

### OPERATIONS SPECIFIC

### SAMPLE COLLECTION

#### Hazards

High hydrocarbon mist and vapor exposure levels have been reported in areas near the shale shaker area and mud pits when using oil based drilling muds (see GS 012 Working with oil-based muds) or when water-based muds (GS Water-BasedMuds) become contaminated with hydrocarbons. Hydrogen sulfide and production gases may also be absorbed in the drilling mud and be released when brought to surface. Workers may be exposed to drilling fluids either by inhaling mists and vapors or by skin contact.

Things known to influence the risk of exposure to workers include: the use of enclosures and/or local exhaust ventilation, drilling fluid temperature; flow rate; well depth; well section; and the chemical composition of the drilling mud system used.

In addition to the chemical hazards, the risk fire and explosion will increase with the flammability of the fluids used or produced and the risk of slips and falls increase when surfaces get covered in drilling mud (GS Flammable Materials).

#### Access

Only allow access to the area by authorized staff that have been trained and equipped to work safely.

#### Design & Equipment

- » Use water-based muds where possible: otherwise use low toxicity base oil.
- » Cover mud troughs, sand traps, etc. fully to minimize vapour release.
- » Provide enough fresh air to dilute and remove air contaminants, (e.g., above 15 air changes per hour with a through draught).
- » As far as possible, enclose shale shakers and mud pits in a Local Exhaust Ventilation (LEV) enclosure which should have an inward air speed of at least 0.5 meters/second.
- » Where open, fit canopy hoods with plastic strips to maximise enclosure.
- » Cover mud pits and sampling hatches.
- » Only open hatch lids when sampling then close them.
- » When sampling mud and cuttings
  - Ensure that samplers follow the rules for access to the areas.
  - Provide a tool to remove mud from the pit or cuttings from the screen.
  - Drain the cuttings – return the fluid to the system.
  - Provide closeable containers for transfer to the laboratory.
- » For all local exhaust ventilation
  - Fit an airflow indicator to show that extraction is working properly.
  - Discharge extracted air to a safe place.
- » When processing cuttings
  - Enclose the transfer of cuttings between the shaker and the cleaning unit.
  - Provide an enclosure and local exhaust ventilated cleaning unit.

#### Personal Protective Equipment

Respiratory Protective Equipment:

- » Self-Contained Breathing Air: To be used when H<sub>2</sub>S may exceed 10 ppm (GS H<sub>2</sub>S and GS Respiratory Protective Equipment).
- » NIOSH approved P-95 (or P-99 or P-100) with combination organic vapor cartridge required for oil based mud systems while taking samples.
- » NIOSH approved P-95 (or P-99 or P-100) with combination organic vapor cartridge required for work around unenclosed or unventilated shakers if contamination with productions fluids is suspected until occupational hygiene monitoring demonstrates mist and vapor concentrations are less than 50% of occupational exposure limit.

Other Personal Protective Equipment:

- » Personal H<sub>2</sub>S Monitor: To be worn at all times (GS H<sub>2</sub>S Gas Monitors).
- » Fire Retardant Coveralls: To be worn at all times (GS Flame Resistant Clothing).
- » Chemical resistant gloves, clothing, boots and eye protection (goggles) are required if direct contact with drilling fluids that contain hydrocarbons (GS Skin Contact and GS Gloves).

### **Cleaning & Housekeeping**

- » Keep all work areas neat and free from debris.
- » Clean up chemical spills promptly (GS Spill Response).

### **Information Training and Supervision**

Employer responsibilities:

- » Gather and provide safety data sheets on the chemicals that will be present at the workplace
- » Use the Controlling Chemical Hazards Guideline to define the required chemical management process for the work you wish completed.

Supervisor responsibilities:

- » Ensure the availability of the required Guidance Sheets for chemical management.
- » Ensure the availability and use of appropriate protective equipment.
- » Complete and review with workers the chemical management process and the applicable Safety Data Sheets.
- » Review safe work procedures with workers before they start work.

Worker responsibilities:

- » Wear appropriate personal protective equipment.
- » Follow safe work procedures.
- » Ensure spills and leaks are quickly cleaned up.
- » Wash contaminated clothing before reuse.

### **PRECAUTIONS YOU SHOULD TAKE**

- Ask your employer about the risks, what precautions to take and what to do in an emergency.
- Follow the safe working procedures laid down by your employer.
- Read and understand safety data sheets for all chemicals you will be working with.
- Use the personal protective equipment provided, i.e., respiratory protection and impervious clothing.
- Don't enter any area that may contain H<sub>2</sub>S before it has been tested.
- Report to your employer or safety representative any damaged or defective ventilation systems or protective equipment.