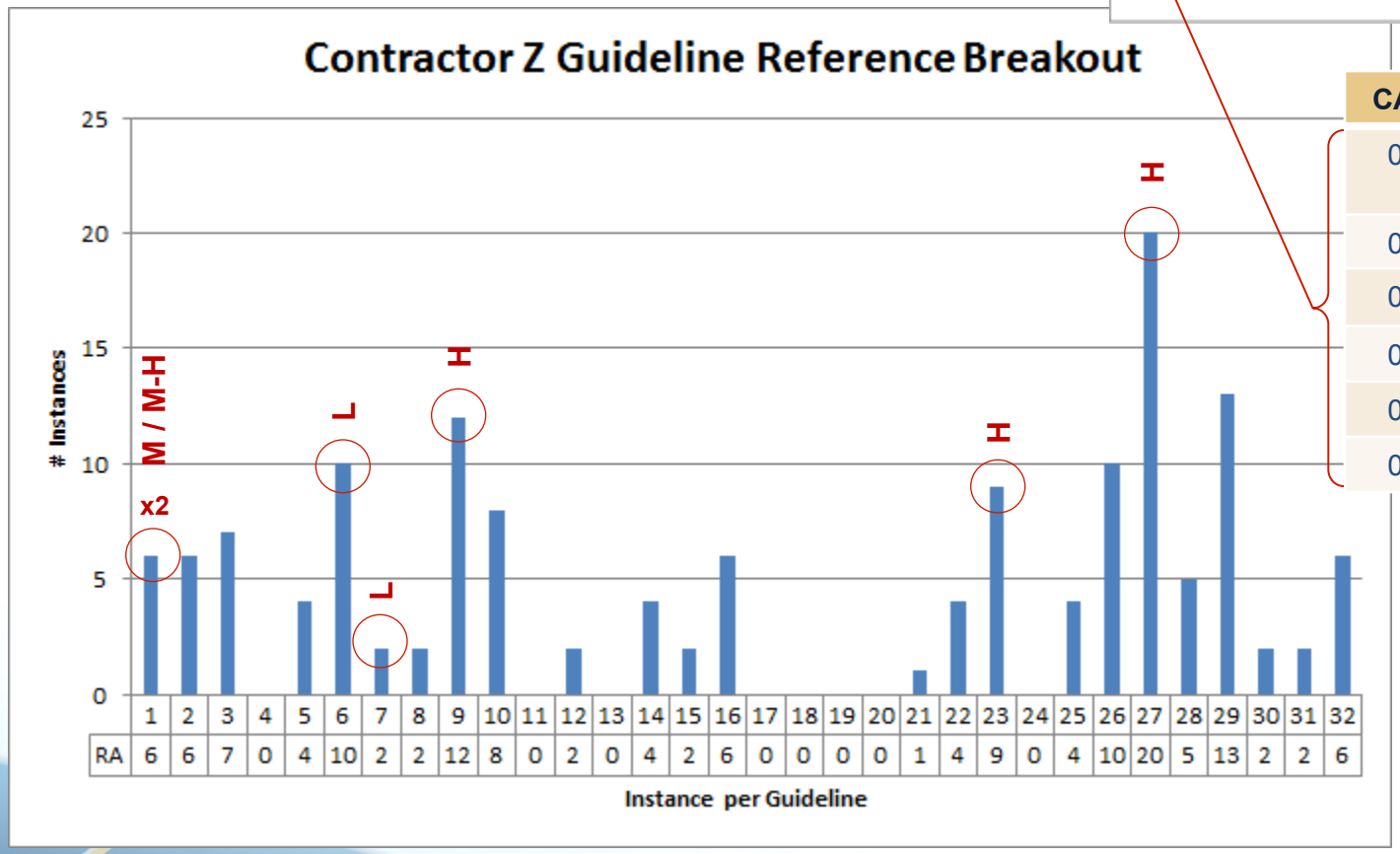
Low **Moderate** **High**

Other Relationships

Relationship of Risk Assessment with Contractor Z EVM System Health Trends

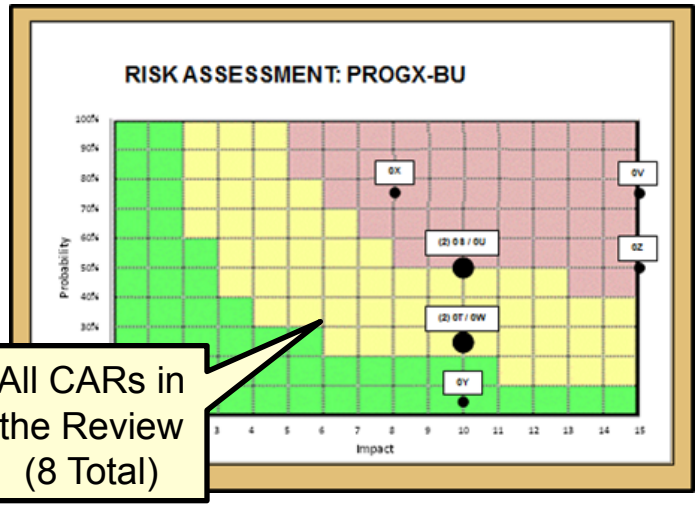


Recurrence Risk and GL Trends



CAR	GL	RISK
01	1	Moderate-to-High
02	1	Moderate
03	9	High
04	6,7	Low
05	27	High
06	23	High

Overall Risk Assessment of Review



All CARs in the Review (8 Total)

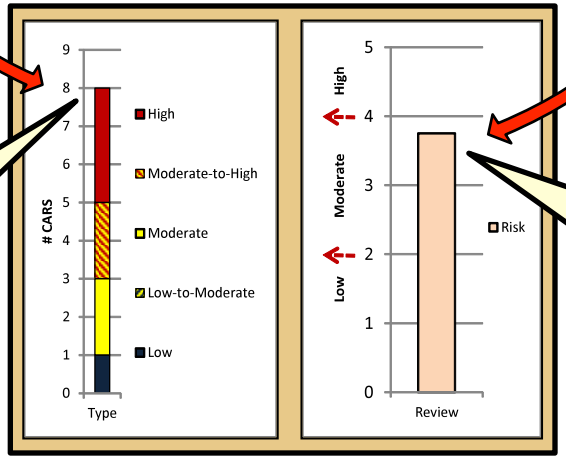
5 Possible Levels of Risk

Risk	Value
Low	1
Low-to-Moderate	2
Moderate	3
Moderate-to-High	4
High	5

8 CARs are Assessed

# CARs	Risk Assessment	Value	Total
1	Low	1	1
0	Low-to-Moderate	2	0
2	Moderate	3	6
2	Moderate-to-High	4	8
3	High	5	15
8	TOTALS		30
	AVERAGE SCORE (30/8)		3.75

Total Score divided by Total Number of CARs equals Average Score

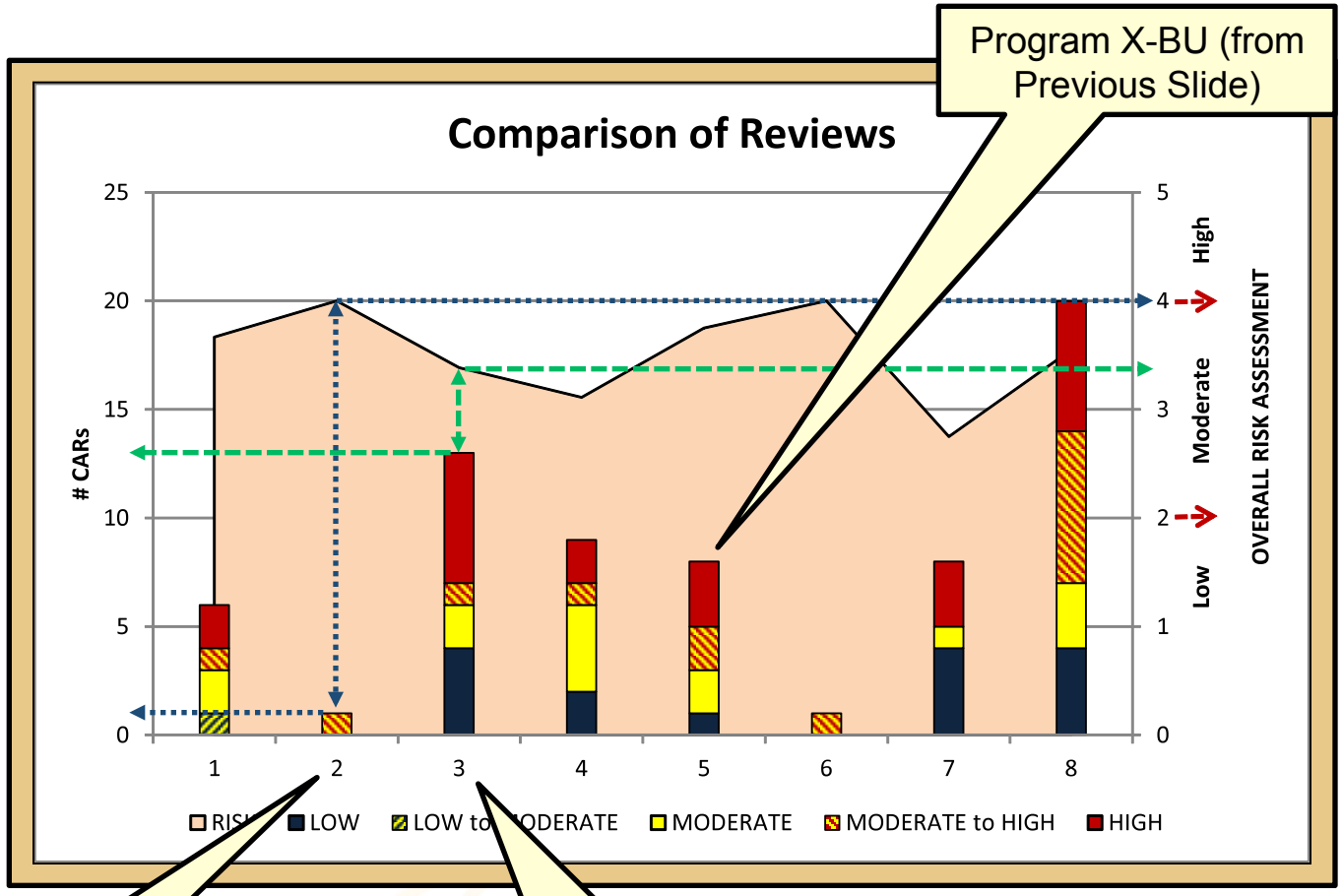


8 Total CARs

3.75 on Risk Index

Individual CAR Risk Assessments help define the focus of the next Review by Identifying the Potential Areas where Significant Findings are Likely to Occur in the Future – A Total Review Risk Assessment helps to prioritize the Scheduling Timeframe for the next Review based on the Overall Risk of Future Potential Findings

Comparing Overall Risk Assessments



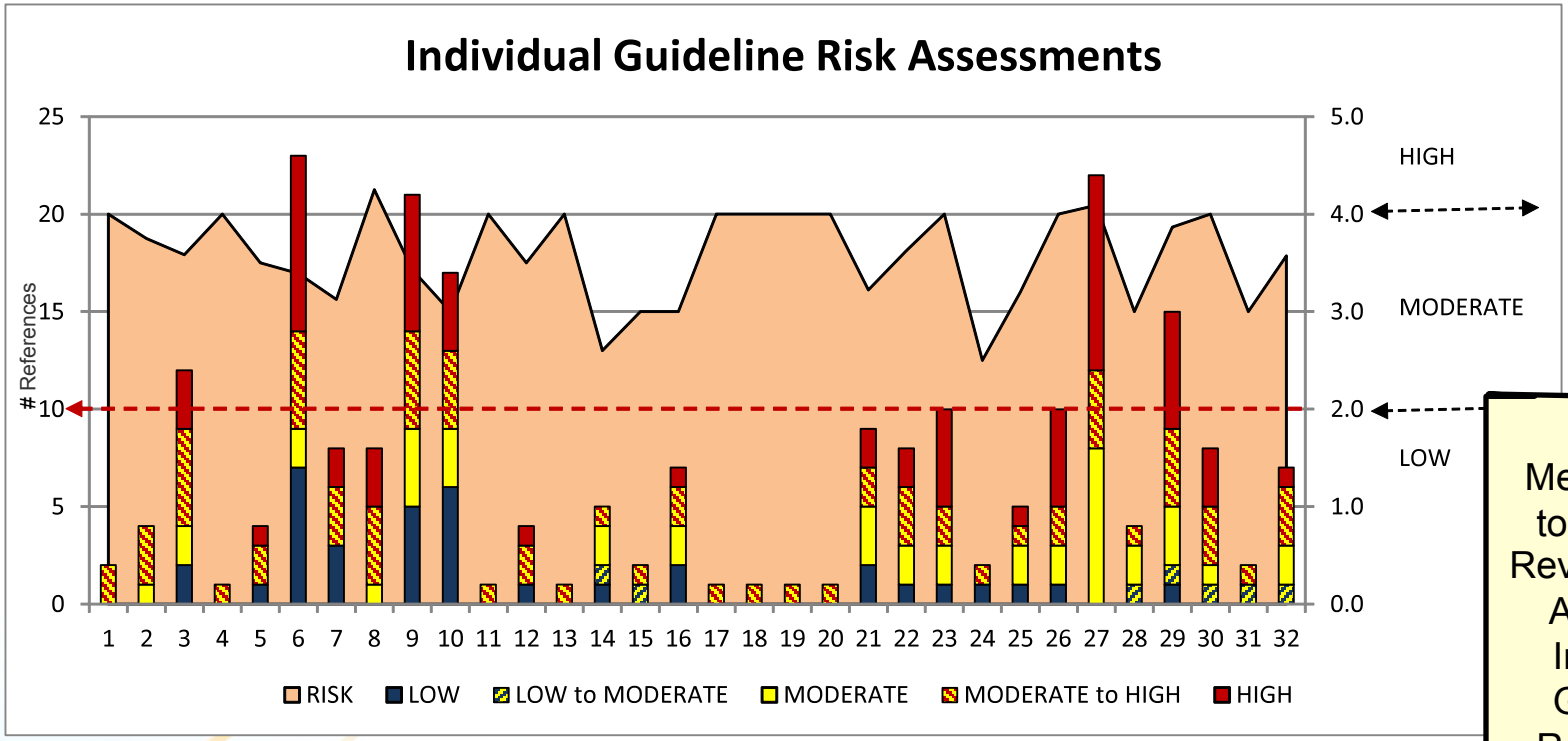
Lower Number of CARs but Higher Overall Risk

Higher Number of CARs but Lower Overall Risk

Can be used for comparison of Programs. This approach can also be used to compare any desired breakout of the database (Program, Business Unit, Company, etc.)

Assessing the Risk on Guidelines

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
LOW	0	0	2	0	1	7	3	0	5	6	0	1	0	1	0	2	0	0	0	0	2	1	1	1	1	1	0	0	1	0	0	0
LOW to MODERATE	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
MODERATE	0	1	2	0	0	2	0	1	4	3	0	0	0	2	0	2	0	0	0	0	3	2	2	0	2	2	8	2	3	1	0	2
MODERATE to HIGH	2	3	5	1	2	5	3	4	5	4	1	2	1	1	1	2	1	1	1	1	2	3	2	1	1	2	4	1	4	3	1	3
HIGH	0	0	3	0	1	9	2	3	7	4	0	1	0	0	0	1	0	0	0	0	2	2	5	0	1	5	10	0	6	3	0	1
# REFERENCES	2	4	12	1	4	23	8	8	21	17	1	4	1	5	2	7	1	1	1	1	9	8	10	2	5	10	22	4	15	8	2	7
RISK	4.0	3.8	3.6	4.0	3.5	3.4	3.1	4.3	3.4	3.0	4.0	3.5	4.0	2.6	3.0	3.0	4.0	4.0	4.0	4.0	3.2	3.6	4.0	2.5	3.2	4.0	4.1	3.0	3.9	4.0	3.0	3.6



Same Methodology to Assess a Review can be Applied to Individual Guideline References

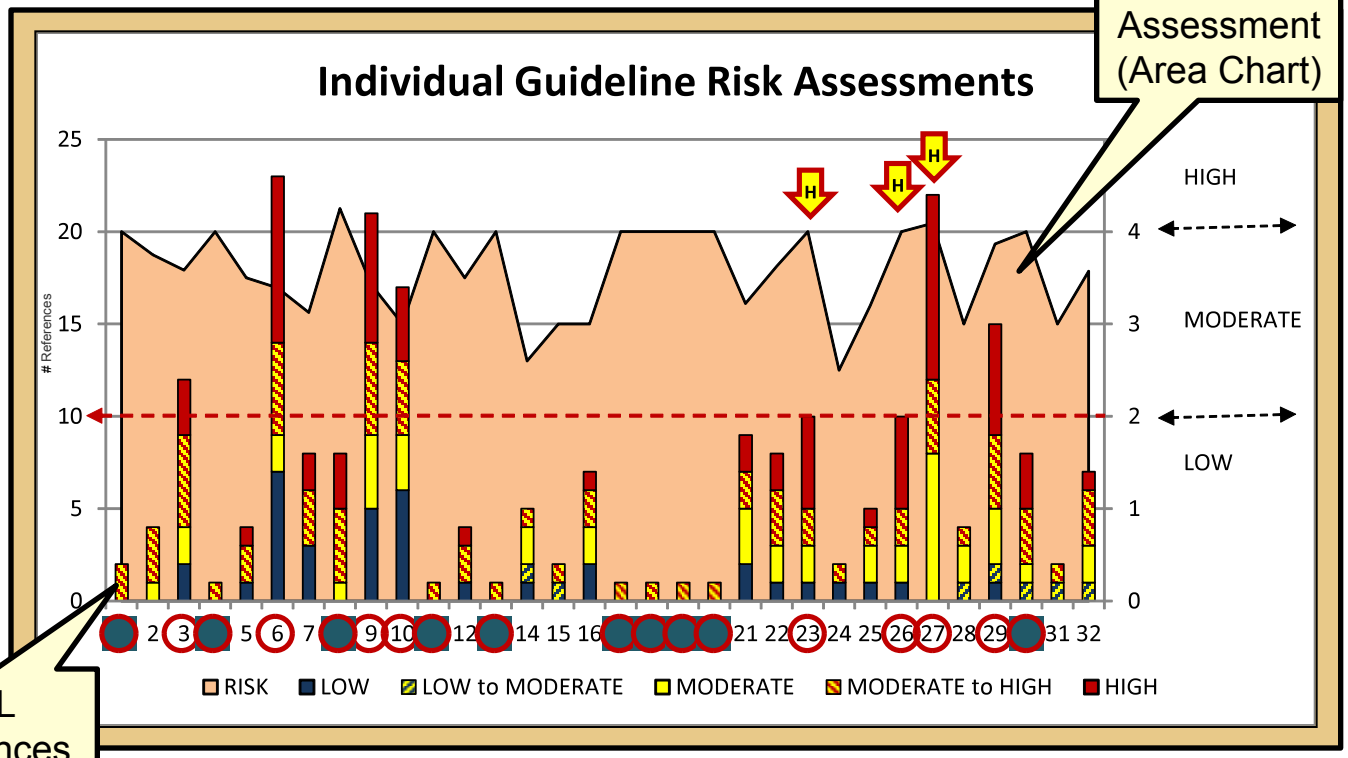
Overall Risk Assessment of Individual Guidelines (2003-2014)

GUIDELINES WITH HIGHEST FREQUENCY AND HIGHEST OVERALL RISK

23 – Identify Significant Variances

26 – Implement Corrective Actions

27 – EAC Updates



Risk Assessment (Area Chart)

GL References (Bar Chart)

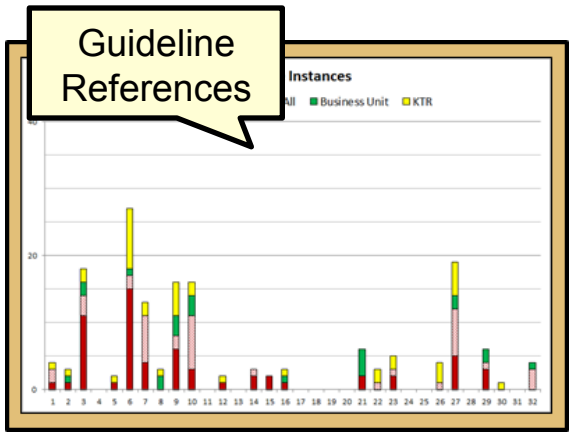
Guidelines with High Risk and at least 10 References

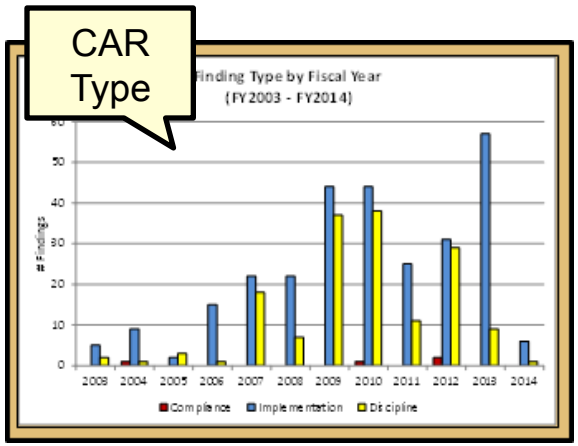
Guidelines with Moderate or High Risk and at least 10 References

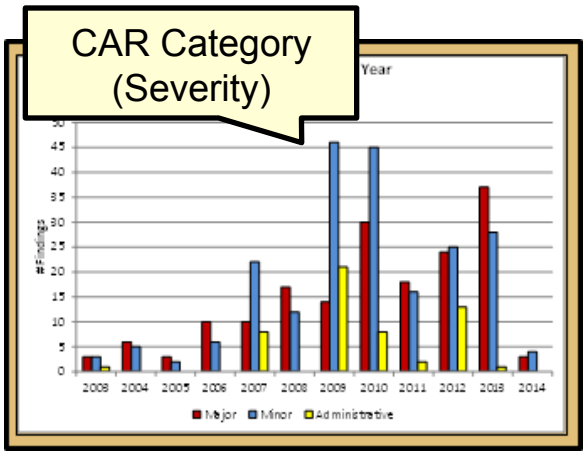
Guidelines with High Risk and but less than 10 References

226 of the 889 (25%) of All Guideline References in NRO Database have been assessed with Risk – All NRO Guideline References have been assessed since January 2013

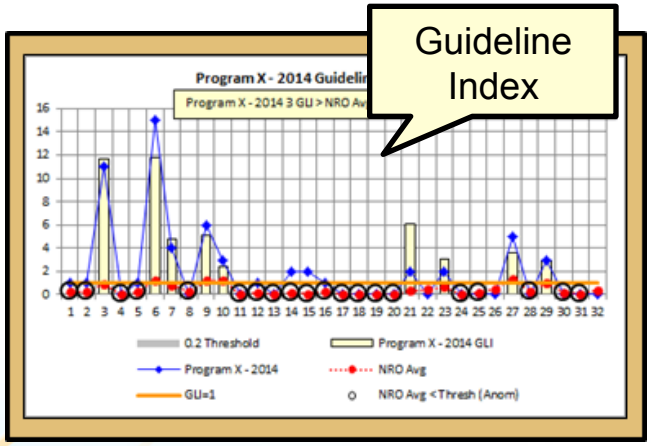
Other Parts of the Puzzle





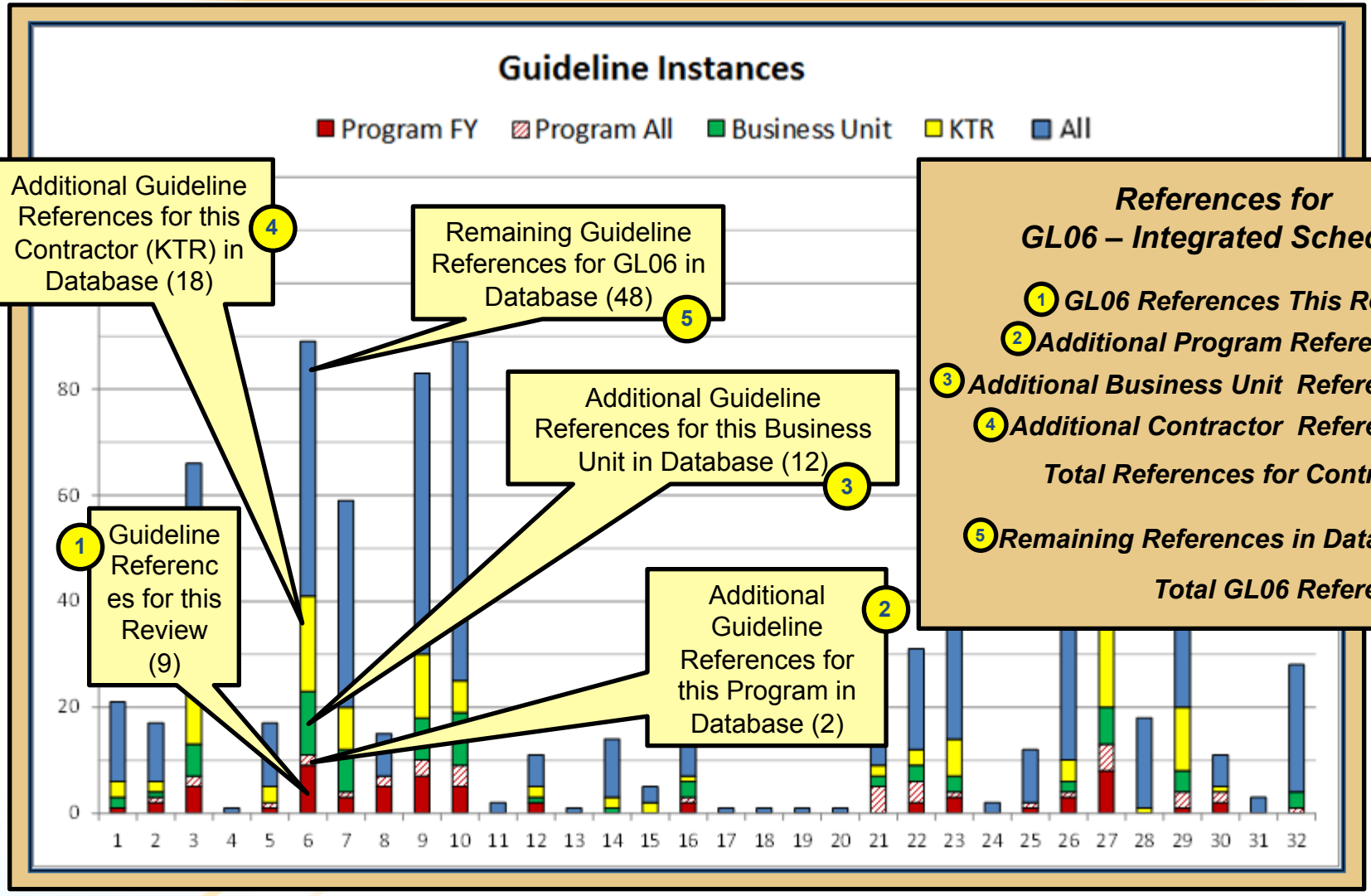


Historical database of Guideline References, CAR Types, and CAR Categories (Severities) can help provide a better understanding of where deficiencies consistently occur (by Program, Business Unit, Contractor, or Enterprise)



The Guideline Index provides an opportunity to share how a Program, Business Unit, or Contractor is doing across Industry compared to other reviews without compromising any proprietary data

Assessing a Single Guideline



References for GL06 – Integrated Schedule

1 ***GL06 References This Review = 9***

2 ***Additional Program References = 2***

3 ***Additional Business Unit References = 12***

4 ***Additional Contractor References = 18***

Total References for Contractor = 41

5 ***Remaining References in Database = 48***

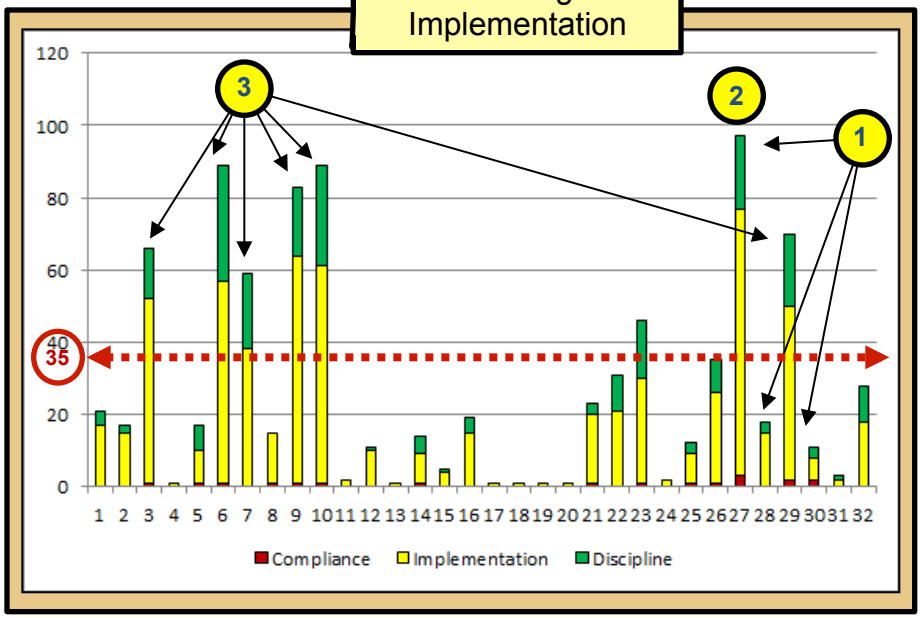
Total GL06 References = 89

How does the Risk Assessment look for Guidelines with large Numbers of References?

Guideline Type and Category (Severity)

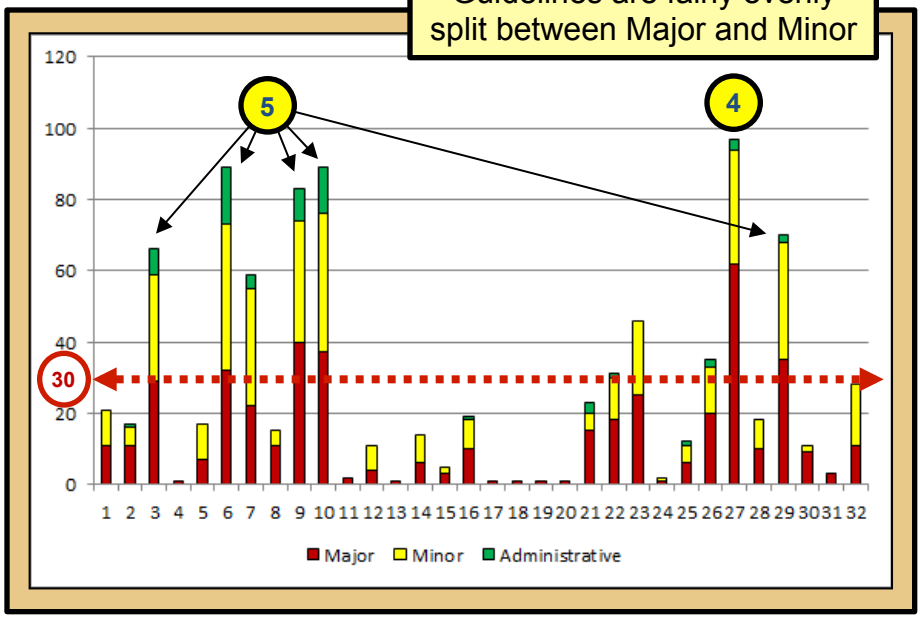
Type

Most Findings are Implementation



Category (Severity)

Guidelines are fairly evenly split between Major and Minor



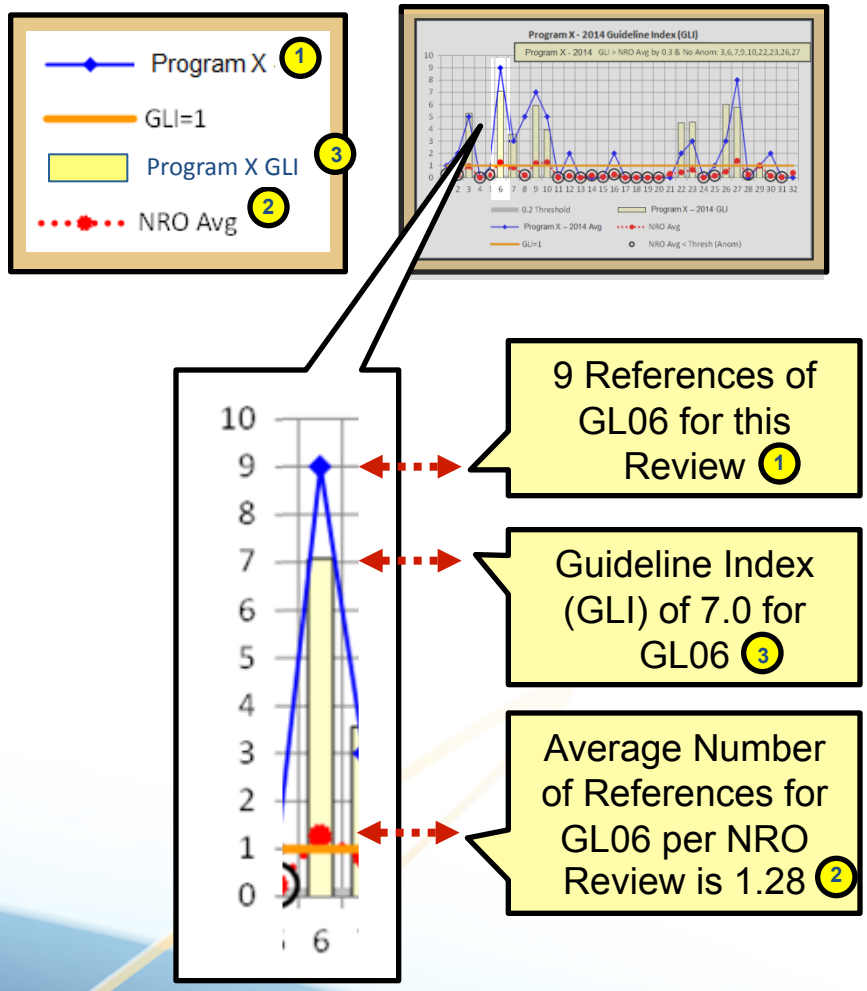
GUIDELINES WITH SIGNIFICANT TYPE OR CATEGORY VALUES

- 03 – Integrate Management Control Processes
- 06 – Integrated Schedule
- 07 – Schedule Progress Management Points
- 09 – Work Authorization and Planning by EOC
- 10 – Establish Work Packages and Planning Packages
- 27 – EAC Updates
- 29 – Track Budget Changes and Maintain Work Authorizations

1. *Only 3 GL have more than 1 Compliance Reference (27, 29, 30)*
2. *Majority of Implementation References occur with GL27 (74)*
3. *6 Other GL (03, 06, 07, 09, 10, 29) have 35 or More Implementation References*
4. *Majority of Major References occur with GL27 (62)*
5. *5 Other GL (03, 06, 09, 10, 29) have 30 or More Major References*

Understanding the Guideline Index (GLI)

The Guideline Index (GLI) Identifies how Guideline References for a Review compares to the Average NRO Review



GLI for GL06 – Integrated Schedule

 # References for Review = 9 1

Avg # References per NRO Review = 1.28 2

$$GLI = \frac{9}{1.28} = 7.0$$ 3

Program X GLI for GL06 is 7.0

This indicates that References for GL on this review was ~7x the average on any NRO Review

A GLI of 1.0 indicates the Number of Guideline References identified in a Review (for a Specific Guideline) is Equal to the Average Number of Guideline References in an Average NRO Review

Overall Assessment of EVMS Guidelines

TYPE
Compliance = 3
Implementation = 2
Discipline = 1

CATEGORY
Major = 3
Minor = 2
Administrative = 1

PROBABILITY
>= 95% = 5
>= 75% AND >50% = 4
>= 50% AND > 25% = 3
>= 25% AND > 5% = 2
>= 5% = 1

RISK
HIGH = 5
MODERATE to HIGH = 4
MODERATE = 3
LOW to MODERATE = 2
LOW = 1

	References	Ave Type	Ave Category	Ave Probability	Ave Risk
1	21	1.81	2.52	3.00	4.00
2	17	1.88	2.59	2.50	3.75
3	66	1.80	2.33	2.42	3.58
4	1	2.00	3.00	3.00	4.00
5	17	1.65	2.41	2.25	3.50
6	89	1.65	2.18	2.70	3.39
7	59	1.64	2.31	2.25	3.13
8	15	2.07	2.73	3.13	4.25
9	83	1.78	2.37	2.38	3.43
10	89	1.70	2.27	2.35	3.00
11	2	2.00	3.00	3.00	4.00
12	11	1.91	2.36	2.50	3.50
13	1	2.00	3.00	3.00	4.00
14	14	1.71	2.43	2.40	2.60
15	5	1.80	2.60	2.00	3.00
16	19	1.79	2.47	1.71	3.00
17	1	2.00	3.00	3.00	4.00
18	1	2.00	3.00	3.00	4.00
19	1	2.00	3.00	3.00	4.00
20	1	2.00	3.00	3.00	4.00
21	23	1.91	2.52	2.22	3.22
22	31	1.68	2.55	2.38	3.63
23	46	1.67	2.54	3.50	4.00
24	2	2.00	2.50	1.50	2.50
25	12	1.83	2.42	2.60	3.20
26	35	1.77	2.51	3.20	4.00
27	97	1.82	2.61	3.05	4.09
28	18	1.83	2.56	2.00	3.00
29	70	1.74	2.47	3.20	3.87
30	11	1.91	2.82	3.13	4.00
31	3	1.67	3.00	2.00	3.00
32	28	1.64	2.39	2.86	3.57

This Matrix Identifies Multiple ways to Rack and Stack Guidelines

Values can be grouped and colorized using Quartiles (or other chosen values)

	References	Ave Type	Ave Category	Ave Probability	Ave Risk
1	3	2	2	4	4
2	3	3	3	2	3
3	4	2	1	2	2
4	1	4	4	4	4
5	3	1	1	1	2
6	4	1	1	3	2
7	4	1	1	1	1
8	2	4	3	4	4
9	4	2	1	2	2
10	4	1	1	2	1
11	1	4	4	4	4
12	2	3	1	2	2
13	1	4	4	4	4
14	2	2	2	2	1
15	2	2	3	1	1
16	3	2	2	1	1
17	1	4	4	4	4
18	1	4	4	4	4
19	1	4	4	4	4
20	1	4	4	4	4
21	3	3	2	1	2
22	3	1	3	2	3
23	4	1	3	4	4
24	1	4	2	1	1
25	2	3	2	2	2
26	3	2	2	4	4
27	4	3	3	4	4
28	3	3	3	1	1
29	4	2	2	4	3
30	2	3	3	4	4
31	2	1	4	1	1
32	3	1	1	3	2

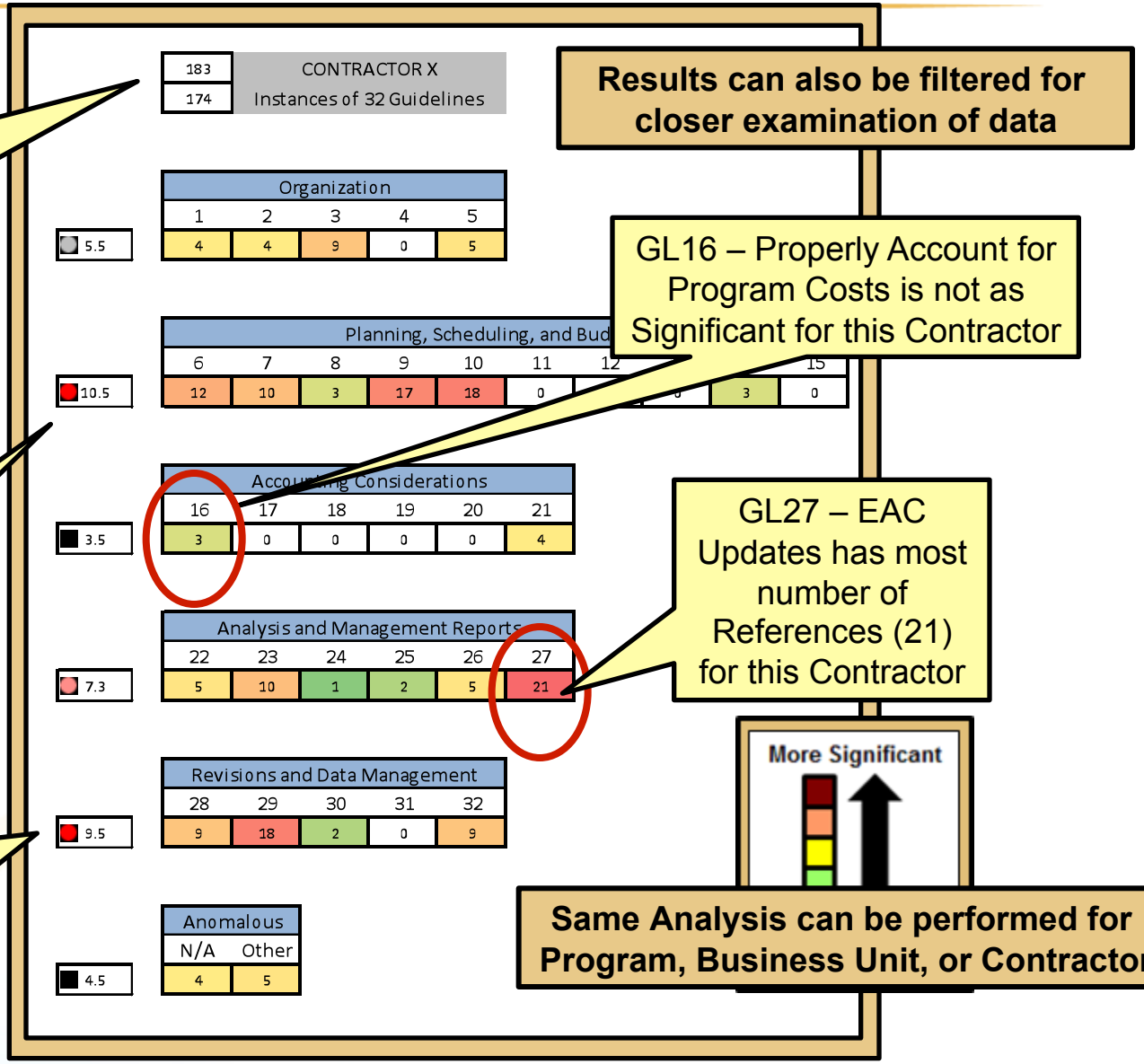
Guidelines with Significant Number of References *and* Higher Risk – Guidelines 23 and 27 have BOTH Highest Number of References AND Highest Risk

	References	Ave Type	Ave Category	Ave Probability	Ave Risk
3	4	2	1	2	2
6	4	1	1	3	2
9	4	2	1	2	2
23	4	1	3	4	4
27	4	3	3	4	4
29	4	2	2	4	3

4 Top Quartile (Highest)
3
2
1 Bottom Quartile (Lowest)

GL03 – Integrate Management Control Processes
GL06 – Integrated Schedule
GL09 – Work Authorization and Planning by EOC
GL23 – Identify Significant Variances
GL27 – EAC Updates
GL29 – Track Budget Changes and Maintain Work Authorizations

Grouping the Guideline References by Contractor (2003-2014)



183 Total References for this Contractor (174 are related to a Specific Guideline – 9 are Anomalous)

Results can also be filtered for closer examination of data

GL16 – Properly Account for Program Costs is not as Significant for this Contractor

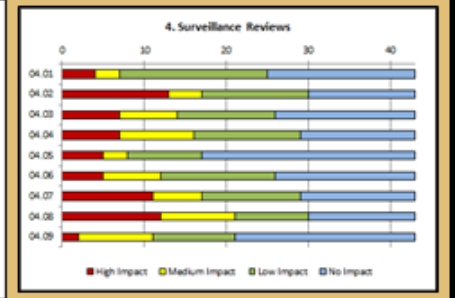
GL27 – EAC Updates has most number of References (21) for this Contractor

Planning, Scheduling & Budgeting and *Revisions and Data Management* have the highest number of References per Guideline

Same Analysis can be performed for Program, Business Unit, or Contractor

Joint Space Cost Council (JSCC) Survey

COST DRIVER	# Cost Areas	# Top Quartile HMI	% High Impacts
4. Surveillance Reviews	9	3 (33%)	17%



The JSCC Better EVM Implementation Survey identifies 9 Areas where Surveillance Reviews Impact the Cost of EVM

Six of the Nine Cost Areas identified in the JSCC Better EVM Implementation Survey can be mitigated though the CAAG/ECE Risk Assessment Process

Result = High Quality Data for Optimal Value

04.01 – Attendance

04.02 – Frequency

04.03 – Breadth/Depth

04.04 – Data Requests

04.05 – DCMA Internal Reviews by CAGE Code

04.06 – Layers of Oversight (internal/external)

04.07 – Derived Requirements

04.08 – Zero Tolerance for Minor Data Errors

04.09 – Prime/Subcontractor Surveillance

The Risk Assessment Process combined with CAR Database Metrics affects the Scheduling of Future Reviews, the Point of Emphasis for those Reviews, and the Contractor Preparation required for those Reviews