



INDUSTRIAL HYGIENE



Purpose

The purpose of this program is to define the monitoring requirements to ensure that Validus Energy employees work in a safe and healthy work environment.

Scope

This policy applies to all Validus Energy worksites and employees.

Process

Third party assessments will be conducted on Validus Energy employees to determine time weighted averages to noise and oil and gas related chemical hazards.

Assessments will be done on a representative sample of employees and repeated as necessary based on results or changing exposures.

Results will be communicated to affected employees and actions will be taken based on exposures identified.

Responsibilities

Leadership	Commit to, follow and reinforce the requirements set forth in this program. Provide sufficient resources for implementation.
Supervisors	Ensure Validus employees have the knowledge and skills to follow this program. Do not knowingly permit employees to be exposed to harmful chemicals.
EHS	Provide technical advice and resources to monitor compliance. Conduct training on this program and facilitate monitoring and training, as necessary.
Validus Employees	Follow the requirements of this program, participate in testing, and follow guidelines established.

Definitions

Permissible Exposure Limit (PEL) - is the level of exposure OSHA has established as the highest level of exposure an employee may be exposed to

Short Term Exposure Limit (STEL) - a 15-minute TWA exposure that should not be exceeded at any time during a workday

Threshold Limit Value (TLV) – guidelines developed by the American Conference of Governmental Industrial Hygienists (ACGIH) to assist in the control of health hazards.

Time Weighted Average (TWA) – the exposure averaged over a given period.



Policies

Exposure Monitoring

Potential exposures will be measured to determine if employees are required to participate in the Validus Energy Hearing Conservation program or if additional engineering controls or PPE are needed to protect against harmful chemicals.

Air sampling for contaminants will be performed in the breathing zone of workers to evaluate their exposure to toxic elements encountered during the production of oil and natural gas.

PELs and STELs are OSHA requirements and monitoring results will be compared to those limits for compliance. In some cases, the TLV will be used as a trigger for additional action.

Potential Exposures

Hydrocarbons – Care is taken to ensure that hydrocarbons remain in tanks and pipelines during the production process. Testing to determine exposure to total hydrocarbons will be conducted by collecting Short Term Exposure Samples and 8-hour Time Weighted Samples.

- PEL – 3500 PPM (8-hour TWA)
- STEL – 1000 PPM (15 Min)
- TLV – 1000 PPM

Benzene - is a natural part of crude oil that has been classified as a carcinogen. Testing to determine exposure to benzene will be conducted by collecting Short Term Exposure Samples and 8-hour Time Weighted Samples.

- PEL – 1 PPM (8-hour TWA)
- STEL – 5 PPM (15 Min)
- TLV – .02 PPM

Hydrogen Sulfide - can be a natural component of crude oil production and is immediately dangerous to life and health at 100 PPM. All Validus Energy employees wear personal monitors set to alarm at 10 PPM. Testing to determine exposure to Hydrogen Sulfide will be conducted by collecting Short Term Exposure Samples and 8-hour Time Weighted Samples.

- PEL – 20 PPM (8-hour TWA)
- STEL – 50 PPM (15 Min)
- TLV – 1 PPM



Occupational noise exposure - must be measured according to the Validus Energy Hearing Conservation program. Sampling will be done to determine if employees are exposed to an 8-hour TWA of 85 decibels which is the threshold for inclusion.

PEL – 90 dBA (8-hour TWA)

Training

Employees shall be trained on the requirements of this program and how to read sampling results.



Change Log

Date	Change (s) Made	Approved By
7/15/2024	Original Document	Justin Stone