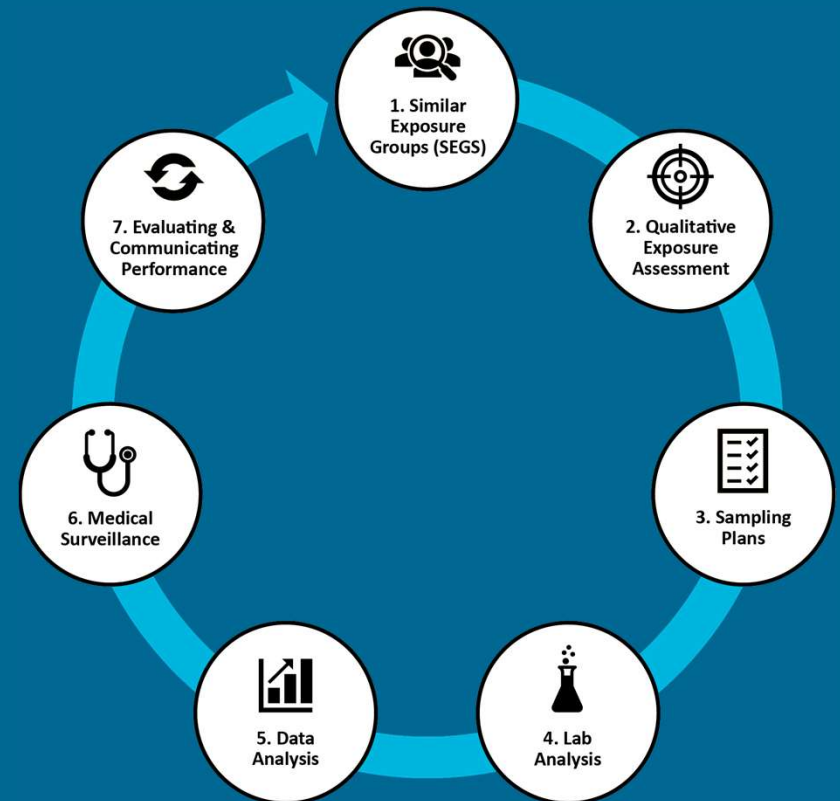


# 7 Steps to Improve Your Industrial Hygiene Program

Presented by: Dave Risi, CIH, CSP



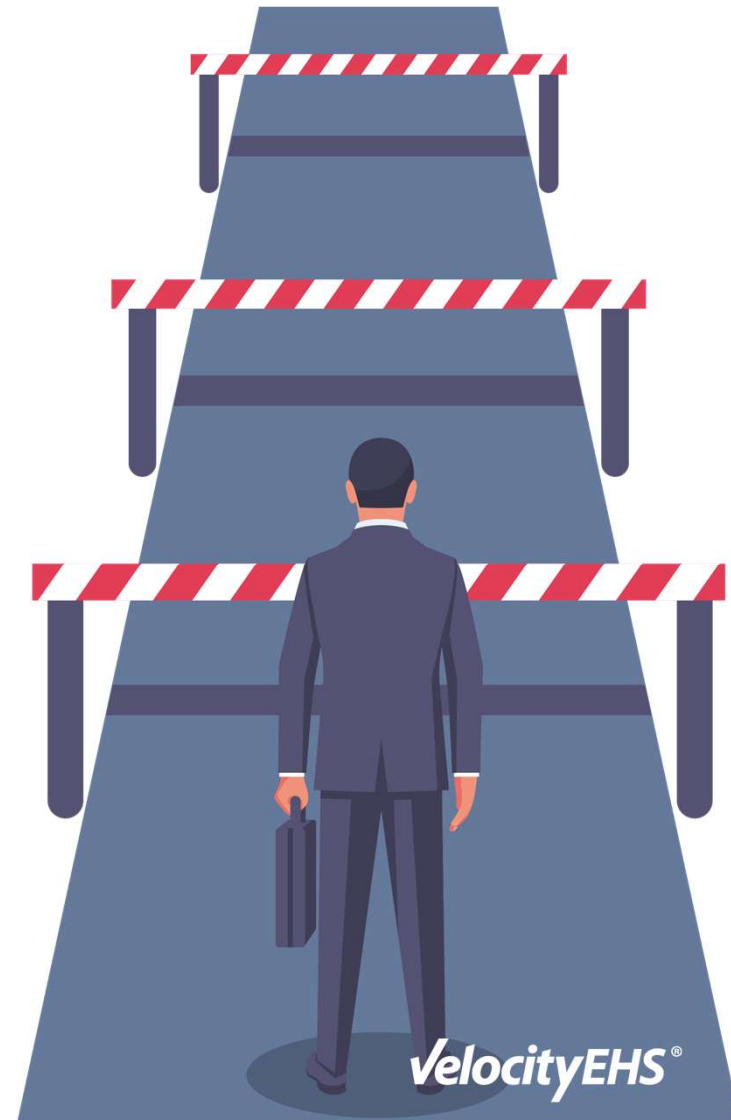
# Goals

- Understand a simpler method to manage your IH program
- How to move from a reactive, compliance-based program to a proactive, risk-based program
- How to better communicate with workers and management



# Current Trends in IH

- Baby boomers retiring
- IH positions not being refilled
- IH absorbed by other EHS professionals
- Less IH professionals managing IH programs
  - Role split up, managed by generalists, or outsourced
- Reactive, compliance-based programs



# Opportunities

- Rethink how IH programs are managed
- Incorporate IH into risk-based processes
- Reduce dependency on sampling/analysis
- Improve communications & and show the value of Industrial Hygiene



# The IH Program Cycle



# 1. Similar Exposure Groups (SEGs)



Department: Maintenance  
Job: Maintenance Tech



Department: Reformer Unit  
Job: Operator

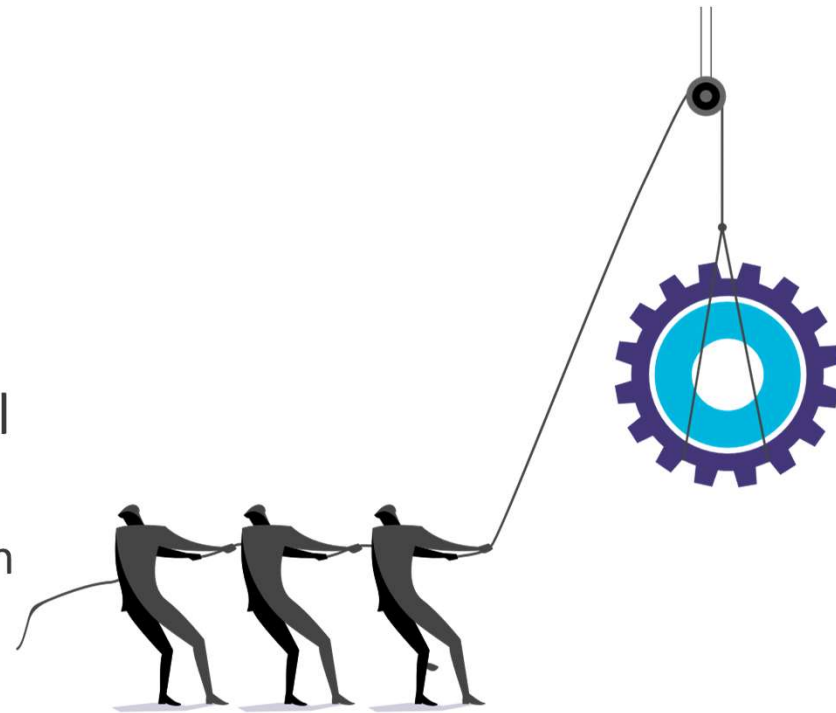


Department: Coker Unit  
Job: Operator



# How To Develop Your SEGs

- What common jobs/roles can workers be grouped in?
  - Operator, maintenance, electrician, pipefitter
- What tasks create potential health risks?
  - Welding, liquid sampling, opening vessels
- Does their equipment/tools affect their level of exposure?
  - New paint booth with good ventilation *verses* an old one with 10% of the needed ventilation
- List potential stressors of concern



# Deliverable

Location	Job	Task	Stressors
Alky Unit	Operator	Routine Work Duties	Noise, Hydrofluoric Acid
Coker Unit	Operator	Routine Work Duties	Benzene, Hydrogen Sulfide
Maintenance	Pipefitter	Welding	Iron, Lead
Maintenance	Maintenance Technician	Gasket Replacement	Asbestos
Reformer Unit	Operator	Routine Work Duties	Noise, Benzene
Reformer Unit	Operator	Liquid Sampling	Benzene
Tank Farm	Operator	Gauging	Benzene





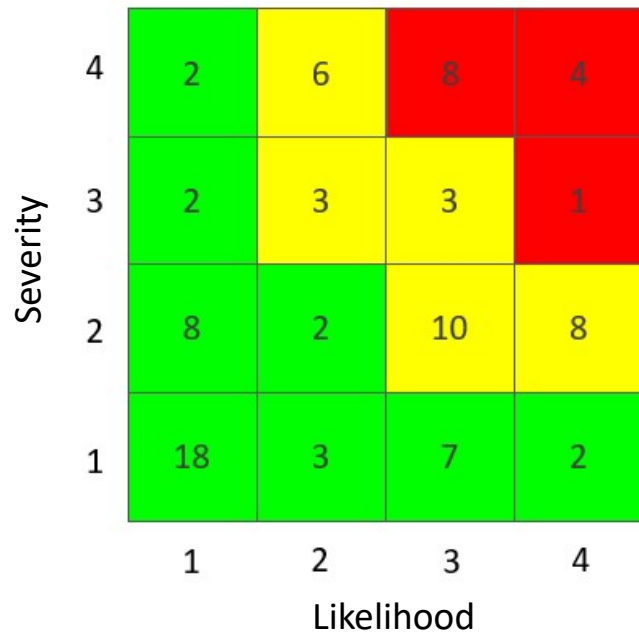
# 2. Qualitative Exposure Assessments

Fancy term for risk assessment

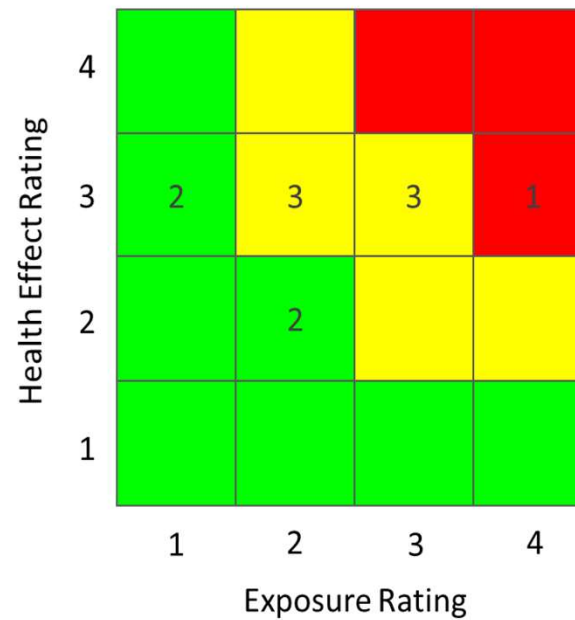


# Jump on the Bandwagon

Safety Risk Matrix



Qualitative Risk Ranking Matrix



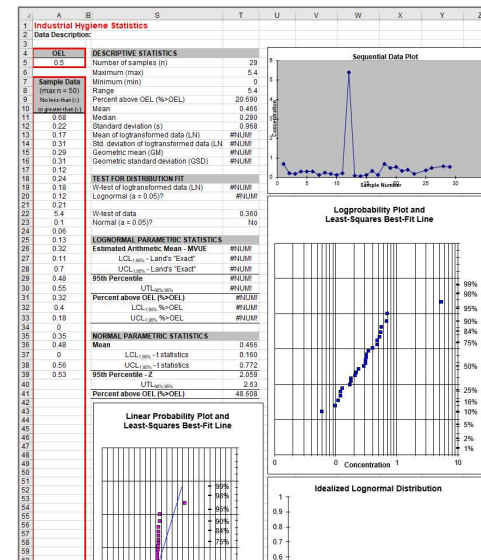
- High Potential Risk
- Moderate Potential Risk
- Low Potential Risk



# Exposure Rating

- No data: Professional judgement of “typical” exposure risk
- Available data: Which statistic?
  - Normal VS lognormal distribution?
  - AM & SD - VS - GM & GSD
  - 95<sup>th</sup> Percentile
  - 95%/95% Point Estimate
  - %>OEL
- Decide & document

Exposure Rating	
1:	< 10% of the OEL
2:	Between 10% and 50% of the OEL
3:	Between 50% and 100% of the OEL
4:	> 100% of the OEL



# Health Effect Rating

- Set by a toxicologist
- Referenced
  - GHS health category
  - HMIS health code
  - NFPA health code
- Bands based on OEL numbers
- Occupational Exposure/Hazard Banding
- Best estimate based on AIHA's definitions

Health Effect Rating
1: Reversible health effects of concern
2: Severe, reversible health effects of concern
3: Irreversible health effects of concern
4: Life-threatening or disabling injury or illness



# More Complex Exposure Assessment Variables

Risk Rating = Exposure Rating X Health Effect Rating



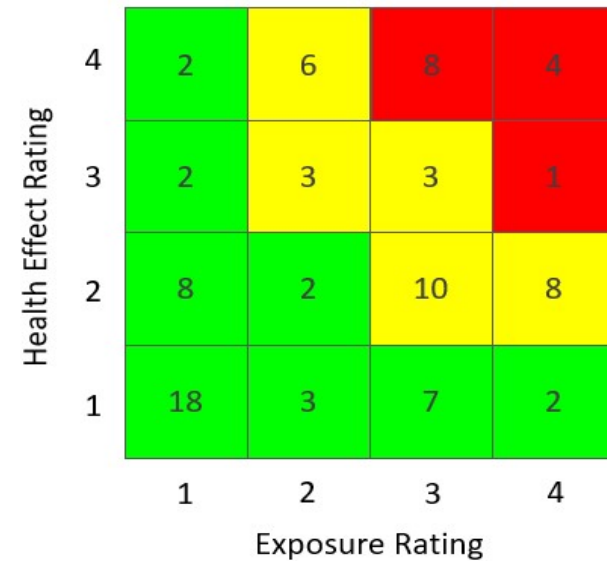
Exposure Rating	Health Effect Rating
Frequency	Component Percentage Ranking
Durations	Quantity Handled
Control Technology Factor	Substance HER
Toxicity Component Rank	Dermal Exposure Risk
Vapor Pressure	Carcinogen
Dispersion Rating	Particle Size
Uncertainty Factor	Particle Shape
Number of Employees in SEG	Solubility
Quantity Handled	



# AIHA's Exposure Assessment Strategy



Exposure Rating	Health Effect Rating
1: < 10% of the OEL	1: Reversible health effects of concern
2: Between 10% and 50% of the OEL	2: Severe, reversible health effects of concern
3: Between 50% and 100% of the OEL	3: Irreversible health effects of concern
4: > 100% of the OEL	4: Life-threatening or disabling injury or illness



# How to Perform QEAs

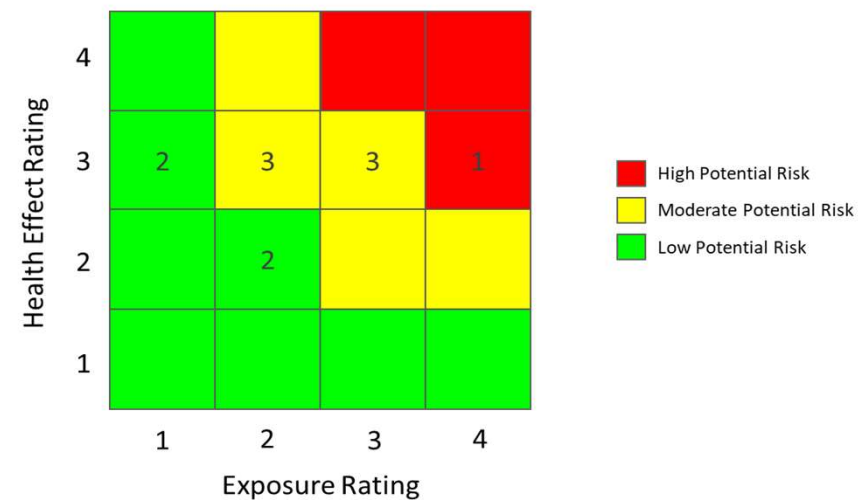
Location	Job	Task	Stressors	Exposure Rating	Health Effect Rating	Risk Rating
Alky Unit	Operator	Routine Work Duties	Hydrofluoric Acid	1	X 3	= 3
Alky Unit	Operator	Routine Work Duties	Noise	3	3	9
Coker Unit	Operator	Routine Work Duties	Benzene	1	3	3
Coker Unit	Operator	Routine Work Duties	Hydrogen Sulfide	2	2	4
Maintenance	Pipefitter	Welding	Iron	2	2	4
Maintenance	Pipefitter	Welding	Lead	2	3	6
Maintenance	Maintenance Technician	Gasket Replacement	Asbestos	2	3	6
Reformer Unit	Operator	Routine Work Duties	Noise	3	3	9
Reformer Unit	Operator	Routine Work Duties	Benzene	2	3	6
Reformer Unit	Operator	Liquid Sampling	Benzene	4	3	12
Tank Farm	Operator	Gauging	Benzene	3	3	9



# Deliverable

- Risk assessments completed for SEGs & their stressors
- Concise, consistent presentation
  - Current risks
  - What IH is and our value
  - Justification for controls/PPE
- Prioritize resources for additional sampling

Qualitative Risk Ranking Matrix





# 3. Sampling Plans

Plan your work and work your plan



# Why Collect Samples?

- Common reasons
  - Regulatory required
  - Reactive
  - Repeat last year's plan
- Should have direct impact on your IH program
- Where do I need more data to know what the true exposure risk is?



# How To Determine Needs for Sampling Plans

Location	Job	Task	Stressors	Exposure Rating	Health Effect Rating	Risk Rating	Uncertainty Rating	Info Gather Priority Rating
Tank Farm	Operator	Gauging	Benzene	3	3	9	X	= 18
Coker Unit	Operator	Routine Work Duties	Hydrogen Sulfide	2	2	4		8
Maintenance	Pipefitter	Welding	Lead	2	3	6	1	6
Maintenance	Pipefitter	Welding	Iron	2	2	4	1	4
Alky Unit	Operator	Routine Work Duties	Hydrofluoric Acid	1	3	3	1	3
Alky Unit	Operator	Routine Work Duties	Noise	3	3	9	0	0
Coker Unit	Operator	Routine Work Duties	Benzene	1	3	3	0	0
Maintenance	Maintenance Technician	Gasket Replacement	Asbestos	2	3	6	0	0
Reformer Unit	Operator	Routine Work Duties	Noise	3	3	9	0	0
Reformer Unit	Operator	Routine Work Duties	Benzene	2	3	6	0	0
Reformer Unit	Operator	Liquid Sampling	Benzene	4	3	12	0	0

Uncertainty Ratings  
 0 = Certain  
 1 = Uncertain  
 2 – Highly Uncertain



# Deliverable

Location	Job	Task	Stressors	# Sampled Planned	Scheduled Completion Date	# Samples Taken	% Complete
Tank Farm	Operator	Gauging	Benzene	8	7/1/2021	2	25%
Coker Unit	Operator	Routine Work Duties	Hydrogen Sulfide	4	12/31/2021	2	50%
Maintenance	Pipefitter	Welding	Lead	4	12/31/2021	1	25%
Maintenance	Pipefitter	Welding	Iron	5	12/31/2021	0	0%
Alky Unit	Operator	Routine Work Duties	Hydrofluoric Acid	3	12/31/2021	1	33.3%

**6 of 24 or 25% of Annual Site Plan Completed**



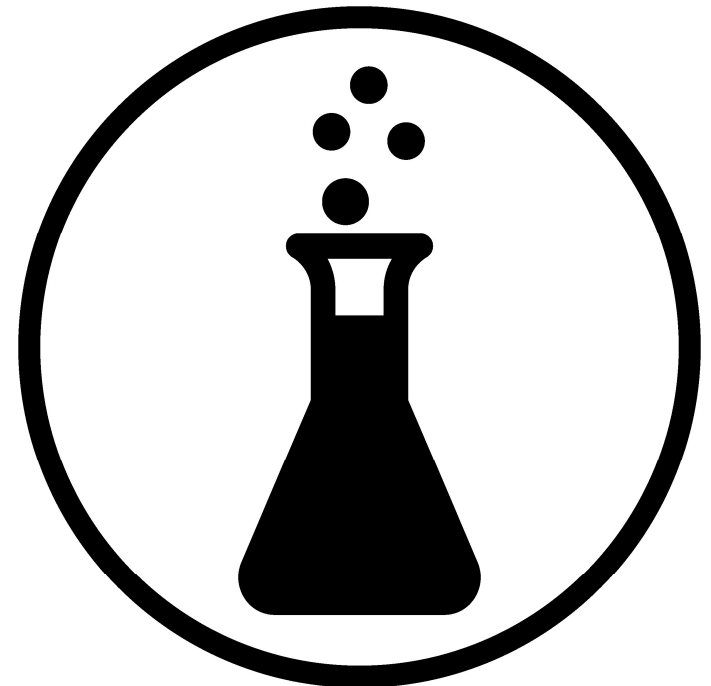
# 4. Lab Analysis

The unknown partner



# Selection Criteria

- Select the best lab(s)
  - Accreditations (AIHA LAP, ELLAP, EMLAP)
  - Local verses far away
  - CIH support
  - Equipment loan
  - Customer service
- Online sampling guide and COC
- Lab interface available



# Sampling & Analytical Guides

**SGS GALSON** | SAMPLING & ANALYSIS | EQUIPMENT RENTALS | RESOURCE CENTER | CONTACT | [IH LIVE CHAT](#)

## SAMPLING & ANALYSIS

**ANALYTES** | **METHOD** | **QUANTITY** | **ESTIMATE**

**BTEX [2]**

Analyte	Method	Quantity	Estimate
BTEX [2]	FEE PER SAMPLE: \$95		
	METHOD: mod_NIOSH 1501: GC/FID		
	ANALYTICAL TECHNIQUE: GC/FID		
	COLLECTION MEDIUM: Charcoal		
	ORDER NUMBER: 228-01/228-09		
	VOL / TIME / AREA / MASS: 2-30 L		
	SAMPLING RATE: 0.2 LPM		
	<a href="#">View Substance&gt;</a>		

**VelocityEHS Industrial Hygiene** | Momentum Company | Houston Refinery | Dave Risi

**Survey**

DETAIL

Filter | Add New | Save

Show Survey Samples | Survey Detail Report

Description of Survey: 2020-08-26-BTEX Study Hydrocracker

Survey Conducted By: Dave Risi

Start Date: 26-Aug-2020

End Date: [Empty]

Status of Survey: Open

Laboratory: SGS Galson

Reference Number: [Empty]

Default Work Shift Duration: Full Shift - 8 Hour

P.O. Number: [Empty]

Lab Profile: BTEX - Charcoal

Lab Stressors: [Empty]

Stressor-Direct Reading: [Empty]

Comments: [Empty]

Stressor	Category	CAS#	Method	Analytical Technique	Collection Medium	Order Number	Media Shelf Life	Vol.Time/Area/Mass	Sampling Rate	LOQ
Benzene	Lab Profile	71-43-2	NIOSH 1501	GC/FID	Charcoal		5 yrs.	2-30 L	0.2 LPM	2 ug
Xylene	Lab Profile	1330-20-7	NIOSH 1501	GC/FID	Charcoal		5 yrs.	2-30 L	0.2 LPM	15 ug
Toluene	Lab Profile	108-88-3	NIOSH 1501	GC/FID	Charcoal		5 yrs.	2-30 L	0.2 LPM	5 ug
Ethylbenzene	Lab Profile	100-41-4	NIOSH 1501	GC/FID	Charcoal		5 yrs.	2-30 L	0.2 LPM	5 ug



# Deliverable

CHAIN OF CUSTODY RECORD

NO.	DATE	TIME	BY	REMARKS
1	2020-08-26	08:00	DRISI	Sample collected
2	2020-08-26	08:15	DRISI	Sample analyzed
3	2020-08-26	08:30	DRISI	Sample analyzed
4	2020-08-26	08:45	DRISI	Sample analyzed
5	2020-08-26	09:00	DRISI	Sample analyzed
6	2020-08-26	09:15	DRISI	Sample analyzed
7	2020-08-26	09:30	DRISI	Sample analyzed
8	2020-08-26	09:45	DRISI	Sample analyzed
9	2020-08-26	10:00	DRISI	Sample analyzed
10	2020-08-26	10:15	DRISI	Sample analyzed
11	2020-08-26	10:30	DRISI	Sample analyzed
12	2020-08-26	10:45	DRISI	Sample analyzed
13	2020-08-26	11:00	DRISI	Sample analyzed
14	2020-08-26	11:15	DRISI	Sample analyzed
15	2020-08-26	11:30	DRISI	Sample analyzed
16	2020-08-26	11:45	DRISI	Sample analyzed
17	2020-08-26	12:00	DRISI	Sample analyzed
18	2020-08-26	12:15	DRISI	Sample analyzed
19	2020-08-26	12:30	DRISI	Sample analyzed
20	2020-08-26	12:45	DRISI	Sample analyzed
21	2020-08-26	13:00	DRISI	Sample analyzed
22	2020-08-26	13:15	DRISI	Sample analyzed
23	2020-08-26	13:30	DRISI	Sample analyzed
24	2020-08-26	13:45	DRISI	Sample analyzed
25	2020-08-26	14:00	DRISI	Sample analyzed
26	2020-08-26	14:15	DRISI	Sample analyzed
27	2020-08-26	14:30	DRISI	Sample analyzed
28	2020-08-26	14:45	DRISI	Sample analyzed
29	2020-08-26	15:00	DRISI	Sample analyzed
30	2020-08-26	15:15	DRISI	Sample analyzed
31	2020-08-26	15:30	DRISI	Sample analyzed
32	2020-08-26	15:45	DRISI	Sample analyzed
33	2020-08-26	16:00	DRISI	Sample analyzed
34	2020-08-26	16:15	DRISI	Sample analyzed
35	2020-08-26	16:30	DRISI	Sample analyzed
36	2020-08-26	16:45	DRISI	Sample analyzed
37	2020-08-26	17:00	DRISI	Sample analyzed
38	2020-08-26	17:15	DRISI	Sample analyzed
39	2020-08-26	17:30	DRISI	Sample analyzed
40	2020-08-26	17:45	DRISI	Sample analyzed
41	2020-08-26	18:00	DRISI	Sample analyzed
42	2020-08-26	18:15	DRISI	Sample analyzed
43	2020-08-26	18:30	DRISI	Sample analyzed
44	2020-08-26	18:45	DRISI	Sample analyzed
45	2020-08-26	19:00	DRISI	Sample analyzed
46	2020-08-26	19:15	DRISI	Sample analyzed
47	2020-08-26	19:30	DRISI	Sample analyzed
48	2020-08-26	19:45	DRISI	Sample analyzed
49	2020-08-26	20:00	DRISI	Sample analyzed
50	2020-08-26	20:15	DRISI	Sample analyzed
51	2020-08-26	20:30	DRISI	Sample analyzed
52	2020-08-26	20:45	DRISI	Sample analyzed
53	2020-08-26	21:00	DRISI	Sample analyzed
54	2020-08-26	21:15	DRISI	Sample analyzed
55	2020-08-26	21:30	DRISI	Sample analyzed
56	2020-08-26	21:45	DRISI	Sample analyzed
57	2020-08-26	22:00	DRISI	Sample analyzed
58	2020-08-26	22:15	DRISI	Sample analyzed
59	2020-08-26	22:30	DRISI	Sample analyzed
60	2020-08-26	22:45	DRISI	Sample analyzed
61	2020-08-26	23:00	DRISI	Sample analyzed
62	2020-08-26	23:15	DRISI	Sample analyzed
63	2020-08-26	23:30	DRISI	Sample analyzed
64	2020-08-26	23:45	DRISI	Sample analyzed
65	2020-08-26	00:00	DRISI	Sample analyzed



VelocityEHS Industrial Hygiene

Momentum Company Houston Refinery Dave Risi

Lab Submissions

DETAIL

Filter Save Print **Accept** Reject

Company : Momentum Company Site : Houston Refinery Survey Start Date :  
 Survey : 2020-08-26-BTEX Study Hydrocracker Survey Conducted by : Dave Risi Reference Number :  
 Phone : +1(312)881-2010 Email : drisi@ehs.com Date submitted to Lab : 26-Aug-2020

Sample : 2020-08-26-001 Sample Type : Personal Date : 26-Aug-2020 Media : 42569124 Volume : 84 L Duration : 420 min(s)

Analyte	CAS No.	Analytical Method	LOD	Text Result	Comments	Mass			Concentration		
						Operator	Result	UOM	Operator	Result	UOM
Benzene	71-43-2	NIOSH 1501				=	0.08	MG	=	0.12	PPM
Ethylbenzene	100-41-4	NIOSH 1501				=	0.94	MG	=	1.2	PPM
Toluene	108-88-3	NIOSH 1501				=	0.96	MG	=	2.2	PPM
Xylene	1330-20-7	NIOSH 1501				=	4.1	MG	=	5.6	PPM

Sample : 2020-08-26-002 Sample Type : Personal Date : 26-Aug-2020 Media : 42569125 Volume : 844 L Duration : 422 min(s)

Analyte	CAS No.	Analytical Method	LOD	Text Result	Comments	Mass			Concentration		
						Operator	Result	UOM	Operator	Result	UOM
Benzene	71-43-2	NIOSH 1501				=	0.081	MG	=	0.102	PPM
Ethylbenzene	100-41-4	NIOSH 1501				=	0.95	MG	=	1.25	PPM
Toluene	108-88-3	NIOSH 1501				=	2.1	MG	=	4.5	PPM
Xylene	1330-20-7	NIOSH 1501				=	1.9	MG	=	4.9	PPM

Sample : 2020-08-26-003 Sample Type : Personal Date : 26-Aug-2020 Media : 42569126 Volume : 848 L Duration : 424 min(s)

Analyte	CAS No.	Analytical Method	LOD	Text Result	Comments	Mass			Concentration		
						Operator	Result	UOM	Operator	Result	UOM
Benzene	71-43-2	NIOSH 1501				=	0.098	MG	=	0.115	PPM
Ethylbenzene	100-41-4	NIOSH 1501				=	1.2	MG	=	1.8	PPM
Toluene	108-88-3	NIOSH 1501				=	1.28	MG	=	1.89	PPM
Xylene	1330-20-7	NIOSH 1501				=	4.1	MG	=	5.9	PPM



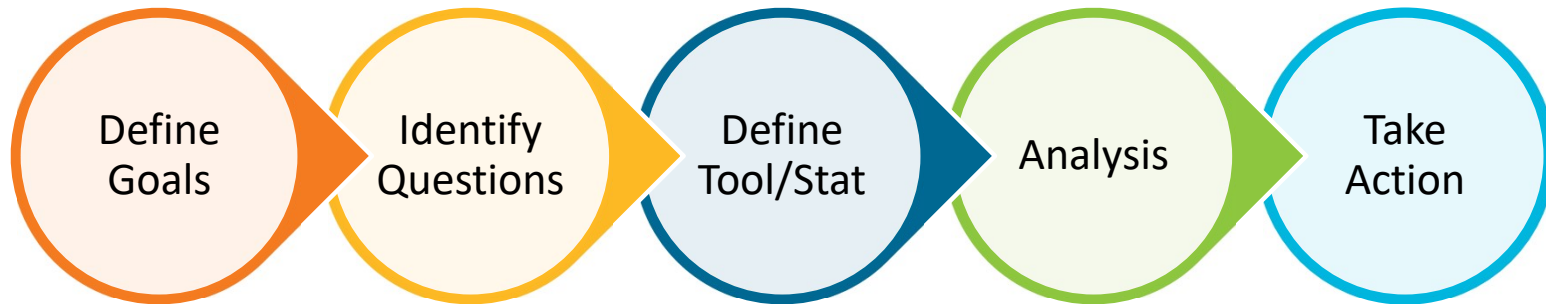


# 5. Data Analysis

It's simpler than you think



# Correct Process



# Statistics

**Industrial Hygiene Statistics**

Sample data	Descriptive statistics
0.06	Number of samples (n) 19
0.1	Maximum (max) 0.2
0.05	Minimum (min) 0.01
0.07	Range 0.19
0.09	Mean 0.0713
0.04	Median 0.07
0.2	Standard deviation (s) 0.0457
0.04	Geometric mean 0.0564
0.08	Geometric standard deviation 2.02
0.08	Percent above OEL 6.7%
0.02	
0.09	
0.03	
0.07	

Sequential Data Plot

Lognormal parametric statistics

W test of distribution fit

W test of data

**Testing Compliance with Occupational Exposure Limits for Airborne Substances, Sept. 2011**  
BWSStat v2.1

**Input**

Limit	mg/m <sup>3</sup>	Substance name	Cotton dust
Occupational Exposure Limit (OEL)	1.70	total number of workers	3
10% Occupational Exposure Limit (10%OEL)	0.17	total number of measurement days	4
Lower Limit Of Quantitation (LoQ)	0.16	total number of measurements	10

**Results**

Substitute the values <LoQ:

4. Substitute all values <LoQ using ROS	
---	--

**Counts**

Number of samples <10%OEL	1	Number of samples <LoQ	1
Number of samples >10%OEL and <=100%OEL	9		
Number of samples >100%OEL	0		

**Conclusions**

Stage 0: Screening test (Section 3.3)

Are any of the samples <=0.1 OEL? Yes, last stage 1

Are any of the samples >1 OEL? No, all samples are below the OEL

Stage 1: Group compliance test (Section 3.4)

UT<sub>95%</sub> > OEL 1.13 < OEL 1.7 mg/m<sup>3</sup>

Does the group comply with the OEL? Yes, the group is in compliance with the OEL. Now check if between worker differences are important (Section 3.5, See Stage 2)

Stage 2: Apply ANOVA and if necessary Stage 3 (Section 3.5)

F(ANOVA) 0.24 > p criterion 0.05

F(BMW) 18.71% < 10% criterion 20%

F(BMW) No important differences between the workers. Individual compliance test not needed.

Stage 3: Individual compliance test (Section 3.6)

Compliance 93.3%

**Benzene Exposures**

**HYGINIST version 4.4.0** Comparing the exposure distribution with the OEL

File Statistics Lognormal frequency distribution Help

Start Raw data Limits Descriptive statistics Plot Compliance Mean UCL Compare

Descriptive statistics of the current data

Name	Example_F_L_Annex_F_hyg
Sample size	6 samples of 8 boxes
Degrees of Freedom	5
GM maximum likelihood	1,8
GSD	2,4

Statistical test: EN689 (2018) clause 5.5.3 & BOHS/NVVA (2011)

Occupational Exposure Limit Value OELV= 10 mg/m<sup>3</sup> \ 8 hours

Confidence that less than 5% of the exposure distribution exceeds OELV: 62,9 %

The 95%-ile upper tolerance limit with 70% confidence: 11,6

The population fraction < OELV with 70% confidence: 93,4 %

The test shall measure, with at least 70% confidence, whether less than 5% of the exposures in the SEG exceed the OEL 5.5.3\_BOHS/NVVA (2011) Compliance decision (689 Annex F.3) is calculated with the non-central Student distribution (1988 p64-65).

Leide(EN689/1995) Wilks EN689(2018)/BOHS-NVVA(2011)

**St Data Analyst V1.0.0**

File View Comparison Calculators Graphs Report Options Help

Calculator: SOP Graphs Statistics BDA Charts PPE Charts Build Report Report Editor

Category:  Statistics  BDA Charts  PPE Charts  CDA

Current Initial Rating: Professional Judgment Floor

Rating Probability

0: Total	
1: High-controlled	
2: Well-controlled	
3: Controlled	
4: Poorly-controlled	

Professional Judgment: Initial Rating: 2: Well-controlled

Cautious Level: High

Final Rating: 2: Well-controlled

Decision Probability

Final Rating: 2: Well-controlled

Decision Probability

Final Rating: 2: Well-controlled

Decision Probability

Final Rating: 2: Well-controlled

Decision Probability

Final Rating: 2: Well-controlled



# How To Perform Data Analysis

- Define your goals
  - SEG confirmation
  - Exposure rating confirmation
  - Compliance
  - Control verification
  - Identify SEGs for MSPs
- Determine best method for each assessment
- Perform analysis and document outcomes
  - Take action
  - Insufficient data (not enough, not consistent)
  - ID where additional data is needed

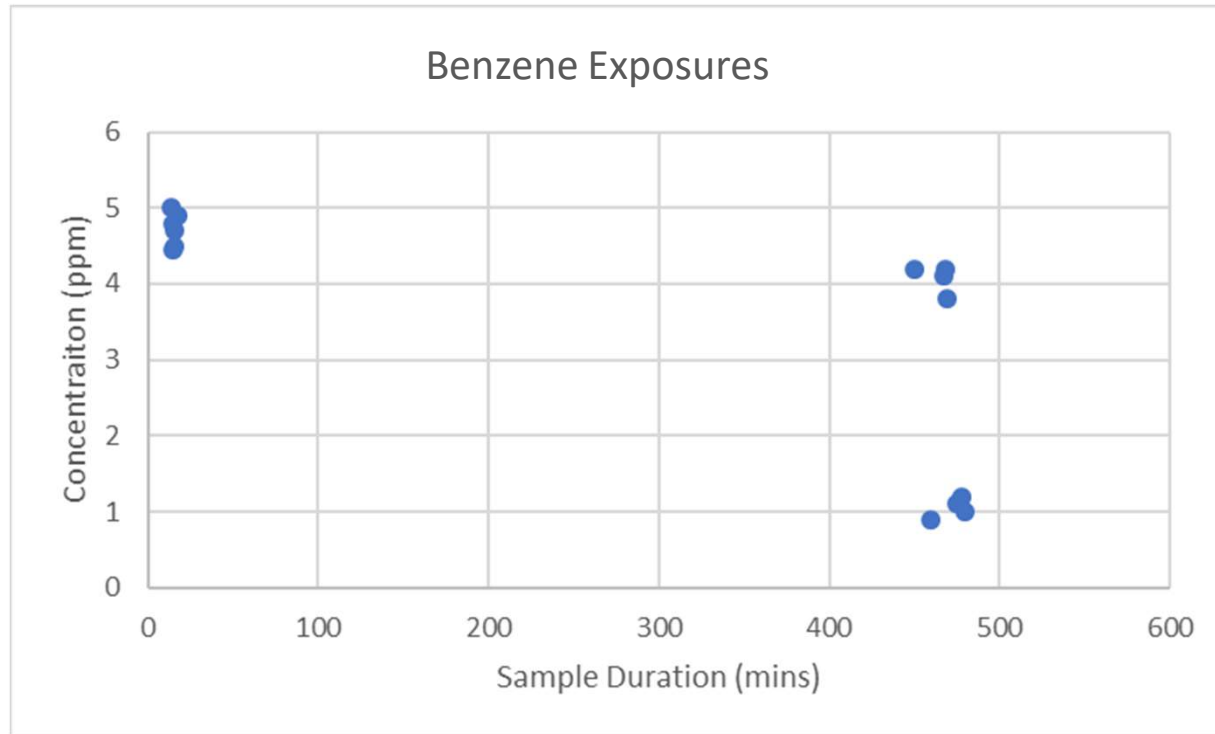


# SEG Confirmation

Are my SEGs  
homogeneous/similar?

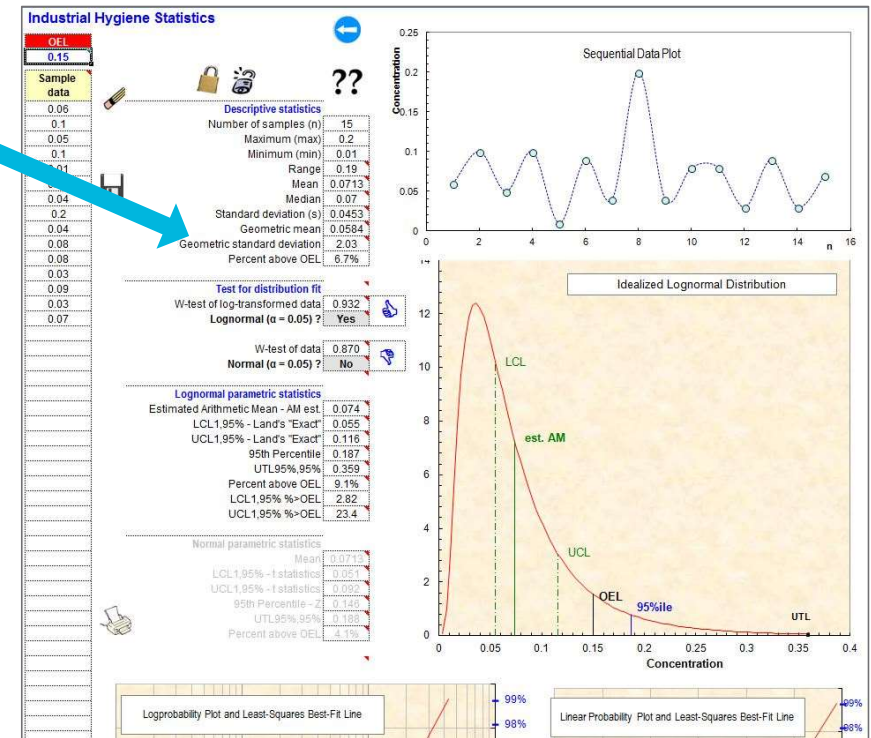


# SEG Confirmation: Scatter Diagram



# SEG Confirmation: Geometric Standard Deviation

- GSD < 3 is generally considered a good indicator of the SEG homogeneity
  - *A Strategy for Assessing and Managing Occupational Exposures*. 4th ed. AIHA
- IHSTAT tool is free to download



# Exposure Rating

**Does my QEA exposure rating  
correlate with my sample data?**





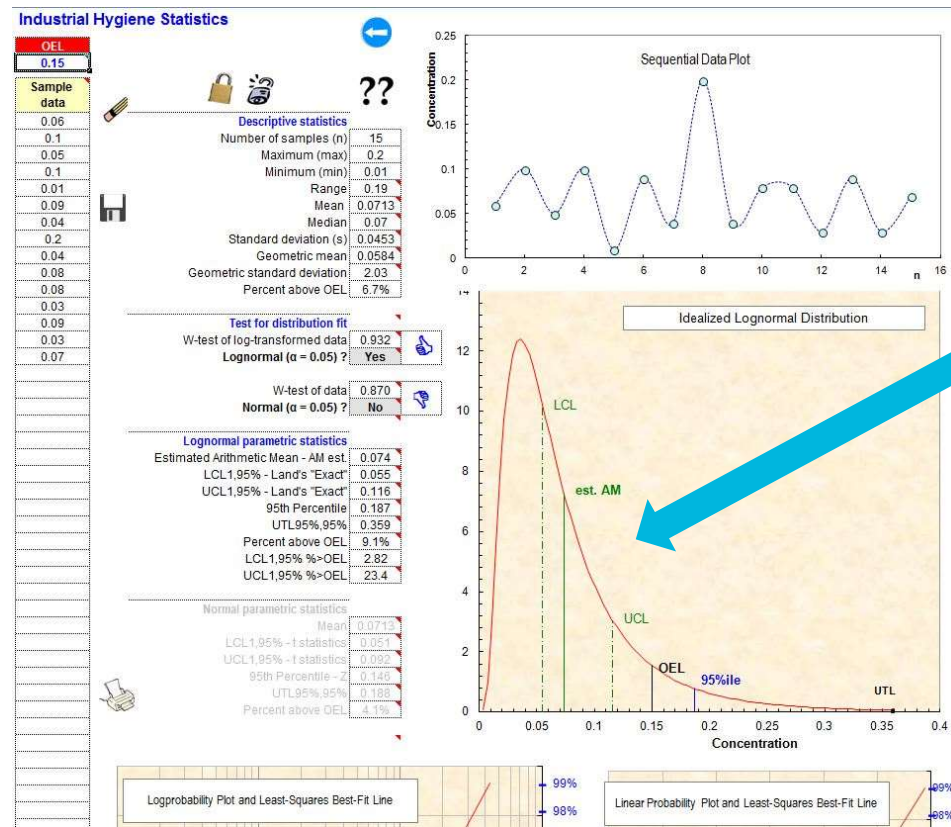
# Review: Exposure Rating

Location	Job	Task	Stressors	Exposure Rating	Health Effect Rating	Risk Rating
Alky Unit	Operator	Routine Duties	Hydrofluoric Acid	1	X 3	= 3
Alky Unit	Operator	Routine Duties	Noise	3	3	9
Coker Unit	Operator	Routine Duties	Benzene	1	3	3
Coker Unit	Operator	Routine Duties	Hydrogen Sulfide	2	2	4
Maintenance	Pipefitter	Welding	Iron	2		
Maintenance	Pipefitter	Welding	Lead	2	3	6
Maintenance	Maintenance Technician	Gasket Replacement	Asbestos	2	3	6
Reformer Unit	Operator	Routine Duties	Noise	3	3	9
Reformer Unit	Operator	Routine Duties	Benzene	2	3	6
Reformer Unit	Operator	Liquid Sampling	Benzene	4	3	12
Tank Farm	Operator	Gauging	Benzene	3	3	9

Exposure Rating
1: < 10% of the OEL
2: Between 10% and 50% of the OEL
3: Between 50% and 100% of the OEL
4: > 100% of the OEL



# Geometric Mean

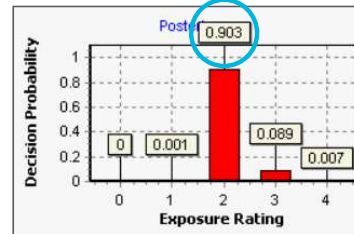
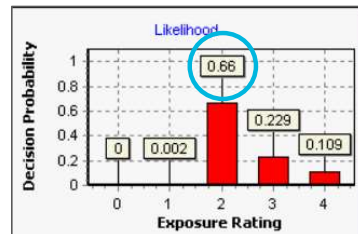
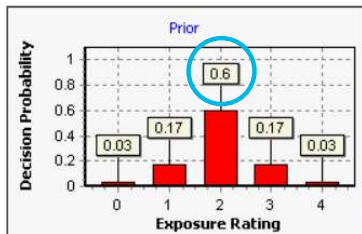


- 1: < 10% of Geometric Mean
- 2: >10%, but <50%
- 3: >50, but <100%
- 4: >100%



# Bayesian Statistical Analysis

- Descriptive statistics
- Compliance statistics
- Bayesian statistics
- Goal: Less samples to have certainty



90% confidence that the “true” exposure rating is a 2

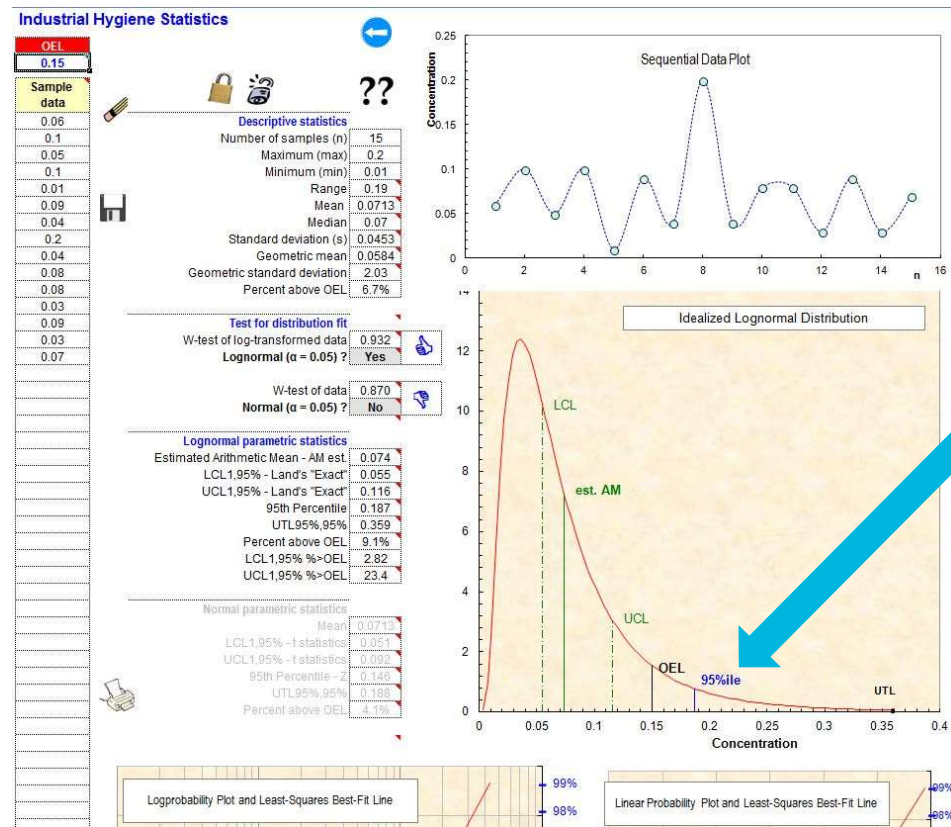


# Exposure Compliance

Are we in compliance with the  
OELs?



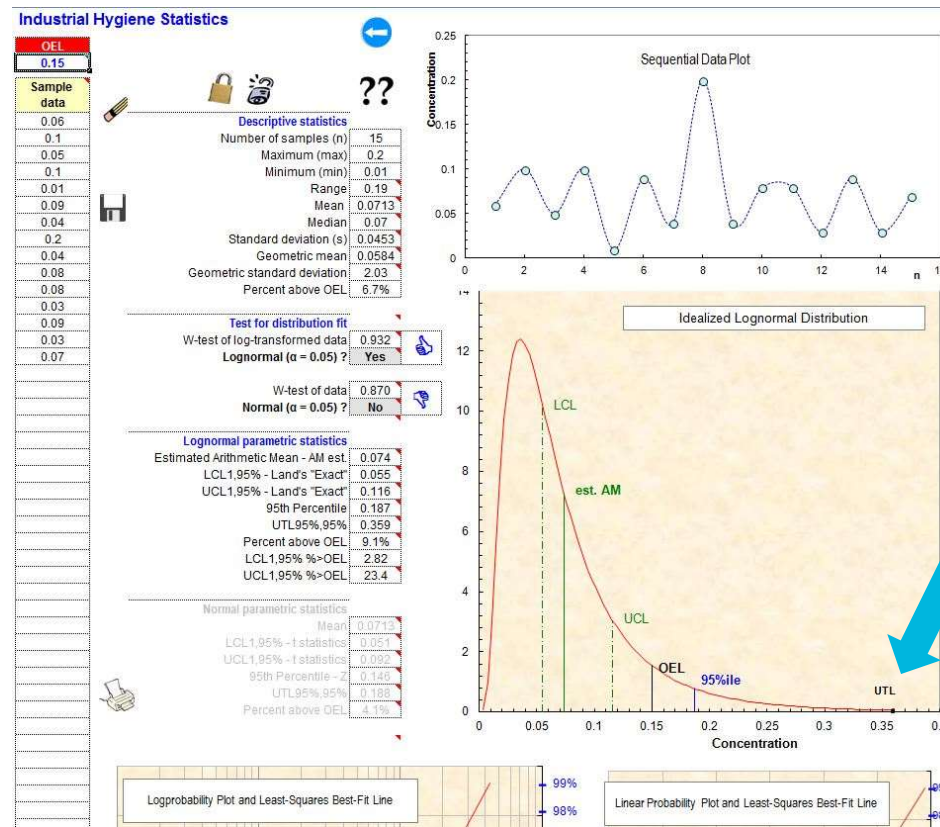
# 95<sup>th</sup> Percentile



- 1: < 10% of 95<sup>th</sup> Percentile
- 2: >10%, but <50%
- 3: >50, but <100%
- 4: >100%



# 95% / 95% UTL



- 1: < 10% of 95/95 UTL
- 2: >10%, but <50%
- 3: >50, but <100%
- 4: >100%



# 6. Medical Surveillance

Who needs what test, when - with precision



# 6. Medical Surveillance



## Hearing Conservation Program

Department: Maintenance  
Job: Maintenance Tech



Department: Reformer Unit  
Job: Operator



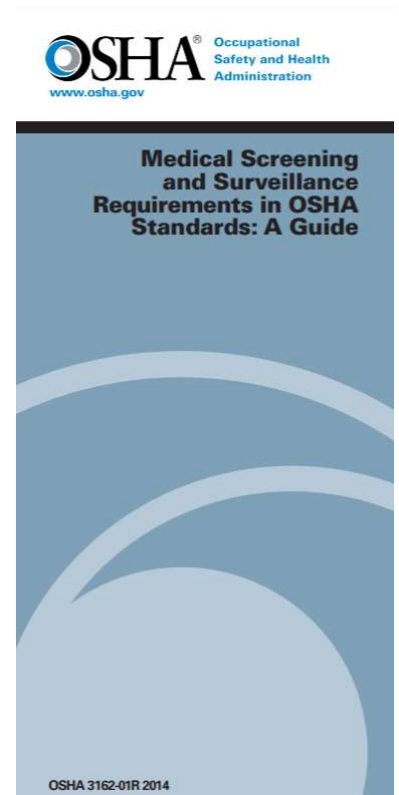
Department Coker Unit  
Job: Operator





# How To Establish Medical Surveillance Programs

- Define applicable MSPs for your workplace
  - Medical activities and their frequencies
- Define thresholds
  - Noise exposures exceeding 85dBA
- Define SEGs that exceed thresholds
- Biggest challenge is keeping list of personnel in each program up to date



# Compliance Without Over Testing

- Compliance with regulations
- Reduces cost from over testing
- Reduces liability from over testing



# 7. Evaluating & Communicating Performance

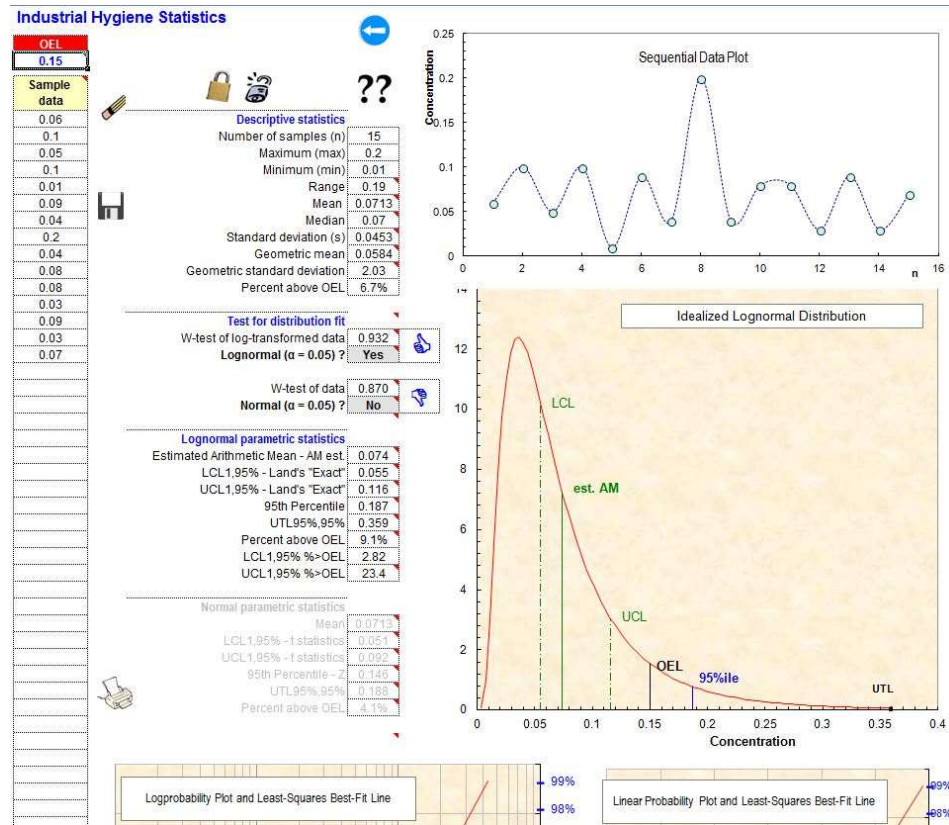
Let's get out of our black boxes!



A female industrial worker is shown in profile, looking towards the right. She is wearing a white hard hat, safety glasses, and a blue high-visibility safety jacket with reflective yellow-green stripes. She is holding a tablet computer in her hands. The background is an industrial setting with large metal pipes and machinery. The text "What is the status of your IH program?" is overlaid in white on the image.

What is the status of your IH program?

# Analysis VS Communication



# Documentation VS Communication

*Momentum*

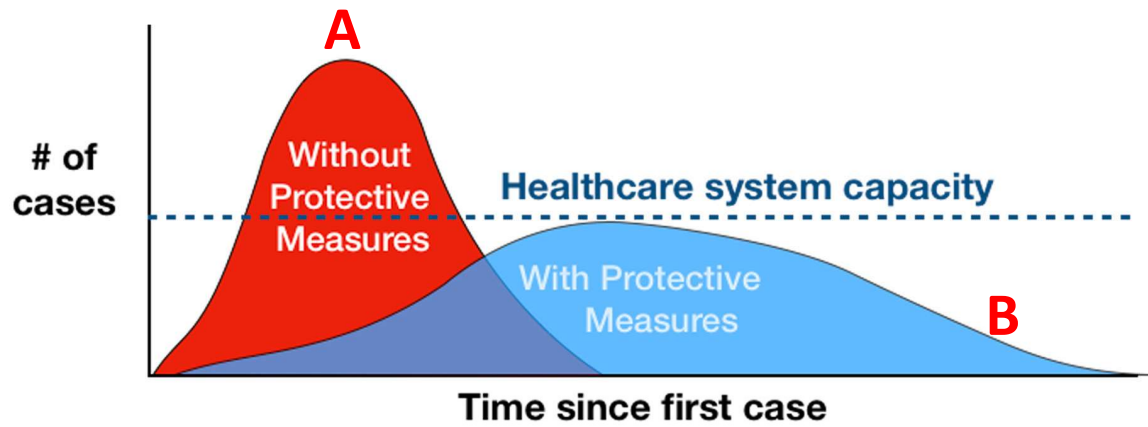
**INDUSTRIAL HYGIENE REPORT**  
**Toluene/Xylene Monitoring – Paint Booth 22A**  
**Dayton Manufacturing Plant**  
**Dayton, OH**

**May 11, 2021**

Date	Sample Number	Department	Job	Task	Sample Type	Stressor	TWA
26-Aug-2020	2020-08-26-004	Hydrocracker	Operator	Routine Duties	Personal	Benzene	0.13 PPM
						Ethylbenzene	1.88 PPM
						Toluene	5.4 PPM
						Xylene	10.2 PPM
26-Aug-2020	2020-08-26-002	Hydrocracker	Operator	Routine Duties	Personal	Benzene	0.102 PPM
						Ethylbenzene	1.25 PPM
						Xylene	4.9 PPM
26-Aug-2020	2020-08-26-003	Hydrocracker	Operator	Routine Duties	Personal	Benzene	0.115 PPM
						Ethylbenzene	1.8 PPM
						Toluene	1.89 PPM
						Xylene	5.9 PPM
26-Aug-2020	2020-08-26-001	Hydrocracker	Operator	Routine Duties	Personal	Benzene	3.15 PPM
						Ethylbenzene	0.7 PPM
						Toluene	1.28 PPM
						Xylene	3.27 PPM



# Simplify The Message!

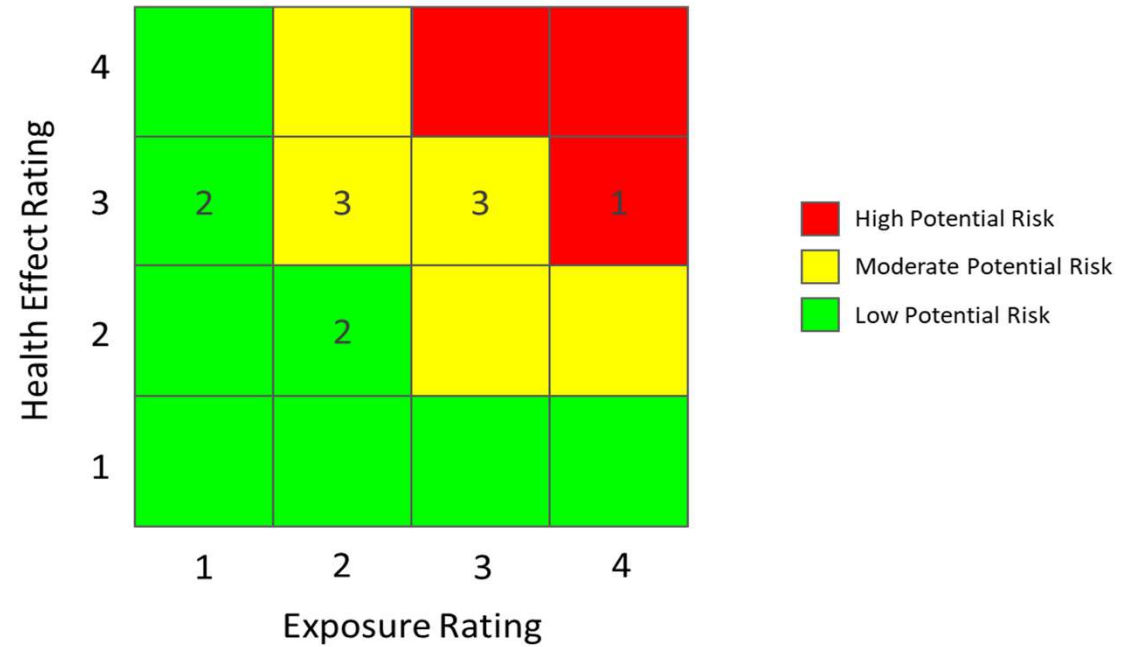


*Adapted from CDC / The Economist*



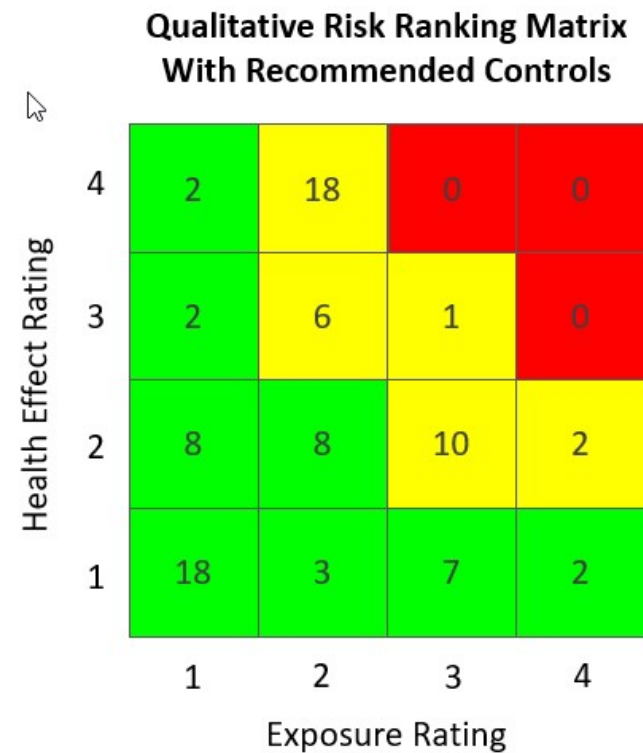
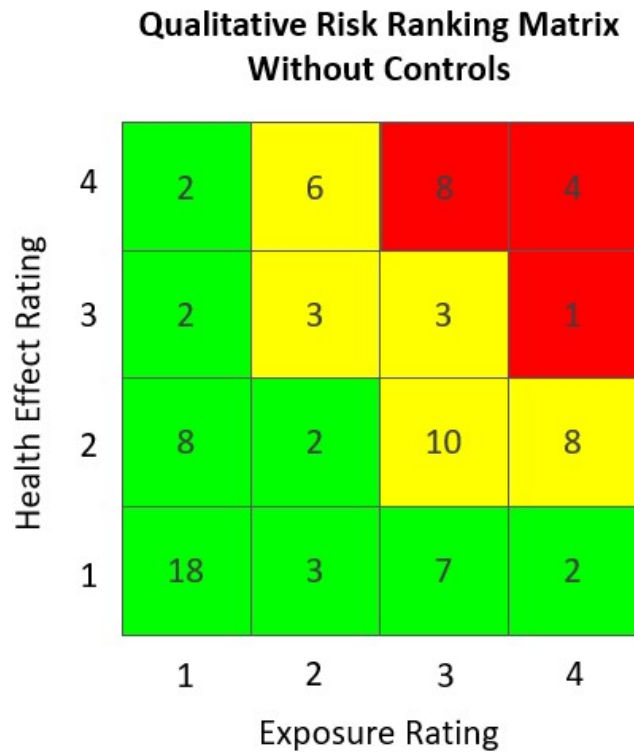
# One Method To Show Status

Qualitative Risk Ranking Matrix





# Communicating Benefits of Controls

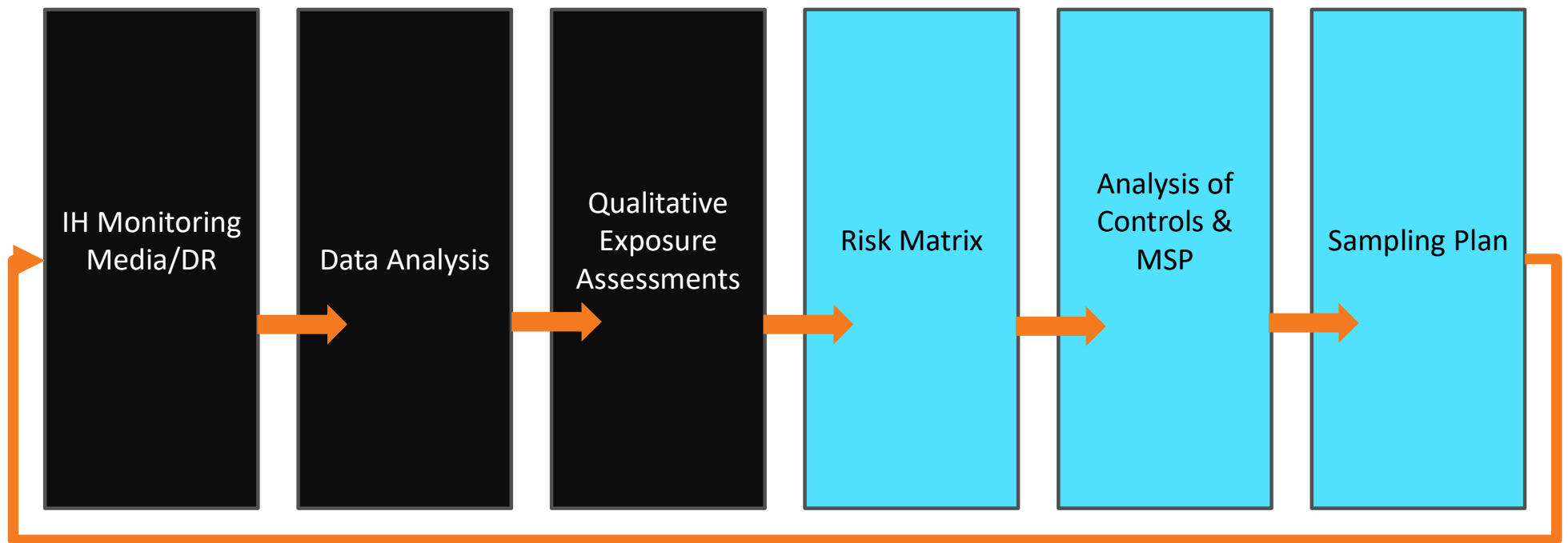


# Recommending New Controls

- Present options
- Data for each option
  - Price
  - ROI
  - Breakeven
  - Level of effectiveness
  - Impact on production, quality, etc.



# Blackbox & Communication Tools



# Summary

- Move from a compliance to a risk-based mindset
- Standardize your SEGs & QEA methodology
- Sample with a purpose
- Engage and “partner” with your laboratory
- Educate & engage for a two-way communication
- Simplify the message
- Be viewed as a contributor to the business or you won't be...



# Data Collection Forms

The screenshot shows an Excel spreadsheet titled 'Alky Unit' with the following data:

Location	Job	Task	Equipment	Stressors	Instructions
Alky Unit	Operator	Routine Duties		Noise, Hydrofluoric Acid	List any combination of Location, Job, Task, and Equipment that make up each SEG List all stressors of concern for each SEG. If unsure if the stressor is significant enough - add it. This list can be paired down later if you determine the exposure potential is insignificant.
Coker Unit	Operator	Routine Duties		Benzene, Hydrogen Sulfide	
Maintenance	Pipefitter	Welding		Welding Fumes	
Maintenance	Mtce. Technician	Gasket		Asbestos	
Reformer	Operator	Routine Duties		Noise, Benzene	
Reformer	Operator	Liquid Sampling		Benzene	
Tank Farm	Operator	Gauging		Benzene	



Thanks for attending!

Scan this QR code to learn more about VelocityEHS or for the session materials.



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# Questions?

[drisi@EHS.com](mailto:drisi@EHS.com)

