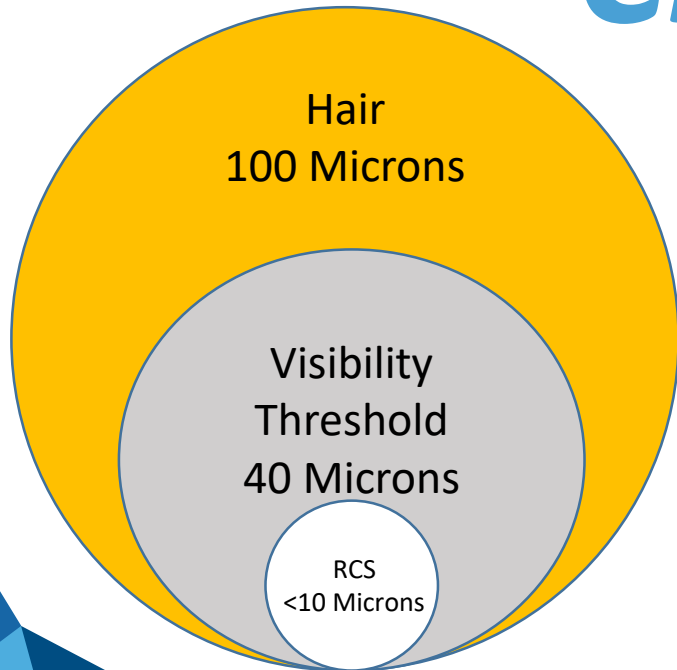


# *Dust Control for New OSHA Regulations*

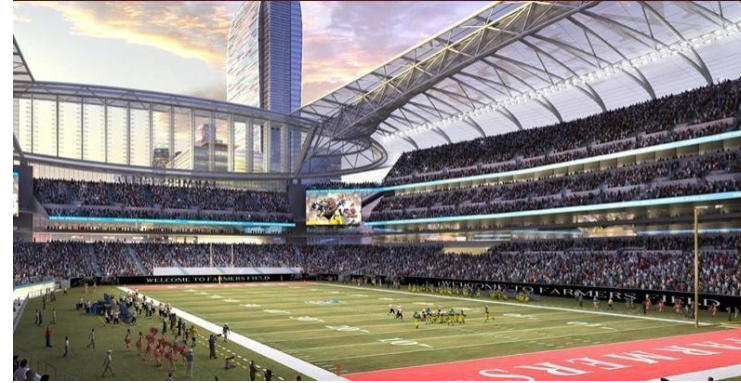
*John Jackson*  
*Application Technology Manager*

# *What is Respirable Crystalline Silica Dust?*



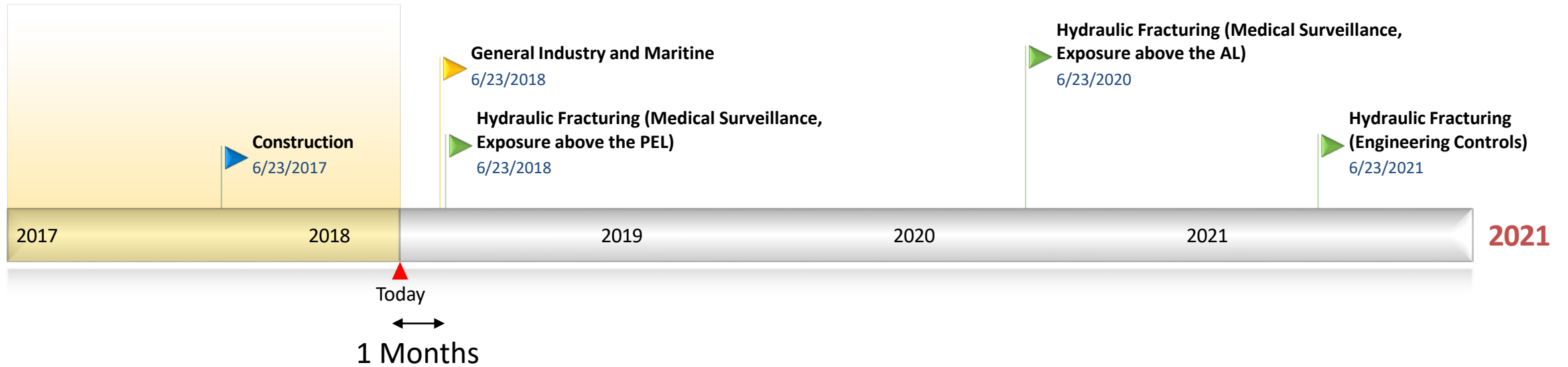
# OSHA Silica Standard Outline

- Reduces the personal exposure limit (PEL) of the employees from  $0.1\text{mg}/\text{m}^3$  to  $0.05\text{mg}/\text{m}^3$  8 hr. time weighted average (TWA)



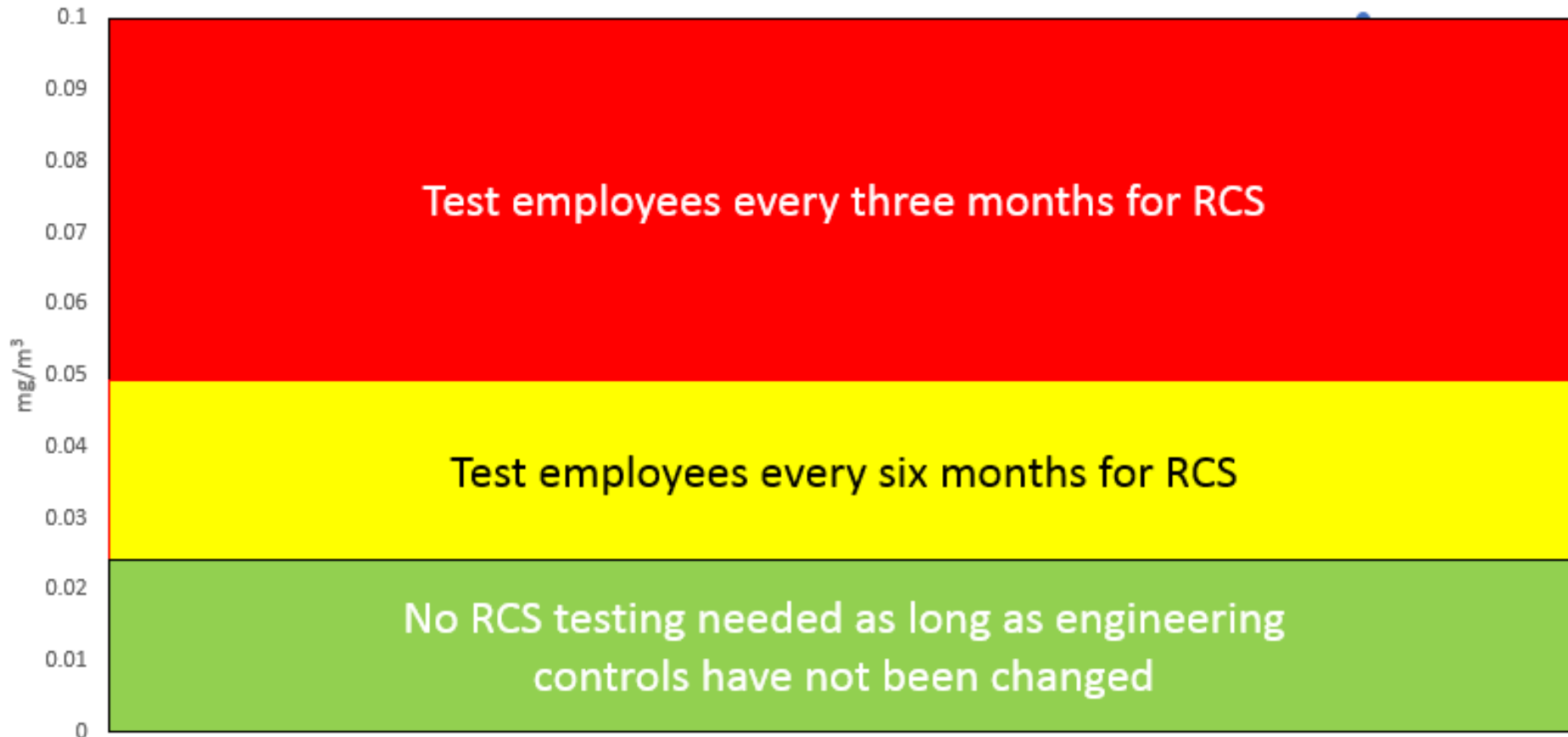
- Creates an action level (AL) of  $0.025\text{mg}/\text{m}^3$
- Requires engineering controls and written control plans
- Medical Surveillance of employees
- Requires training of employees on the hazards associated with respirable crystalline silica (RCS)
- Respirators may be required with, but not in place of engineering controls measures

# OSHA Time Line



# Exposure Monitoring Requirements

## RCS Testing of Employees



Offer medical surveillance at no cost to the employee if exposure is above the AL for more than 30 days per year

# NIOSH Study of Hydraulic Fracturing Employees

- 6 Frac Sites Studied (5 different plays)
- 111 total samples taken
- High Risk Employees
  - Blender Operator
  - Sand Mover/T-Belt Operator

**TABLE VI. Samples Above ACGIH TLV, NIOSH REL, or OSHA PEL**

Site	ACGIH TLV	NIOSH REL	OSHA PEL	Total No. Samples
Fayetteville, Ark.	24 (92.3%)	19 (73.1%)	14 (53.9%)	26
DJ Basin 1, Colo.	16 (84.2%)	14 (73.7%)	12 (63.2%)	19
Eagle Ford, Texas	5 (62.5%)	5 (62.5%)	4 (50.0%)	8
DJ Basin 2, Colo.	19 (90.5%)	14 (66.7%)	9 (42.9%)	21
Marcellus, Pa.	25 (92.6%)	23 (85.2%)	18 (66.7%)	27
Bakken, N.D.	4 (40%)	1 (10%)	0	10
<b>Totals</b>	<b>93 (83.8%)</b>	<b>76 (68.5%)</b>	<b>57 (51.4%)</b>	111

0.025 mg/m<sup>3</sup>    0.05 mg/m<sup>3</sup>    0.1 mg/m<sup>3</sup>

# Major Types Engineering Controls

Mechanical



Mini-Baghouse/  
Isolation

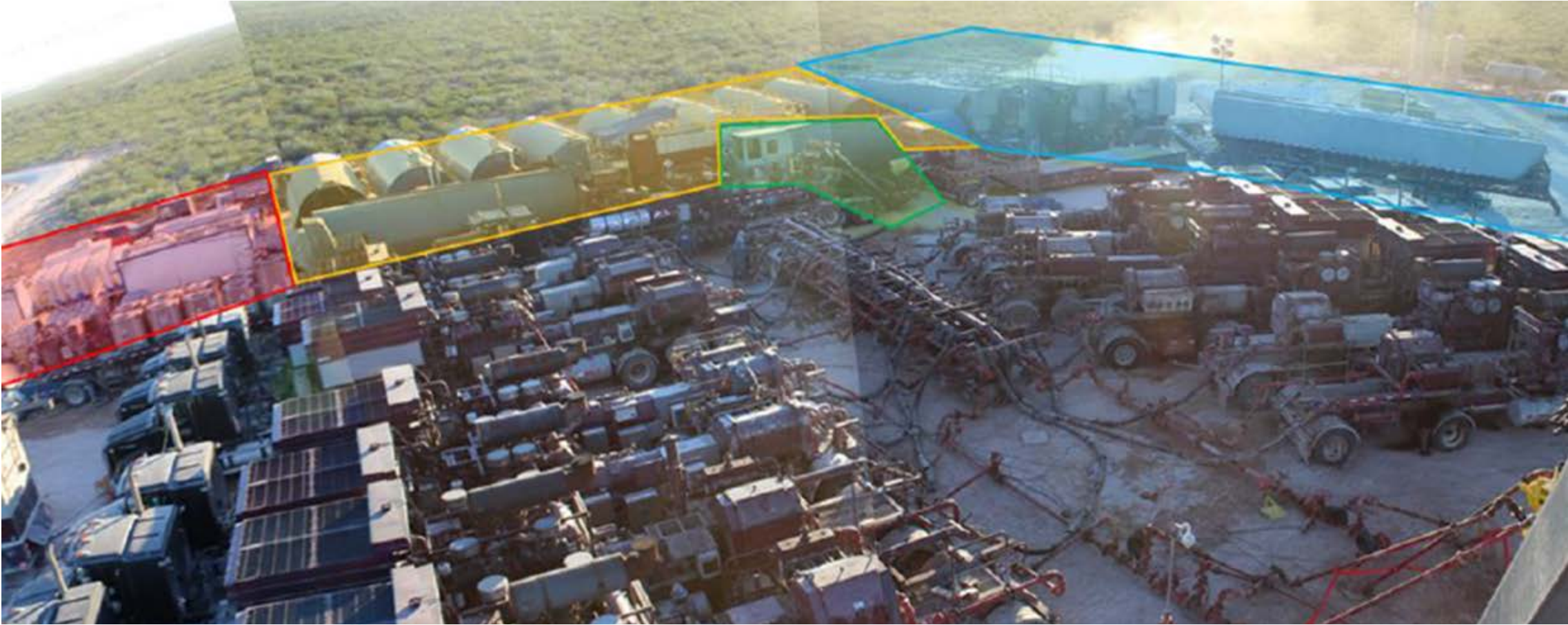


Chemical

A standard periodic table of elements, color-coded by groups. It includes all elements from Hydrogen (H) to Oganesson (Og), with their symbols, atomic numbers, and names. The table is presented within a circular frame.



# Personal Exposure Monitoring



**FLUID TECHNICIAN**

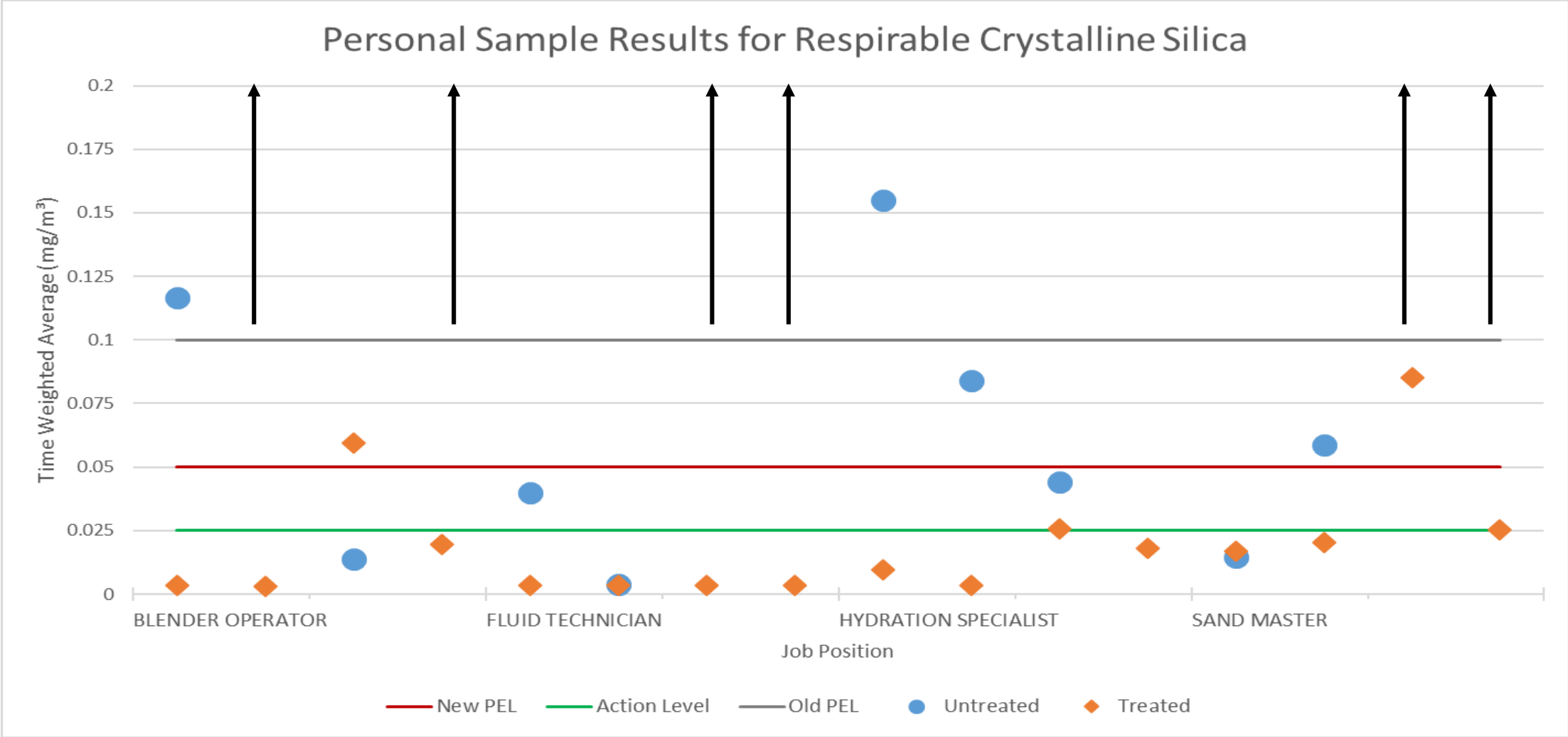
**HYDRATION SPECIALIST**

**BLENDER OPERATOR**

**SAND MASTER**



# Personal Exposure Monitoring





**Untreated**

**30/50**



**Treated**

The image features a white background with blue geometric shapes in the corners. The top-right corner has a cluster of overlapping triangles in various shades of blue. The bottom-left corner also has a cluster of overlapping triangles in various shades of blue. The text is centered in the middle of the page.

# The Big Difference

# Supply Chain Engineering Controls

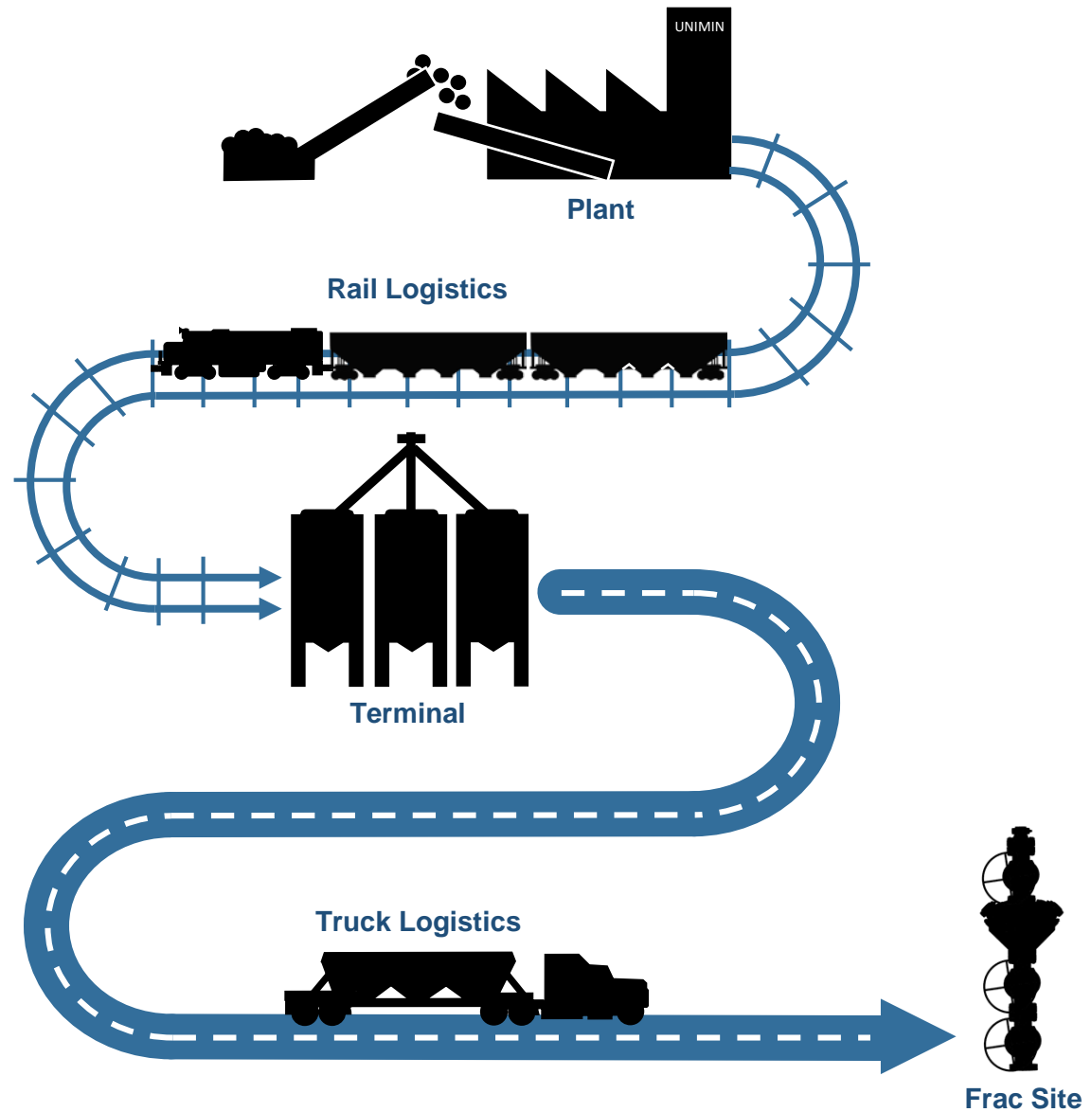
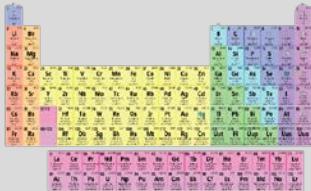
Mechanical



Isolation



Chemical



## *Conclusion*

- Measurements proven below the new action level
- Serves as an engineering control for the supply chain (mine to well)
- Transparent to your operations
- Long shelf life



***Thank You!***

Questions?