

HSE Requirements: Hydrogen Sulfide Supplemental Requirements

Owner: AK D&W HSE Specialist



Purpose

The purpose of this document is:

- Prevent exposure to Hydrogen Sulfide (H₂S).
- Provide HSE requirements for atmospheric monitoring.
- Provide supplemental requirements for H₂S in addition to the Alaska Safety Handbook (ASH).

In scope / out of scope

The scope of these requirements are:

In Scope	Out of Scope
COPA employees, contractors and visitors who may enter H ₂ S designated areas.	<ul style="list-style-type: none"> • COPA employees, contractors and visitors who will not enter H₂S designated areas. • Emergency response in H₂S atmospheres.



NOTE: H₂S Designated areas are defined as areas which contain a process stream with H₂S concentrations in the vapor phase greater than 100 PPM.

Authorized user training

Authorized users must be trained to use different H₂S detection equipment.

Personal H ₂ S Monitors	H ₂ S Sampling
Possess a valid certification card from NSTC un-escorted training.	<ul style="list-style-type: none"> • Are competent and qualified to use portable single and multi-gas equipment. • Have completed classroom training and competency verification. • <u>Portable and multi-gas equipment requirements.</u>



NOTE: Follow manufacturer instructions or SkillsNow SOPs for sampling.

Personal H₂S monitor user requirements

A personal H₂S monitor must be worn by each worker in areas where H₂S may be present. This includes **while inside vehicles/equipment** and areas with fixed H₂S detection systems.

- **Verify** monitor is set to alarm at 10 PPM H₂S concentration.
- **Check** functionality prior to daily use.
- **Wear** facing outward, forward of the ears, and within 9" of the nose or mouth.

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Wind direction
indication for H₂S
designated areas

Wind indicator (e.g., windsock) at H₂S designated areas must be:

- In working order
- Located in appropriate location(s) to maximize visibility

H₂S designated area
signage

H₂S designated areas must be identified by this signage:

> 100 PPM in process streams	> 300 PPM in process streams
	

Exception: Wellhouses and modules on a drill site do not need signs if the entrance to the pad is properly labeled except for specific wellhouses that are > 300 PPM.

Visitors in H₂S
designated areas

Requirements for Visitors in H₂S designated areas.

H₂S atmospheric
monitoring methods

These are the H₂S atmospheric monitoring methods:

Fixed H₂S	<ul style="list-style-type: none"> • Max concentration of H₂S in any process stream exceeds 1000 PPM in vapor phase. • Combination visual and audible alarm. • Calibrated to alarm at 10 PPM and 50 PPM.
Fixed Combustible Gas (LEL) System	<ul style="list-style-type: none"> • Process streams with < 1000 PPM H₂S in vapor phase, may contain inert gases (CO₂, NO₂) > 65%. • Combination visual and audible alarms. • Calibrated to alarm at the 25% LEL set point.
Exemptions from fixed monitors	<ul style="list-style-type: none"> • Wellhouses. • Manifold buildings. • Pressurized, non-classified control and electrical rooms.



NOTE: Colorimetric tube, Ventis, and Gasclip monitoring methods are covered in [Portable single and multi-gas equipment](#)



Fixed H₂S detection system rationale

[Fixed H₂S Detection System Calculation Rationale](#)

Wellhead shelter and drill site tank criteria

These are requirements for wellhead shelters and tanks:

Shelter Entry	<ul style="list-style-type: none"> • Ventilate by opening doors before entry • Test with multi-gas detector H₂S designated shelters with > 300 PPM in process streams before entry or have fixed H₂S detection system. • Vent (naturally or mechanically) H₂S designated shelters before entry and ensure exposures are below 10 PPM.
Drill Site Tank	<ul style="list-style-type: none"> • Equipped with weighted gauge hatches. • Vent lines to direct vapors downwind from tank battery. • Access ladders installed 90 degrees to the prevailing wind (east to west) on the tank battery. • Windsocks installed at each tank battery/farm.
Drill Site Tank Strapping with > 10 PPM atmospheric concentration	<ul style="list-style-type: none"> • Check H₂S concentration before each strap. • Record concentration on truck loading ticket. • Wear Air supplied breathing equipment (minimum 30-minute capacity). • Have trained back-up person with SCBA onsite.



WARNING: Known atmospheric H₂S concentrations of 100 PPM or greater are IDLH and not permitted for entry.

Portable and temporary occupied structures on H₂S designated areas

Requirements for portable and temporary occupied structures on H₂S designated areas:

- **Place** outside the IDLH radius of exposure. Unless ASH Variance is approved by Operations Field Manager.

If	Then
Temporary structure contains sleeping quarters	<p>Requires Fixed H₂S detection with:</p> <ul style="list-style-type: none"> • HVAC intakes tied into the camp evacuation alarm system. • combination visual and audible alarms. • system calibrated to alarm at 10 PPM and 50 PPM.