

National STEPS Network

Respirable Silica Dust Focus Group, September 6, 2012

Minutes and Notes

Meeting Location: Humble Civic Center – Humble, TX

Host: National STEPS Network

Moderator: Rick L. Ingram, S.G.E.

OSHA VPP Coordinator, T/A – BP North America Gas
Chairperson, National STEPS Network

Speakers:

Eric Esswein, NIOSH, Industrial Hygienist, eje1@cdc.gov

May Chau, BP, Industrial Hygienist, may.chau@bp.com

Travis Anderson, NOV Appco, travis.anderson@nov.com

Jim Shelton, OSHA, sheltonj@dol.gov

Dean Wingo, OSHA, wingo.dean@dol.gov

Attendees: Over 100 experts and industry professionals from the US and Canada, many representing global operations were in attendance. Participants included Manufacturers, Industrial Hygienists, Operating Companies, Service Companies, Industry Associations, Educators, OSHA, MSHA and Enform from Canada. Marianne McGee retains full sign-in sheet and distribution List

Purpose: Develop next steps to be taken to protect workers from respirable silica dust during Hydraulic Fracture treating of wells. This is a working meeting to discuss and develop common monitoring strategies and mitigation techniques, both short term initiatives and effective engineering controls to be shared with the industry.

Agenda:

- Introduction of special guests and Speakers
- PowerPoint overview of two frac jobs from Rick Ingram
- Update from Eric Esswein, NIOSH
- Preliminary updates from work groups & OSHA
- Sub-Committee break-out for working sessions
- Reports from Sub-Committees after working sessions to entire focus group

**Detailed Meeting Minutes:
Preliminary Reports from Work Groups and OSHA**

Eric Esswein - NIOSH Update

- No update on exposure assessment
- There is prevention through design.
- Small microscopic particles do not get removed naturally by immune system
- Thief hatches allow release of silica-containing dust when left open

Bag House Design Update:

- Bag houses worked on the principle of a dust cape; fabric doesn't do the filtering...it's the dust cape that builds up. To regenerate the bag, you have to slough the dust cape. Operator for sand truck removes pressure to remove dust.
- Base plate secured to thief hatch rim using under mount bar; working on another type of assembly with toggles on the top; rubber flange creates seal under base plate
- Static pressure during filling is about 1 inch of static pressure, which is a good thing; potentially thinking about licensing the product to a company that wants to build it, market it and sell it.
- Point of test is proof of concept evaluation; intent was not to do any evaluations whatsoever; concept to see if it captured and limited visible dust; wanted to see how many leaks were going to occur on the first run. Had to retrofit base plate because of leaks on initial test.
- Some sand movers work in vertical configuration (Sand cans). NIOSH has not evaluated controls for sand movers that work vertically as opposed to horizontally.

Engineering Controls Team Update – Travis Anderson, NOV Appco

- Calfrac is working on steering, misting, vacuum extraction systems; a couple weeks ago did post-engineering fit with a vacuum extraction and misting system with positive results in reducing dust and work positions that require respiratory protection. Will keep testing and feel to be on a good track.
- Compare engineering controls: The team will develop a set of guidelines for standardization for where to place monitors to be consistent.
- Once results are collected, everyone can use the same methodology from company to company.
- Need a method to control variables; warehouse would be a more controlled environment.

Alternative Proppant:

- Not enough substitute material (i.e.- black cat, ceramic, man-made materials that do not have silica danger); extremely pricey, can't produce enough to handle amount that is needed in industry.
- Not viewed as a viable option at this time.

Forming partnerships:

- Need to partner with service companies to run test on site, keeping an open dialog going.
- Some concerns over legal ramifications such as trademarks.
- Geared to work together for worker safety and must try to legal and regulatory differences aside.
- The RS Focus Group is based on communication and trust, and government and industry working together.
- Controlled testing; We should discuss a consortium approach to get testing done.

Question: Issues with overpressures of the tank?

- With NOV Appco tank, no because it has a sealed, weighted lid.
- Frac Sand- thief hatches are left open to relieve pressure. NIOSH is considering a rupture disc or PRV; predetermined failure point on seam of bag.
- NOV hatches will burp with last blast of sand.
- What kind of pressure? 5-6 inches of water; ¼ psi or less

IH Monitoring Team Update – May Chau

- Actions from June 26th meeting:
- Develop a request for a Letter of Interpretation from OSHA to understand exposure methodologies that are legally acceptable for determining PEL compliance
- Develop a common standardized exposure monitoring field data sheet
- Develop common monitoring strategies
- Decide on a repository for data: API, AIHA, Oil and gas group?

Short-Term Fix Team Update – Jim Shelton

- (Reference short term fix list); list will be refined today; 6-page memo will be cut down to 2-page
- General concepts; not meant to be a catch all, fix all right now
- BP using hazard alert as a training tool with contractor partners

Dean Wingo – OSHA

- **Exposure isn't only the frac site.** An overexposure was found in OK; at a sand yard; overfill; OSHA was called to this site because of a complaint of silica; The transfer valve wasn't wide enough and sand ended up on ground and two employees sampled.

Voluntary Compliance Agreement:

- The agreement will be based on full implementation of the quick fix elements.
 - Upon signing the agreement, companies agree to follow the Quick Fix process and OSHA will verify on site.
 - OSHA will not perform a field verification until the company verifies actions are complete.
 - The goal is to remove exposures...not about citations and legal action.
 - OSHA will pilot the program in Region 6 and move forward from there.
 - The agreement would likely be with the operators and contractors, but can be done at whatever level needed
 - **Q:** Is the NIOSH recommended exposure level becoming the OSHA level?
 - **A:** If it happens, it won't happen this year...some future date if at all.
 - **Q:** The OSHA test apparatus is different than NIOSH any thoughts of making both those the same?
 - **A:** The IH group is writing a request for interpretation to help answer this. OSHA hasn't done comparisons. NIOSH has done studies for the different samplers; slides are on the web to compare all different samplers and flow rates. The NIOSH method is more extensive and they have more resources.
 - **Q:** What is the difference between the NIOSH and OSHA testing method?
 - **A:** It is the same basic concept as NIOSH, the OSHA method uses a lower flow rate and different cyclone.
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Sub-Committee break-out sessions: Reports from Sub-Committees after working sessions to entire focus group

IH Team; The team was divided into three groups:

- **IH Team One** - Letter of Interpretation:
- Objective was to put a draft letter together for OSHA to determine if alternative cyclones are acceptable for sampling other than the Dorr Cyclone. ISO, SIN, sampling convention, efficiency at 4 microns; submit to OSHA for clarification...will either be yes or no to use other samplers.
- **IH Team Two:** Sampling strategy and method: Personnel sampling- review and update the draft spreadsheet, developing a common set of data points that need to be captured...where can we put this so it is accessible to everyone? Update draft spreadsheet; working on repository with API
- **IH Team Three:** Work on a standardized protocol for sampling effectiveness of engineering controls
SCOPE:
 - Path forward as a sub-team
 - o Evaluate point sources/emissions
 - o Evaluate engineering controls effectiveness
 - Test Limitations/Consideration
 - Controlled environment (to reduce variables)
 - Equipment specific
 - Point source (7 identical from NIOSH study)
 - Operating phase/conditions
 - Sand type/composition (% of silica)
 - **Standardized Sampling Locations**
 - Map
 - # of sampling locations
 - Placement of sampling devices (horizontal or vertical)
 - **Instrumentation/Method**
 - Area vs. personal
 - OSHA (3)/NIOSH (2)/Real time (1)
 - Change out schedule of media to prevent overland and identify levels per operating phase if 8 or 12 hour period
 - Min. sample time
 - # Samples/tests per point source-operating condition
 - **Data Points (liaison w/exposure group)**
 - Weather
 - Equip type
 - Arrangement of equip
 - Sampling locations
 - Instr/method
 - Test criteria used
 - Operating conditions
 - Type of sand
 - **Q:** Lab-type test...any discussion of quick-fix test that can run right now?
 - **A:** No, just protocol outline

Engineering Controls Team Discussion Points:

- **Review of likely sources of RS dust**
 - Top hatches
 - Belt (belly of sand master)
 - Site traffic

- Sand dropping to blender hopper and transfer belts
- Release from t-belt to blender
- From end of dragon's tail
- Fill port

Discussion Points:

- **Mitigation methods: Chemical dust control**
- Liquid dust suppression agents - Dustnet or Durasoil
- Possible negative: questions regarding fluid compatibility issues
- Positive: No Freeze
- Question: Cost & availability?
- Possible negative: Downhole chemical
- **Centralized Dust Collection discussion points**
 - No freeze
 - Flexible installation?
 - Time for setup?
 - Testing
 - Availability
 - Waste disposal
 - Cost
 - Retrofit possible
 - Allows for visual inspection
 - Action item: FSDC test
- **Unit-mounted DCS (use during loading/reloading)**
 - Top hatches
 - Easy setup
 - Retrofit to existing equip
 - No freeze
 - Training/installation
 - Time for initial setup
 - Allows for visual inspection
 - Cost?
 - Action item: NOV Appco perform testing & report
- **Mini bag houses (NIOSH; use during filling/refilling)**
 - Set up
 - Testing
 - Licensing
 - Weather
 - No waste disposal
 - **Action item: NIOSH testing, will share results**
- **Misting (action item: CalFrac is testing)**
 - -Freeze
 - -Chemicals
 - must set up each time
 - -Retrofittable
- **Remote operations (feedback loop/video)**
 - Still generating dust
 - Protection from additional hazards
 - Expense
 - In use now at some sites: need to research

- Eliminates one person
 - **Existing controls for training suggestions**
 - Transfer chute (enclosed)
 - Decals and signage
 - Dust caps
 - Close hatches
 - Appropriate equip setup (rear hatch) so sand doesn't launch far distances
- Additional ideas: Augers, curtains, shrouds, continual loop (fines, downhole)

Quick-Fix Group

- Guide to get started, not a solve all, fix all
- Put something in to have an inspection process
- Used closed caps or booth as part of a exposure control plan
- Minor modifications, but mostly same checklist
- **Q:** Where will this info be housed at? How do they get it, where does it go? How can we gather that info to make it more robust?
- **A:** Will be housed on National STEPS Network website for the guidelines; will be ready to go in the next couple days distributed via STEPS Network email lists.

Next meeting: December 6, 2012 Sheraton Downtown, Dallas, Texas

Meeting closed 227p

Volunteer List in separate Excel Document