

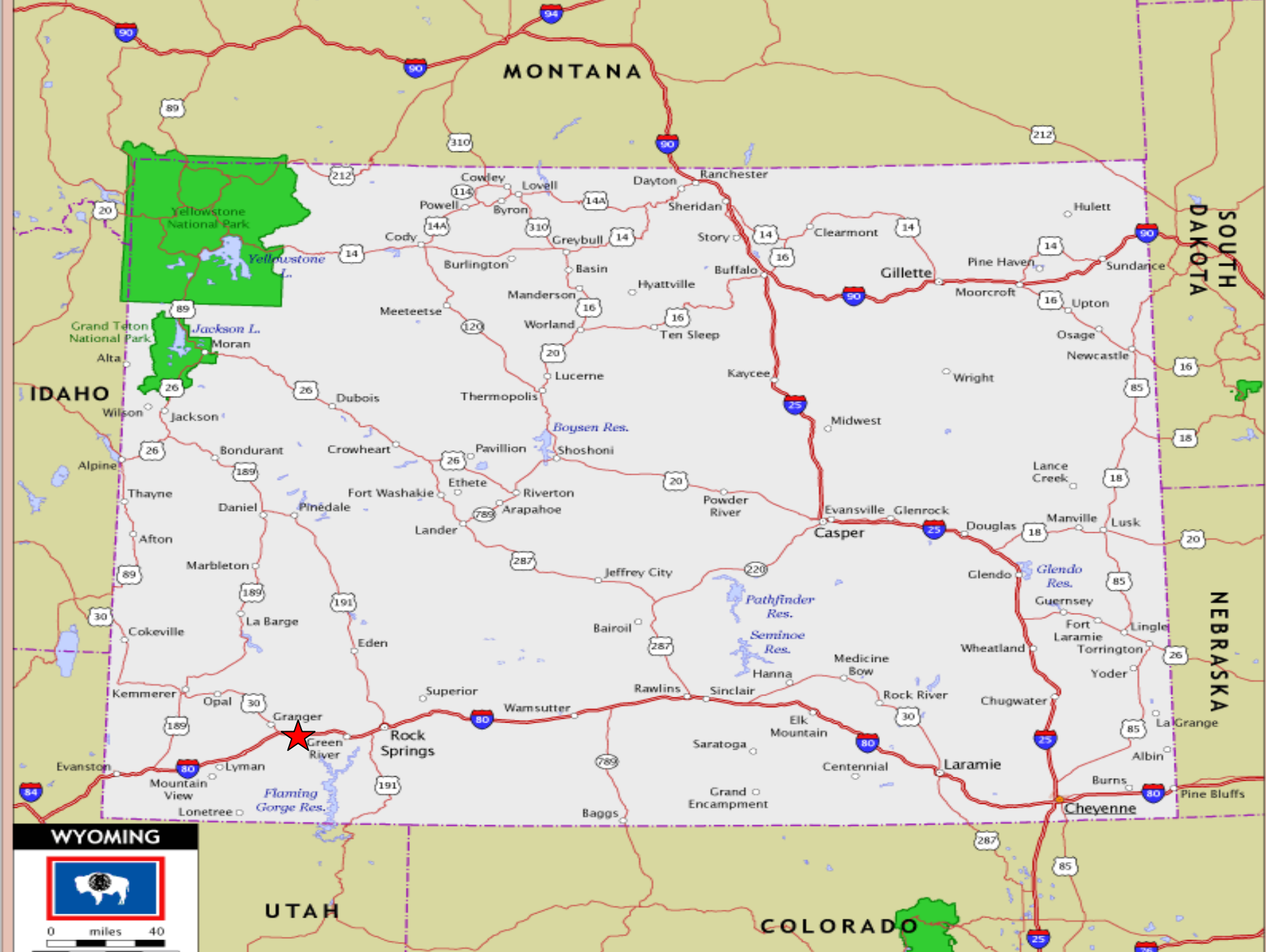
# Longwall USA, 2015



## Field Level Risk Assessment A Safety Culture







# Solvay Soda Ash & Derivatives, NA

Green River, Wyoming

460 Employees Producing  
~2.9M Tons of Soda Ash / Derivatives







# Operating Strategy

- Seeks to Develop Employees With A Diverse Set Of Skills
  - Pay grades range from G1 (Inexperienced) through G5 (Fully Competent)
  - Every employee can achieve the highest rate of pay offered
  - Training objectives are achieved in a minimum of 4 years – 9 months
  - Training packets provide mapping and documentation
  - Competency is validated
    - Employee performance review process, (Subjective)
    - Written and practical testing (Objective)

## Grade 5 Expectations By Department

### Mine Production Employees

Trained to G5 in Mine Production  
Trained to G3 in Mine Utility or Tailings  
Trained to G3 in Mine Maintenance

### Mine Utility / Tailings Employees

Trained to G5 in Mine Utility or Tailings  
Trained to G3 in Mine Production  
Trained to G3 in Mine Maintenance

### Mine Maintenance Employees

Trained to G5 in Mine Maintenance  
Trained to G3 in Mine Production  
Trained to G3 in Mine Utility or Tailings

Each Department Conducts Additional Specialized Training Related To Specific Roles

# Longwall Specific

- Four (Each) 12-hour Rotations
  - Each crew consisting of a foreman and three operators
  - Two mechanics assigned, one for each rotation

A Crew	B Crew	C Crew	D Crew
Foreman	Foreman	Foreman	Foreman
LW Operator	LW Operator	LW Operator	LW Operator
LW Operator	LW Operator	LW Operator	LW Operator
LW Operator	LW Operator	LW Operator	LW Operator
A / B Mechanic		C / D Mechanic	

Lean Staffing / Cross Training  
Can, but doesn't have to produce a heightened risk profile

# Green River History

- The Case For Change

- Our workforce was committed and competent, but **Confused** and we lacked their **Trust**
- We were experiencing injuries at an **Unacceptable Rate**
- Defaulting back to **Past Practices** not realizing we were standing in the way
- Lacked effective **Methods** and **Tools** to manage safety in the field
- As a result, we were **Frustrated, Reactionary** and not **Aligned**

- Challenges

- Managing risk to an **Acceptable Level** in a dynamic work environment
  - Developing Tools Which Add Value “Field Level Risk Assessment”
- Shifting the “**Mind Sets**” of a workforce
- Creating a culture where our workforce **Actively Participates** and **Embraces** safety methodologies
- **Align** the management team



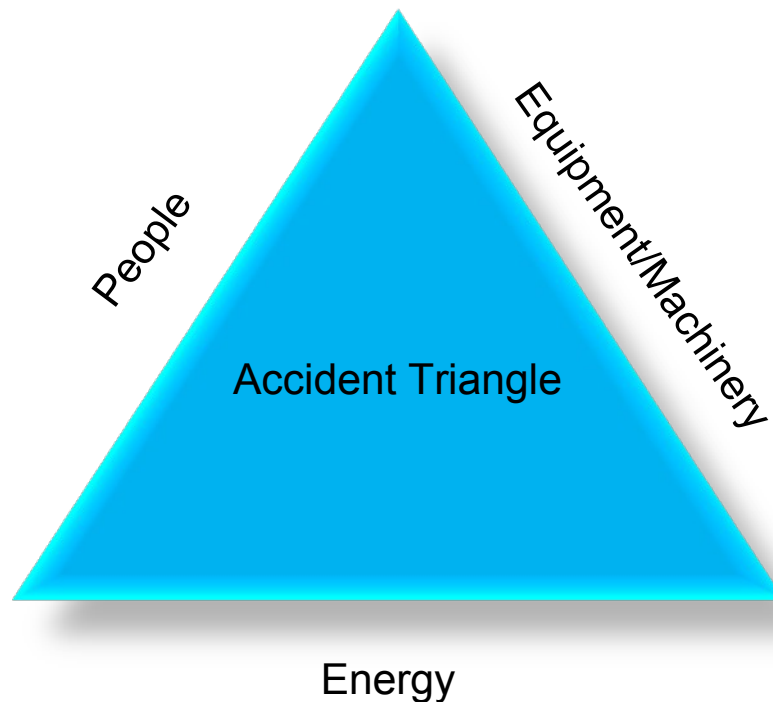
# Alignment of a Management Team

- We had to let go of Traditional Beliefs and Approaches
- As managers and leaders we had to be Predictable
- Build it from the Bottom Up
- Learn from Mistakes vs Punishing Those Who Make Them
- Concentrate on Forward Looking Actions not Backward Looking Reactions
- Expectations Shift from Following the Rules to Using the Tools

**“Field Level Risk Assessment”**  
**The Platform For Transformation**

# Field Level Risk Assessment

- Field level risk assessment enables us to remove a leg of the triangle
- When we recognize the energies we can then begin to implement controls
- Field level risk assessment started the process of shifting the “mind set” of people and we began to think and see risk differently



# Shifting The Mind Sets

- Creation of the “Club”
- Management team that set standards and provided guidance and support
- Developing “Safety Leaders”
- Safety leaders who embrace our safety methodologies
- The “Club” concept was the catalyst in developing our safety culture and shaping a workforce





# Creating The Culture



- Risk assessment provided the platform to manage risk to acceptable levels
- Leaders were actively involved and engaged with clear expectations
- Evolution of the “Three Rings of Safety”
  - The Three Rings of Safety Provided the “Club” with clear tools to lead
  - The “Three Rings of Safety” also provided employees tools to actively participate and embrace safety
  - This lead to the creation of a culture where you could visibly see people actively participating and embracing safety
  - Enhanced our abilities to further develop and mature additional safety processes and systems

# Transformation



NM-00491

Solvay Chemicals  
Safety Means Assessing Risk Together

## NEAR MISS REPORT

Month: MARCH Name (optional): RICH GUYARD Location: DECLINE DRIVE

**Details:** WHEN CUTTING DOWN OLD 4" WATER LINE AND PIPE BRACKETS BETWEEN ONE SHAFT AND THE DECLINE DRIVE, THE TOWER PIPED AND BUNGLED SEVERE THROUGH THE TOWER AND INTO THE TRANSFER TUBES CAUSING THE TUBE TO GET RED HOT. TWO EMPLOYEES THAT WERE ASSISTING NOTICED THE GLOWING RED TUBE AND IMMEDIATELY NOTIFIED THE OPERATOR THE ASSISTING EMPLOYEES PROMPTLY SHUT OFF THE SUPPLY BOTTLES.

If the near miss "fits" into one of the following categories, please indicate:

- ☒ Vehicles/ Equipment/Machinery  
☐ Contact with Electrical, Caustic, Toxic, or Extreme temperatures  
☐ Fall, Slip, Trip  
☐ Struck Against/By  
☐ Overextension/Overexertion  
☐ Roof and Rib  
☐ Other

### Corrective Action Taken:

SHUT OFF THE SUPPLY BOTTLES NOTIFIED THE OPERATOR AND CHARGED OUT THE MIXING CHAMBER.

### Recommendations:

USE CAUTION WHEN THE TOWER JARS OUT LOOK AT THE MIXING CHAMBER TO BE SURE THERE IS NO FIRE BACK ALWAYS MAKE FLASH BACK CHECK VARIATIONS ON THE REGULATORS AND TIGHTEN HAND.

### MAXIMUM REASONABLE CONSEQUENCES

### PROBABILITY

- 1 Could kill, permanently disable or cause very serious damage.  
2 Could cause serious injury (major LTA) or major damage.  
3 Could cause medical treatment case/LTA or moderate damage.  
4 Could cause 1<sup>st</sup> Aid injury or minor damage.  
5 Couldn't cause injury or damage.

CONSEQUENCES

	A	B	C	D	E
1	1	2	4	7	11
2	3	5	8	12	16
3	6	9	13	17	20
4	10	14	18	21	23
5	15	19	22	24	25

1-3  
CRITICAL  
4-10  
HIGH RISK  
11-15  
MODERATE RISK  
16-25  
LOW RISK

Risk Ranking Number 4 1-C

### PROBABILITY

- A ALMOST CERTAIN to happen  
B LIKELY to happen at some point  
C MODERATE, possible, it might happen  
D UNLIKELY, not likely to happen  
E RARE, practically impossible

## Solvay Chemicals, Green River Field Level Risk Assessment

### Risk Assessment Considerations

PPE	Hot Work
Housekeeping	Line Break
Position of People	Lock & Tag
Electrical Hazards	Communications
Environmental	Rigging/Lifting
Overhead Work	Access/Egress
Temperature Extreme	Ergonomics
Tools & Equipment	Body Position
Chemical/Gas Hazards	Mobile Equipment

Date: 3-25-15

Work Area: ONE SHAFT DECLINE DRIVE

WO #:

Job Description: CUTTING DOWN OLD 4" WATER & PIPE BRACKETS.

Identify Energies/Hazards of the Job/Task	Initial Risk Rank	Controls Implemented	Final Risk Rank
Back, RID PLOE	12	Check the work area, back down, know up mess that may be added down.	4
Working area HAND	12	Do not over crowd the work, keep feet on level ground, do not take hands inside of work body cut.	2
Falling PIPE	16	Secure the pipe and brackets before cutting starts.	
		Good communication, please final cut, stay clear of the direction the pipe may swing, please cut, stay out of the line of fire.	9
EQUIPMENT	16	Good Dec app, communication, I will not touch, have paper the be sure your partner is calibrated & charged, stay alert.	5

### Field Level Risk Assessment Post Job Review Notes

HAD TO USE A CHIPPING HAMMER TO BREAK OLD SPLIT OFF BOLTS BEFORE CUTTING. HAD TO ADD KNEE BUCK TOTAL WELD TO AVOID DUST SPARKS. WATCH THE HOT METAL AFTER IT WAS CUTTED NOT TO GRAB THE HOT END LET IT COOL BEFORE PICKING UP TO PUT IN METAL BUCKET. HAD TO STAY CLEAR OF THE END OF THE PIPE AFTER USE WAS CUT TO AVOID BEING HIT WITH WATER LEFT OVER IN PIPE.

### Minute by Minute Risk Assessment Review

HAD ONE AREA WE COULD NOT REACH THE 12" (2" RADIUS) OF RIGGING V40 PIPE BUT BY HAND PULLED THE PIPE DOWN SO WE COULD REACH THE V40 AND REMOVE THE SHORT PIECE. HAD ONE PIPE THAT AN END WASN'T CHARGED UP HAD TO HANG A CHAIN TO HOLD PIPE BEFORE THE CUTTING.

### Job Completion Check List

Are permits closed out? ☒ No if No - please give details  
Is flagging removed? ☒ No if No - please give details  
Is area cleaned up? ☒ No if No - please give details  
Did a near miss occur? No ☒ Yes if Yes - please submit a Near Miss Report

Crew: OLD TAILORS

Foreman: R. GUYARD

### EMPLOYEE ATTENDANCE ROSTER

Jesús Ramirez	1451	<u>[Signature]</u>	1604
Manuel J. Lopez	1523	<u>[Signature]</u>	1540
Tim Everts	1607	<u>[Signature]</u>	1500



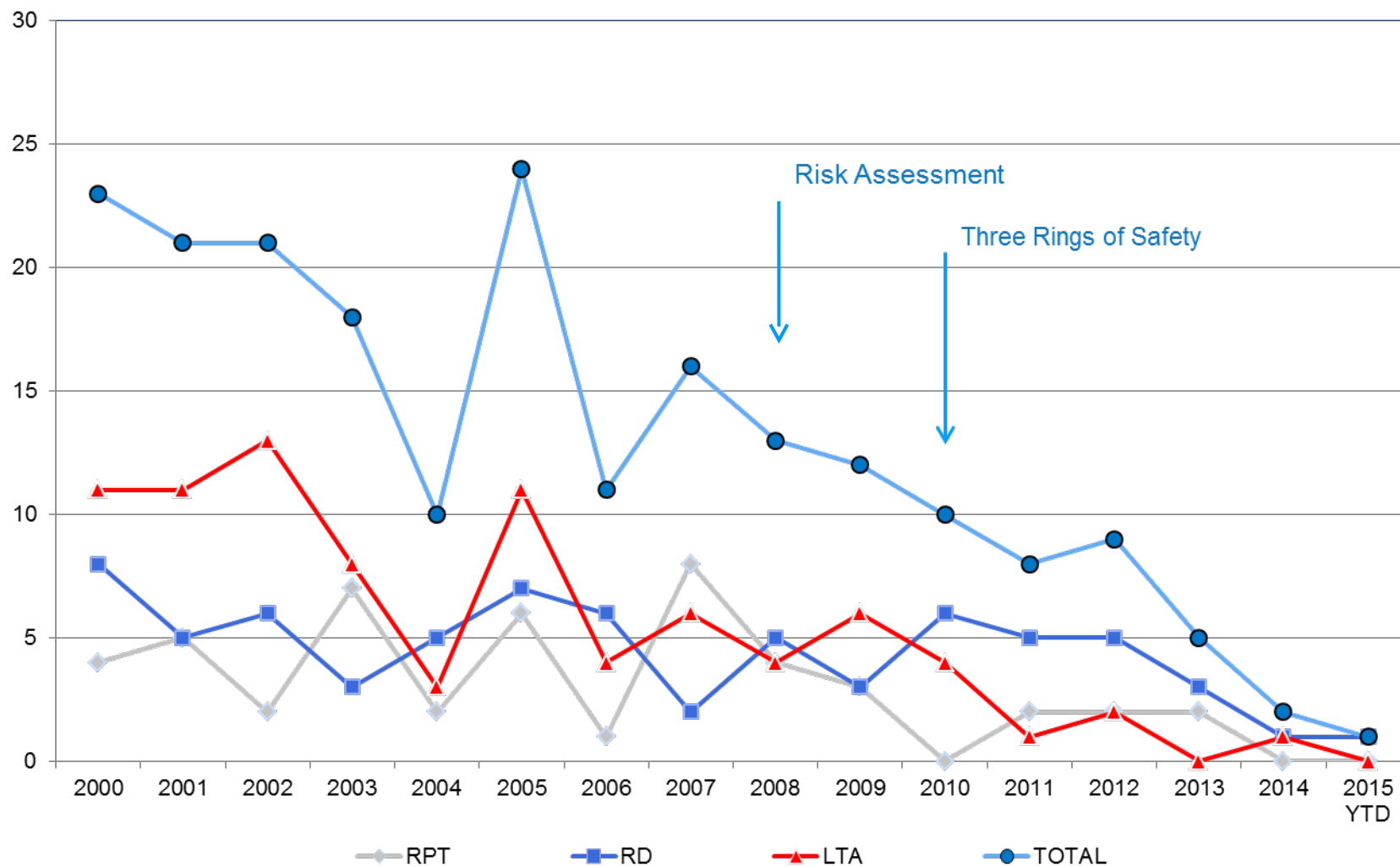
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# The Message

- Find Field Level Risk Assessment
- Alignment of Your Key Players
- Embrace and Foster a “Club” Concept
- Let Go of Traditional Safety Approaches and Mentalities
- Define Your Approach and Stay Committed



# Our Rent Path



# Field Level Risk Assessment

## A Safety Culture

Questions?



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