

GTS Regulator Stations Review Program™

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Crafting Solutions for the Natural Gas Industry






1 Introduction

3 Best Practices

2 Station Upsets

4 GTS RSRP



- Founded in 1998
- Office locations:  Atlanta, GA  Phoenix, AZ
 Walnut Creek, CA  Chico, CA
 Los Angeles, CA
- Serve clients nationally – most recently CA, GA, FL, VA, IL, AZ, TN, NC, KY, CO, TX, MI, IN, PA, WV, NY

ENGINEERING

- Pipeline Engineering
- Distribution Engineering
- MAOP Reconfirmation
- Hydrostatic Test Engineering
- TIMP Engineering & Support
- ILI Retrofit Design
- Station Engineering
- DIMP Engineering & Support

CONSULTING SERVICES

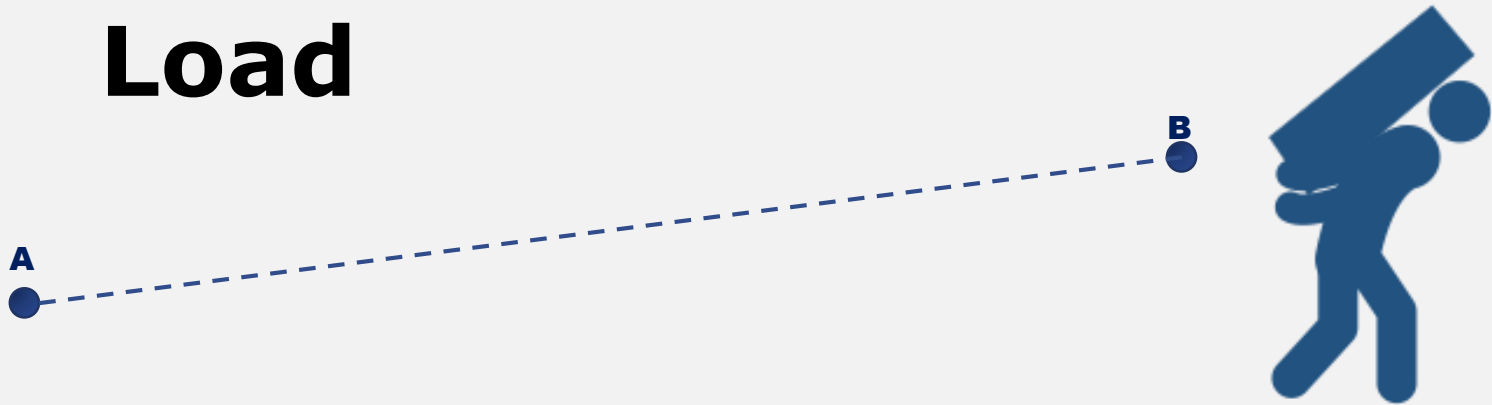
- Regulatory Compliance Support
- Data Validation & Management Support
- Process Review & Improvement
- Standards & Procedures Development
- API RP 1173 PSMS- Gap Analysis & Implementation

PROGRAM & PROJECT MANAGEMENT

- TIMP Assessment
- DIMP Assessment
- Investigative Dig Planning & Coordination
- ILI Coordination- Traditional & Non-Traditional
- Regulator Station Review Programs

Station Upsets

Pipelines Carry the Load

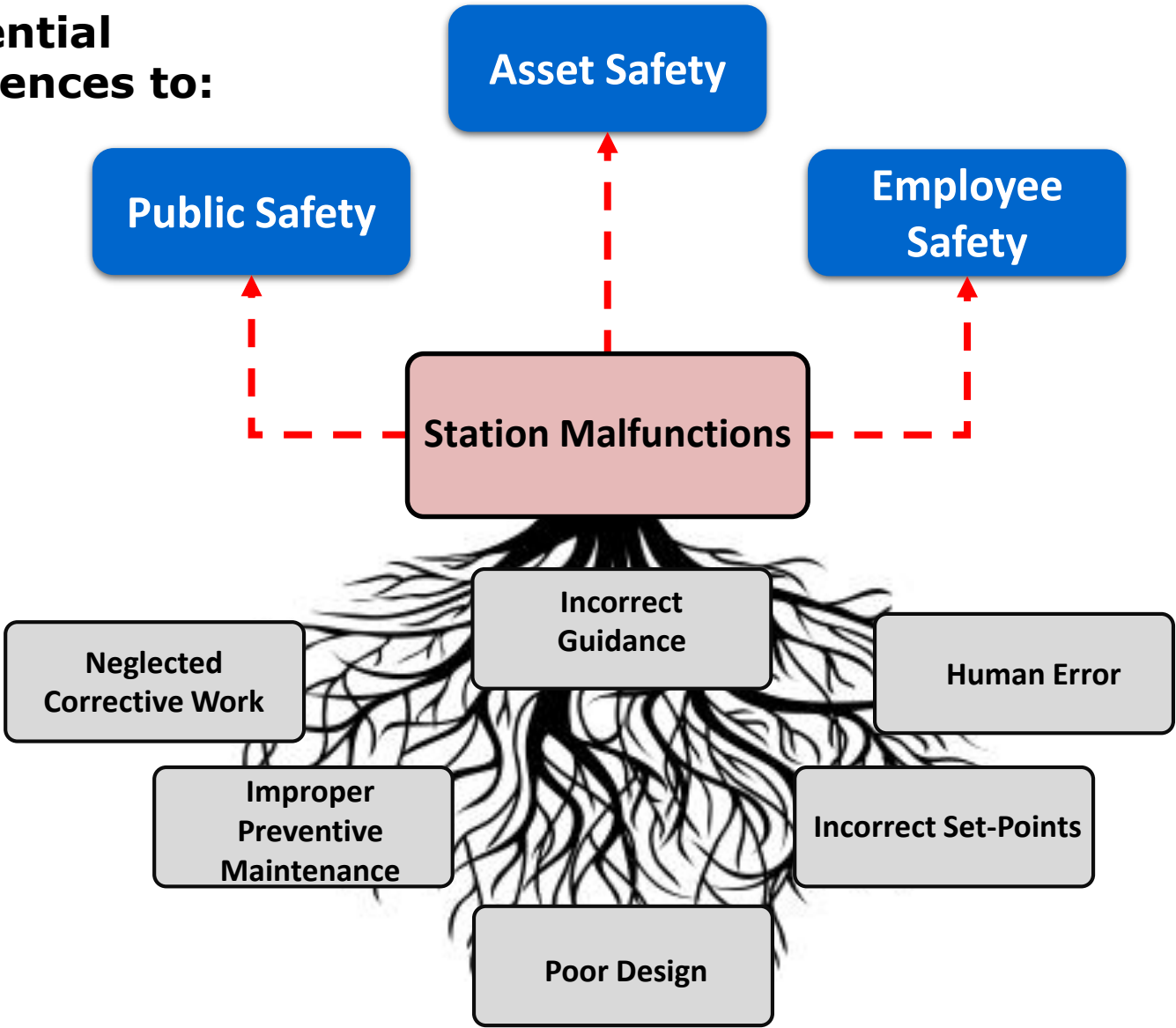


Stations Control the Flow!



Station Upsets

Potential Consequences to:



Possible Factors



Neglected Corrective Work

- Work Management System in effect?
- Work assigned to individuals?
- Tags/work tickets are closed, cause(s) identified and documented, future improvements implemented?



Improper Preventive Maintenance

- Work performance (time expenditure and physical asset reviews) is occasionally reviewed?
- Maintenance guidance/requirements are documented and followed



Poor Design

- Are maintenance personnel a part of station designs?
- Makeshift solutions are needed when routine work is performed?
- Obsolete equipment is in operation?



Incorrect Set Points

- Will you be reporting many MAOP exceedances?
- Standard set point philosophy is in place and followed?
- Are as-left pressure settings checked against established set points?



Human Error

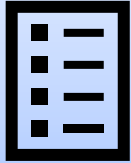
- Is there a culture of root cause investigation and continuous improvement?
- Are procedures followed?
- Do you have tribal training?



Improper Guidance

- Is a standard in place that provides guidance for station operations during construction?
- Process hazard analysis in place?

Best Practices



AGA – Leading Practices to Reduce the Possibility of a Natural Gas Over-Pressurization Event:

1. Design of Distribution Systems & Regulator Stations
2. Operating Procedures & Practices
3. Human Factors
4. Managing the Risk of an Over Pressurization Event



NTSB Recommendations - P-18-006, 007, 008, 009

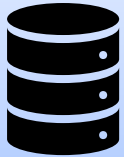
- Station designs quality & responsibility
- Asset knowledge
- Management of Change use
- Stations modifications risk management



Terry Wireman – Benchmarking Best Practices for Maintenance, Reliability & Asset Management
Updated for ISO 55000

GTS RSRP

GTS RSRP - Foundation



Emphasis on obtaining **Asset Knowledge** and storing that knowledge in enterprise systems and making it available for use.

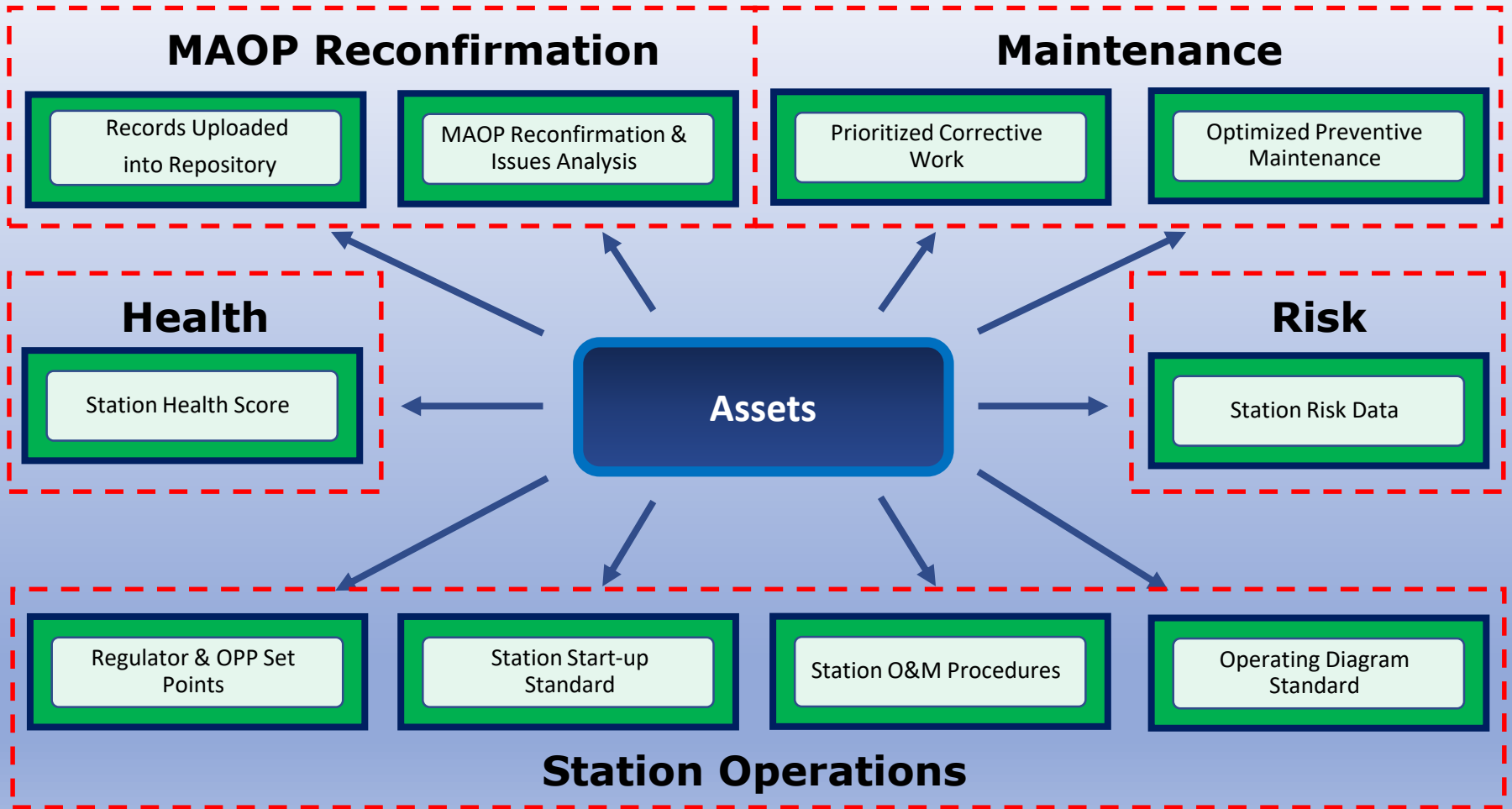


Process based to ensure repeatability



Emphasis on the utilization of a **Work Management System** (P, T, P)

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Asset Health Score Origin

- Asset Health Scores have a foundation in Asset Management standards which precede ASME B31.8S. The intent is to provide asset managers the optics to:
 - Understand the health of an asset
 - Compare different assets and different asset classes in an objective, consistent manner
 - Allow for an objective path forward to maintain assets. Move maintenance from reactive to proactive.
-

Example – Stations Health Scorecard

Notes:

1. To obtain an overall station score, the categories are weighted, and a score is calculated.
2. The data and stations shown are fictitious

Station Health Score

Weighting >>	5%	15%	15%	20%	15%	20%	10%	100%
	HEALTH SCORE CATEGORY							
Station	Recognition & Response to AOC	Equipment Issues	----	----	----	Overpressure Protection	Design & Operational Deficiencies	Total Score
4Th & Elm Station	2.00	2.40	0.68	0.00	9.00	5.00	1.40	3.05
Jacaranda Station	2.50	4.00	4.89	0.00	7.50	1.00	2.40	3.02
Myrtle Street Station	3.75	5.80	3.80	0.00	2.25	2.00	1.80	2.55
25th & V St Station	2.25	1.45	3.40	4.00	5.00	0.00	1.20	2.51
Tamarack Station	4.00	1.70	3.22	0.00	6.20	1.00	2.00	2.27
Beach Feed Station	2.00	2.00	3.50	0.00	5.70	2.00	0.80	2.26
Star and Moon Streets Stat	3.75	1.40	2.56	0.00	2.00	0.00	3.00	1.38

1

Don't hesitate to consider an **expert consultant's assistance** to progress your effort further. Or, even just to commence the program and gain valuable momentum.

2

Plan out your program structure before you take any steps. This will help you avoid rework, frustration, and added cost.

3

If you have already taken steps in this effort, this webinar may have provided additional knowledge & a helpful roadmap. Perhaps you want an independent **review of your started or planned effort**. Reach out to an experienced consultant to assist.

For Questions

Contact Joe Medina:
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Questions?