



DEP\GIE\MLMD-18060

19 OCT 2010

Dr. Lee Hunt, President
International Association of Drilling Contractors
10370 Richmond Ave., Suite 760
Houston, Texas 77402

Dear Dr. Hunt:

Thank you for your April 12, 2010, letter to the Occupational Safety and Health Administration's (OSHA's) Directorate of Enforcement Programs (DEP). This letter constitutes OSHA's interpretation only of the requirements herein and may not be applicable to any question not detailed within your original correspondence. Your inquiry is in regard to your association's question and remarks pertaining to OSHA's Personal Protective Equipment rule at 29 CFR 1910.132(a). Your question relates to the use of flame resistant clothing (FRC) during oil and gas well drilling operations. Your letter's scenario and question are paraphrased below, followed by our response.

Scenario: The enforcement policy contained in the OSHA March 19, 2010 memorandum¹ on the use of flame resistant clothing (FRC) in oil and gas drilling, well servicing, and production-related operations contains a term – “active hydrocarbon zones”. This term is not used in the oil and gas drilling and servicing industries.

Question: The term “active hydrocarbon zones” is unclear and confusing to industry. Can OSHA explain how this term is used in the March 19, 2010 enforcement policy memorandum? Does the term apply only to kicks during normal overbalanced drilling operations or kicks after a formation has been perforated, after the producing zone has undergone fracturing procedures, or during well service/workover operations?

Response: The March 19, 2010 memorandum (memorandum) you refer to is an enforcement policy document intended for use by OSHA compliance officers (CSHO). It was provided to our CSHOs for clarification so they can evaluate the need for employers to provide and to require the use of FRC during certain drilling, well servicing, and production-related operations.

Flash fire hazards are inherent in the up and downstream oil industries, including your oil and

¹ Memorandum For: Regional Administrators; From: Richard E. Fairfax, Director, Directorate of Enforcement Programs and Steven Witt, Director, Directorate of Cooperative and State Programs; Subject: Enforcement Policy for Flame-Resistant Clothing in Oil and Gas Drilling, Well Servicing, and Production-Related Operations; March 19, 2010

gas well drilling industry. Control of these hazards is required by OSHA based on the workplace scenarios involved. For example, the *Process Safety Management* Standard (29 CFR 1910.119) is one standard that applies to petroleum refineries where the control of flash fires is imperative; the *Flammable and Combustible Liquid* Standard (29 CFR 1910.106) includes requirements to control flash fire hazards and applies to employers that store, use, and process these materials; and OSHA's 29 CFR Subpart I - *Personal Protective Equipment* (PPE) Standard, includes requirements for PPE that protect employees from hazards which include flash fires. Subpart I paragraph, 29 CFR 1910.132(a), states the following:

“Application. Protective equipment, including personal protective equipment for eyes, face, head, and extremities, **protective clothing**, respiratory devices, and protective shields and barriers, **shall be provided, used**, and maintained in a sanitary and reliable condition **wherever it is necessary by reason of hazards of processes** or environment, chemical hazards, radiological hazards, or mechanical irritants **encountered in a manner capable of causing injury or impairment in the function of any part of the body through** absorption, inhalation or **physical contact** [emphasis added to illustrate how this particular paragraph applies to FRC and flash fire hazards] ”.

The term “active hydrocarbon zones” you reference is related to drilling operations as stated in the subject memorandum's subsection entitled, “Drilling Operations”. In this subsection, two of the bulleted items (first and second), specifically include the terms “active hydrocarbon zones”, or “active gas or hydrocarbon zones”. The third bullet uses a related term, “underground producing zones”. OSHA's use of these terms in context of drilling operations is to require that employers provide, and require employees to use, FRC at the point where drilling operations have reached zones where prior history or current well conditions indicate that fluids or gas have been encountered, i.e., the drilling operation experiences a well kick or any other sign that the well will flow. The need for FRC when drilling operations reach active hydrocarbon zones is because, as the memorandum states on page 2, “[t]he potential for flash fires increases when the drilling process hits formations or zones of hydrocarbons and gas.”

The “zones” referred to in the above paragraph, include zones that the employer both intends to drill into or through, as well as unexpected zones. OSHA expects employees to wear FRC before drilling into these “identified” zones because once these zones are reached, a potential for flash fires exists. For unexpected zones, if current well conditions (e.g., gas showing in the return drilling mud, a gas kick, etc.) indicate that active gas or hydrocarbon zone(s) or underground producing zone(s) have been reached, employers must require employees on the well site to don their FRC immediately. Therefore, OSHA considers zones to be “identified” when either: 1) an employer intends to drill into or through them; and 2) any unexpected zones when current well conditions indicate that such zones have been reached.

Prior to commencing drilling, and as part of controlling hazards during these operations, employers must identify active gas or hydrocarbon and underground producing zones through research to determine the history of the field and well site to be drilled. OSHA, therefore, expects employers to be able to demonstrate their due diligence and performance in determining the history of the field and well site before they would have begun drilling.

The memorandum states the following:

“Where FRC is not being used by workers in these operations, a citation under 29 CFR 1910.132(a) requires evidence that the employer had actual notice of a need for protective equipment, or that a reasonable person familiar with the circumstances, such as facts unique to the industry, would have recognized a hazardous condition warranting the use of that equipment”.

NFPA 2113 is an applicable national consensus standard addressing among other issues, the use of FRC by industrial workers exposed to flash fire hazards. This NFPA standard provides guidance with respect to FRC and flash fire hazards, and may be used as evidence by OSHA that employers in the drilling, well-servicing and production-related industries should recognize workplace hazards related to flash fire(s) and use FRC as supplemental protection where there is a potential for this hazard.

When an employer conducts a hazard assessment (HA) per NFPA 2113, Chapter 4, or uses some other method to determine the need for wearing FRC as protection against flash fire hazards, OSHA CSHOs will evaluate the adequacy of the HA or other methods in determining whether to issue citations where employees are not provided with, or wearing FRC during drilling, well-servicing and production-related operations. OSHA expects employers' HAs or other methods used to determine the need for FRC to be comprehensive and robust. If an employer conducts a HA or uses some other method and determines that FRC will not be provided during these operations, the HA or other methods used should identify the underlying reasons/basis for the determination not to use FRC.

The employer must ensure the adequacy of the HA or other method used to determine the need for FRC to control flash fire hazards. The adequacy of the HA or other method used depends on a thorough (i.e., comprehensive and robust) consideration of all relevant factors including:

- the history of the field where the well is to be drilled has been thoroughly researched (Note: the absence of a release does not preclude the possibility that a release might occur);
- the type of well to be drilled, completed or serviced, e.g. gas, oil, low pressure, high pressure, etc.;
- types of work operations or activities to be conducted, such as those activities listed in the memorandum;
- the proximity of workers to locations where flammable materials may be released or accumulate (e.g., the well bore, shale-shaker, cellar, near an off-loading operation from a water/condensate tank to a vacuum truck, a small well-pad in a congested area, i.e., released flammable materials may not readily dissipate);
- all equipment and engineering controls associated with well control are adequately designed, installed, inspected, tested and maintained;
- all administrative controls (e.g., mud control procedures, BOP emergency actuation procedures, etc.) are adequately developed, implemented, audited, enforced and employees are trained on them;

Note, low probability-high consequence events can occur when engineering and administrative controls fail. The recent *Deep Water Horizon* off-shore drilling platform event resulted in a massive well blowout, explosion/fire resulting in the death of 11 workers, injuries to other workers and immense environmental damage. Even though several investigations are still on-going, preliminary findings show that a number of engineering and administrative controls failed leading to the incident.

- all potential ignition sources are identified, evaluated, and controlled;
- the potential for any task to be performed might increase the possibility of a flammable material release, e.g., hot work, opening equipment, etc.; and
- potential for human error

In conclusion, where the potential for flash fires hazards exists, failure to protect employees against such hazards, may result in a citation for violating 29 CFR 1910.132(a).

IADC participated in the last OSHA-Industry task group that analyzed fatality data related to oil and gas well drilling and servicing activities. IADC dropped out of the task group after the preliminary conclusions were formed and a decision was made by the task group to publish its findings. With respect to the need to reconvene the Industry-OSHA task group to conduct another fatality study, based on the recent history of fire and explosion incidents in oil and gas upstream operations we are not convinced that another study by a task group will result in other than marginal changes to the earlier study. Therefore, OSHA declines to participate in another resource intensive study. However, if Industry decides to conduct their own study, OSHA's Office of Statistics can provide fatality data from our IMIS data system for your study.

You have also stated in your letter that the task group's findings (listed in the OSHA-Industry published article² which is referenced in your letter and the March 19, 2010 Memorandum) do not accurately reflect worker fatalities related to drilling operations. The IADC, you may recall, participated on the task force during the phase of the study when the data was compiled, examined, and agreed to by all participants in the study. That data became the basis for the published article by the task group.

You noted IADC's disappointment that OSHA appears to have abandoned working through the Alliance Program. OSHA has not abandoned the Alliance Program and has an active Alliance between the OSHA, Region VI, Corpus Christi Area Office and STEPS (The South Texas Exploration and Production Safety Network), a group with many members in common with IDAC. In response to the Government Accountability Office's 2009 report, "OSHA's Voluntary Protection Programs: Improved Oversight and Controls Would Better Ensure Program Quality," OSHA committed to perform an evaluation of OSHA's cooperative programs including the Alliance Program. This review is complete, and Alliances which did not fall into OSHA's emphasis areas or were no longer producing tangible results have been concluded. As part of the review, OSHA has revised the Alliance Program participation criteria to ensure that each

² Upstream Onshore Oil and Gas Fatalities: A Review of OSHA's Database and Strategic Direction for Reducing Fatal Incidents, Curlee, Brouillard, Marshall, Knode, Smith; Society of Petroleum Engineers 994416, 2005

new/renewed Alliance will focus on the goals of the Administration and will develop projects and resources that support the agency's initiatives to ensure safe and secure workplaces and give workers a voice in the workplace.

Thank you for your interest in occupational safety and health. We hope you find this information helpful. OSHA requirements are set by statute, standards, and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <https://www.osha.gov>. If you have any further questions, please feel free to contact the Office of General Industry Enforcement at (202) 693-1850.

Sincerely,



FOR Thomas Galassi, Director
Directorate of Enforcement Programs