



**NATIONAL STEPS NETWORK**  
**SILICA FOCUS GROUP**

**IH TEAM**

**Humble Civic Center**

**May 02, 2013**

# SILICA FOCUS GROUP – IH TEAM

**From December 6<sup>th</sup> meeting – 4 actions**

**Today meeting – 4 updates, 1 new request**



# ACTIONS – FROM THE DECEMBER 6<sup>TH</sup> MEETING

## ACTIVITIES UPDATE:

**1. LoI to OSHA** – exposure monitoring methodologies that are legally acceptable for determining compliance

- Rick Ingram (STEPS Network)
- Todd Jordan (OSHA)
  - Submitted, waiting for response.



# **ACTIONS -- FROM THE DECEMBER 6<sup>TH</sup> MEETING ACTIVITIES UPDATE:**

## **2. Data repository – API IH Group**

## **3. Field Sampling Data Parameters**

- Bob Nocco (Chevron)
- Tim Hicks (Hicks Health & Safety)



# Industrial Hygiene Monitoring Data Repository Update

2 May 2013

By API IH Group

**Bob Nocco**  
**Chevron**

# Background

- Silica Focus Group desire to compile and share (silica) exposure monitoring data
- Various options explored, including AIHA O&G Working Group, API IH Group, others....
- Key considerations
  - Ability to “blind data” to preserve anonymity of those submitting data
  - Experience in managing pools of IH data
  - Resources to manage the project
  - Allows for participation to all willing participants

# Background

- Based on Key Considerations, nSTEPS IH subgroup decided to have the API IH Group coordinate the IH data compilation on behalf of nSTEPS Silica Focus Group
- Data compilation “working group” defined data parameters that would be collected. This defined the data fields from which the database will be built.

# Status Update

- **Final draft of data parameters and incorporated into RFP – Complete (Feb)**
- **Finalized & distributed RFP to bidders – Complete (Feb)**
- **Received proposals – Complete (March)**
- **Evaluated proposals and selected contractor - (early April)**
- **Contract award – in progress**
  - Resolved confidentiality language
  - Working thought contracting process



# Project Scope

## *Compile, Manage and Analyze Industrial Hygiene (IH) Exposure Monitoring Data for Respirable Crystalline Silica and Other Agents*

- *Develop and implement a method to collect data submitted from member study participants. The data is to be managed so that anonymity of data is assured (“blinded” data).*
- *Develop a database (e.g., Microsoft Access or other alternative approved by API) of blinded data which will be made available to study participants.*
- *Data fields and attributes will be defined by API. An IH spreadsheet containing examples of the data field is included as an attachment to this RFP.*
- *Evaluate and characterize the data quality of submitted data.*
- *Analyze and summarize data. This may include: identify data gaps that may require additional follow-up IH monitoring, perform statistical analysis as well as other techniques to adequately analyze results.*
- *Focus is to be on personal samples but provisions shall be made to include area samples, including real-time monitoring devices.*
- *Initial focus will be on RCS but provisions shall be made to expand the scope for other agents (e.g., diesel particulate matter, noise, radiation/NORM, other chemical agents)*

# Project Milestones

- Draft of Database (e.g. Access) – 4 weeks from date of contract award
- Final Database – 2 weeks after submitting draft database
- Go Live – after completion of Final Database

# “Go Live” - Other Information

- Open to anyone who is willing to submit data, not just API member companies
- Data will be blinded
- Data available to those who participate and contribute data

# Silica Sampling Data Parameters

Sample Date (MM/DD/YYYY)	Sample Type	Period Type*	Exposure Group	Shift Length	Geographic Play	State/ Territory	Sample Pump Calibration				Total Volume (L)	Cyclone Model	Sample Start Time (HH:MM - 24h)	Sample Stop Time (HH:MM - 24h)	Run / Sample Time (min)	Does the sample time represent the entire exposure for silica during the workshift?	If No, what is the estimated time of exposure?	Constituents Analyzed
							Pre (L/m)	Post (L/m)	% Difference Pre/Post Calibration	Average Flow Rate (L/m)								
	Personal Breathing Zone	Partial Shift	Blender Operator	8hr/480min		Alabama					Dorr Oliver 10mm Nylon						SILICA, CRYSTALLINE QUARTZ (RESPIRABLE) (14808-60-7)	
	Personal Breathing Zone - Surrogate	Full Shift	Chemical Addition Operator	10hr/600min		Alaska					SKC 37mm Aluminum						SILICA, CRYSTALLINE TRIDYMITTE (RESPIRABLE) (15468-32-3)	
	Area - Fixed	Task-based	Customer Representative	12hr/720min		Arizona					SKC 25mm Aluminum						CRISTOBALITE (14464-46-1)	
	Area - Perimeter / Fenceline		Data Van Operator	13hr/780min		Arkansas					SKC GS-3 37mm conductive						DUST (RESPIRABLE, NOT OTHERWISE CLASSIFIED)	
			Electronics Technician	14hr/840min		California					SKC GS-3 25mm conductive							
			Flowback Person	15hr/900min		Colorado					SKC GS-1 37mm conductive							
			Fueler	16hr/960min		Connecticut					SKC GS-1 25mm conductive							
			Hydration Unit Operator			Delaware					BGI GK 2.69 37mm cyclone							
			Line Boss / Groundsman / Sand Coordinator			District of Col.					BGI 4L 37mm Al (Higgins-Dewell)							
			Mechanic			Florida					Casella 37mm (Higgins-Dewell)							
			Pump Truck Operator / Equipment Operator			Georgia												
			Q.C. Technician			Hawaii												
			Safety Coordinator / Site Safety Champion			Idaho												
			Sand Bin Operator (Sand King, Sand Hog, or Mountain Mover Operator)			Illinois												
			Sand Delivery Truck Driver			Indiana												
			Service Supervisor			Iowa												
			T-Belt Operator			Kansas												
			Tool Man			Kentucky												
			Water Tank Switcher			Louisiana												
			Wellhead Control Operator (Wellhead Isolation Tool Operator)			Maine												
			Wireline Operator			Maryland												



Silica Sampling Parameters

# Example Data Fields

- Sample No, Date, Sx Start/Stop Time, Sx Time, Shift Length, Geographic Play, Pump Calibration...
- Lab Results: LOQ, Conc, Analytic Mthd, Lab Accred...
- Sample Type: Personal BZ, BZ surrogate, Area
- Controls/PPE used – pre-populated pull down menus
- Propant Type, Size, Mass Used, No. of Stages
- Exposure Group: Blend Opr, Chem Add Opr, Customer Rep, Flowback, Sand Coord, Fueler, Mechanic, Wireline Opr...
- Cyclone Model: Dorr Olvr, SKC 37mm, BGI GK2.69....

# ACTIONS -- FROM THE DECEMBER 6<sup>TH</sup> MEETING

## ACTIVITIES UPDATE:

### **4. Monitoring to validate effectiveness of controls**

- May Chau (BP)
  - No data available to share
- Request for sharing of data with the IH team, if possible.



# NEW ACTION

## 5. Request to share respiratory protection matrix

- May Chau (BP)
- Engineering controls first, respiratory protection is the last option.
- A written respiratory protection program is required, CFR 1910.134 – selection, medical evaluation, fit testing, training etc.
- Only the respirator style and size the individual has successfully fit tested should be used.
- Type of respirator is determined by concentration of contaminant, not the user's personal preference.
- Contact your industrial hygienist to evaluate the actual exposure risk, recommend appropriate respiratory protection, and filter cartridge change out schedule.



# NEW ACTION

## 4. Request to share respiratory protection matrix

For respirable silica:

- Half mask respirator equipped with P100 particulate filter cartridges – 10 times protection factor against the applicable exposure limit
- Full face-piece respirator equipped with P100 particulate filter cartridges – 50 times exposure limit
- P100 particulate filters remove at least 99.97% of airborne particles 0.3 micrometer in diameter.
- Based on data we have seen so far and those from NIOSH, a half mask respirator will not be adequate in protecting the workers. A minimum of full face-piece respirator should be used.
- Referred to the NIOSH study done by Eric Esswein and team.





# RESPIRATORY PROTECTION

## 29 CFR 1910.134 (d)(3)(i)(A)

Table 1. -- Assigned Protection Factors<sup>5</sup>

Type of respirator <sup>1, 2</sup>	Quarter mask	Half mask	Full facepiece	Helmet/hood	Loose-fitting facepiece
1. Air-Purifying Respirator	5	<sup>3</sup> 10	50	.....	.....
2. Powered Air-Purifying Respirator (PAPR)	.....	50	1,000	<sup>4</sup> 25/1,000	25
3. Supplied-Air Respirator (SAR) or Airline Respirator					
• Demand mode	.....	10	50	.....	.....
• Continuous flow mode	.....	50	1,000	<sup>4</sup> 25/1,000	25
• Pressure-demand or other positive-pressure mode	.....	50	1,000	.....	.....
4. Self-Contained Breathing Apparatus (SCBA)					
• Demand mode	.....	10	50	50	.....
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	.....	.....	10,000	10,000	.....

**Notes:**

<sup>1</sup>Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

<sup>2</sup>The assigned protection factors in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.

<sup>3</sup>This APF category includes filtering facepieces, and half masks with elastomeric facepieces.

<sup>4</sup>The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

<sup>5</sup>These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d)(2)(ii).

