

Abengoa Mojave Solar 09-AFC-5

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Document Title: Occupational Safety and Health Administration – Fire Fighters’ Two-in/Two-out Regulation

The attached regulation requires that interior structural fire fighting procedures provide for at least two fire fighters inside the structure. Two fire fighters inside the structure must have direct visual or voice contact between each other and direct, voice or radio contact with fire fighters outside the structure. This section has been dubbed the fire fighters’ “two-in/two-out” regulation.

This regulation is being docketed by CEC staff as a reference for Worker Safety and Fire Protection for the Abengoa Mojave Solar project.



## United States Department of Labor Occupational Safety and Health Administration Fire Fighters' Two-in/Two-out Regulation

The federal Occupational Safety and Health Administration (OSHA) recently issued a revised standard regarding respiratory protection. Among other changes, the regulation now requires that interior structural fire fighting procedures provide for at least two fire fighters inside the structure. Two fire fighters inside the structure must have direct visual or voice contact between each other and direct, voice or radio contact with fire fighters outside the structure. This section has been dubbed the fire fighters' "two-in/two-out" regulation. The International Association of Fire Fighters and the International Association of Fire Chiefs are providing the following questions and answers to assist you in understanding the section of the regulation related to interior structural fire fighting.

### *1. What is the federal OSHA Respiratory Protection Standard?*

In 1971, federal OSHA adopted a respiratory protection standard requiring employers to establish and maintain a respiratory protection program for their respirator-wearing employees. The revised standard strengthens some requirements and eliminates duplicative requirements in other OSHA health standards.

The standard specifically addresses the use of respirators in immediately dangerous to life or health (IDLH) atmospheres, including interior structural fire fighting. OSHA defines structures that are involved in fire beyond the incipient stage as IDLH atmospheres. In these atmospheres, OSHA requires that personnel use self-contained breathing apparatus (SCBA), that a minimum of two fire fighters work as a team inside the structure, and that a minimum of two fire fighters be on standby outside the structure to provide assistance or perform rescue.

### *2. Why is this standard important to fire fighters?*

This standard, with its two-in/two-out provision, may be one of the most important safety advances for fire fighters in this decade. Too many fire fighters have died because of insufficient accountability and poor communications. The standard addresses both and leaves no doubt that two-in/two-out requirements must be followed for fire fighter safety and compliance with the law.

### 3. Which fire fighters are covered by the regulations?

The federal OSHA standard applies to all private sector workers engaged in fire fighting activities through industrial fire brigades, private incorporated fire companies (including the “employees” of incorporated volunteer companies and private fire departments contracting to public jurisdictions) and federal fire fighters. In 23 states and 2 territories, the state, not the federal government, has responsibility for enforcing worker health and safety regulations. These “state plan” states have earned the approval of federal OSHA to implement their own enforcement programs. These states must establish and maintain occupational safety and health programs for all public employees that are as effective as the programs for private sector employees. In addition, state safety and health regulations must be at least as stringent as federal OSHA regulations. Federal OSHA has no direct enforcement authority over state and local governments in states that do not have state OSHA plans.

All professional career fire fighters, whether state, county, or municipal, in any of the states or territories where an OSHA state plan agreement is in effect, have the protection of all federal OSHA health and safety standards, **including the new respirator standard and its requirements for fire fighting operations**. The following states have OSHA-approved plans and must enforce the two-in/two-out provision for all fire departments.

Alaska	Kentucky	North Carolina	Virginia
Arizona	Maryland	Oregon	Virgin Islands
California	Michigan	Puerto Rico	Washington
Connecticut	Minnesota	South Carolina	Wyoming
Hawaii	Nevada	Tennessee	
Indiana	New Mexico	Utah	
Iowa	New York	Vermont	

A number of other states have adopted, by reference, federal OSHA regulations for public employee fire fighters. These states include Florida, Illinois and Oklahoma. In these states, the regulations carry the force of state law.

Additionally, a number of states have adopted NFPA standards, including NFPA 1500, *Standard for Fire Department Occupational Safety and Health Program*. The 1997 edition of NFPA 1500 now includes requirements corresponding to OSHA’s respiratory protection regulation. Since the NFPA is a private consensus standards organization, its recommendations are preempted by OSHA regulations that are more stringent. In other words, the OSHA regulations are the minimum requirement where they are legally applicable. There is nothing in federal regulations that “deem compliance” with any consensus standards, including NFPA standards, if the consensus standards are less stringent.

It is unfortunate that all U.S. and Canadian fire fighters are not covered by the OSHA respiratory protection standard. However, we must consider the two-in/two-out requirements to be the minimum acceptable standard for safe fire ground operations for all fire fighters when self-contained breathing apparatus is used.

*4. When are two-in/two-out procedures required for fire fighters?*

OSHA states that “once fire fighters begin the interior attack on an interior structural fire, the atmosphere is assumed to be IDLH and paragraph **29 CFR 1910.134(g)(4)** [two-in/two-out] applies.” OSHA defines interior structural fire fighting “as the physical activity of fire suppression, rescue or both inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage.” OSHA further defines an incipient stage fire in **29 CFR 1910.155(c)(26)** as a “fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.” Any structural fire beyond incipient stage is considered to be an IDLH atmosphere by OSHA.

*5. What respiratory protection is required for interior structural fire fighting?*

OSHA requires that all fire fighters engaged in interior structural fire fighting must wear SCBAs. SCBAs must be NIOSH-certified, positive pressure, with a minimum duration of 30 minutes. [**29 CFR 1910.156(f)(1)(ii)**] and [**29 CFR 1910.134(g)(4)(iii)**]

*6. Are all fire fighters performing interior structural fire fighting operations required to operate in a buddy system with two or more personnel?*

Yes. OSHA clearly requires that all workers engaged in interior structural fire fighting operations beyond the incipient stage use SCBA and work in teams of two or more. [**29 CFR 1910.134(g)(4)(i)**]

*7. Are fire fighters in the interior of the structure required to be in direct contact with one another?*

Yes. Fire fighters operating in the interior of the structure must operate in a buddy system and maintain voice or visual contact with one another at all times. This assists in assuring accountability within the team. [**29 CFR 1910.134(g)(4)(i)**]

*8. Can radios or other means of electronic contact be substituted for visual or voice contact, allowing fire fighters in an interior structural fire to separate from their “buddy” or “buddies”?*

No. Due to the potential of mechanical failure or reception failure of electronic communication devices, radio contact is not acceptable to replace visual or voice contact between the members of the “buddy system” team. Also, the individual needing rescue may not be physically able to operate an electronic device to alert other members of the interior team that assistance is needed.

Radios can and should be used for communications on the fire ground, including communications between the interior fire fighter team(s) and exterior fire fighters. They cannot, however, be the sole tool for accounting for one's partner in the interior of a structural fire. **[29 CFR 1910.134(g)(4)(i)] [29 CFR 1910.134(g)(3)(ii)]**

*9. Are fire fighters required to be present outside the structural fire prior to a team entering and during the team's work in the hazard area?*

Yes. OSHA requires at least one team of two or more properly equipped and trained fire fighters be present outside the structure before any team(s) of fire fighters enter the structural fire. This requirement is intended to assure that the team outside the structure has the training, clothing and equipment to protect themselves and, if necessary, safely and effectively rescue fire fighters inside the structure. For high-rise operations, the team(s) would be staged below the IDLH atmosphere. **[29 CFR 1910.134(g)(3)(iii)]**

*10. Do these regulations mean that, at a minimum, four individuals are required, that is, two individuals working as a team in the interior of the structural fire and two individuals outside the structure for assistance or rescue?*

Yes. OSHA requires that a minimum of two individuals, operating as a team in direct voice or visual contact, conduct interior fire fighting operations utilizing SCBA. In addition, a minimum of two individuals who are properly equipped and trained must be positioned outside the IDLH atmosphere, account for the interior team(s) and remain capable of rapid rescue of the interior team. The outside personnel must at all times account for and be available to assist or rescue members of the interior team. **[29 CFR 1910.134(g)(4)]**

*11. Does OSHA permit the two individuals outside the hazard area to be engaged in other activities, such as incident command or fire apparatus operation (for example, pump or aerial operators)?*

OSHA requires that one of the two outside person's function is to account for and, if necessary, initiate a fire fighter rescue. Aside from this individual dedicated to tracking interior personnel, the other designated person(s) is permitted to take on other roles, such as incident commander in charge of the emergency incident, safety officer or equipment operator. However, the other designated outside person(s) cannot be assigned tasks that are critical to the safety and health of any other employee working at the incident.

Any task that the outside fire fighter(s) performs while in standby rescue status must not interfere with the responsibility to account for those individuals in the hazard area. Any task, evolution, duty, or function being performed by the standby individual(s) must be such that the work can be abandoned, without placing any employee at additional risk, if rescue or other assistance is needed. **[29 CFR 1910.134(g)(4)(Note 1)]**

*12. If a rescue operation is necessary, must the buddy system be maintained while entering the interior structural fire?*

Yes. Any entry into an interior structural fire beyond the incipient stage, regardless of the reason, must be made in teams of two or more individuals. [29 CFR 1910.134(g)(4)(i)]

*13. Do the regulations require two individuals outside for **each** team of individuals operating in the interior of a structural fire?*

The regulations do not require a separate “two-out” team for each team operating in the structure. However, if the incident escalates, if accountability cannot be properly maintained from a single exposure, or if rapid rescue becomes infeasible, additional outside crews must be added. For example, if the involved structure is large enough to require entry at different locations or levels, additional “two-out” teams would be required. [29 CFR 1910.134(g)(4)]

*14. If four fire fighters are on the scene of an interior structural fire, is it permissible to enter the structure with a team of two?*

OSHA's respiratory protection standard is not about counting heads. Rather, it dictates functions of fire fighters prior to an interior attack. The entry team must consist of at least two individuals. Of the two fire fighters outside, one must perform accountability functions and be immediately available for fire fighter rescue. As explained above, the other may perform other tasks, as long as those tasks do not interfere with the accountability functions and can be abandoned to perform fire fighter rescue. Depending on the operating procedures of the fire department, more than four individuals may be required. [29 CFR 1910.134(g)(4)(i)]

*15. Does OSHA recognize any exceptions to this regulation?*

OSHA regulations recognize deviations to regulations in an emergency operation where immediate action is necessary to save a life. For fire department employers, initial attack operations must be organized to ensure that adequate personnel are at the emergency scene prior to any interior attack at a structural fire. If initial attack personnel find a **known** life-hazard situation where immediate action could prevent the loss of life, deviation from the two-in/two-out standard may be permitted, as an exception to the fire department's organizational plan.

However, such deviations from the regulations must be **exceptions** and not defacto standard practices. In fact, OSHA may still issue “de minimis” citations for such deviations from the standard, meaning that the citation will not require monetary penalties or corrective action. The exception is for a known life rescue only, not for standard search and rescue activities. When the exception becomes the practice, OSHA citations are authorized. [29 CFR 1910.134(g)(4)(Note 2)]

*16. Does OSHA require employer notification prior to any rescue by the outside personnel?*

Yes. OSHA requires the fire department or fire department designee (i.e. incident commander) be notified prior to any rescue of fire fighters operating in an IDLH atmosphere. The fire department would have to provide any additional assistance appropriate to the emergency, including the notification of on-scene personnel and incoming units. Additionally, any such actions taken in accordance with the "exception" provision should be thoroughly investigated by the fire department with a written report submitted to the Fire Chief. **[29 CFR 1910.134(g)(3)(iv)]**

*17. How do the regulations affect fire fighters entering a hazardous environment that is not an interior structural fire?*

Fire fighters must adhere to the two-in/two-out regulations for other emergency response operations in any IDLH, potential IDLH, or unknown atmosphere. OSHA permits one standby person **only** in those IDLH environments in fixed workplaces, not fire emergency situations. Such sites, in normal operating conditions, contain only hazards that are known, well characterized, and well controlled. **[29 CFR 1910.120(q)(3)(vi)]**

*18. When is the new regulation effective?*

The revised OSHA respiratory protection standard was released by the Department of Labor and published in the Federal Register on January 8, 1998. It is effective on April 8, 1998.

"State Plan" states have six months from the release date to implement and enforce the new regulations.

Until the April 8 effective date, earlier requirements for two-in/two-out are in effect. The formal interpretation and compliance memo issued by James W. Stanley, Deputy Assistant Secretary of Labor, on May 1, 1995 and the compliance memo issued by Assistant Secretary of Labor Joe Dear on July 30, 1996 establish that OSHA interprets the earlier 1971 regulation as requiring two-in/two-out. **[29 CFR 1910.134(n)(1)]**

*19. How does a fire department demonstrate compliance with the regulations?*

Fire departments must develop and implement standard operating procedures addressing fire ground operations and the two-in/two-out procedures to demonstrate compliance. Fire department training programs must ensure that fire fighters understand and implement appropriate two-in/two-out procedures. **[29 CFR 1910.134(c)]**

## *20. What can be done if the fire department does not comply?*

Federal OSHA and approved state plan states must “.. assure so far as possible every working man and woman in the Nation safe and healthful working conditions.” To ensure such protection, federal OSHA and states with approved state plans are authorized to enforce safety and health standards. These agencies must investigate complaints and conduct inspections to make sure that specific standards are met and that the workplace is generally free from recognized hazards likely to cause death or serious physical harm.

Federal OSHA and state occupational safety and health agencies must investigate written complaints signed by current employees or their representatives regarding hazards that threaten serious physical harm to workers. By law, federal and state OSHA agencies do not reveal the name of the person filing the complaint, if he or she so requests. Complaints regarding imminent danger are investigated even if they are unsigned or anonymous. For all other complaints (from other than a current employee, or unsigned, or anonymous), the agency may send a letter to the employer describing the complaint and requesting a response. It is important that an OSHA (either federal or state) complaint be in writing.

When an OSHA inspector arrives, he or she displays official credentials and asks to see the employer. The inspector explains the nature of the visit, the scope of the inspection and applicable standards. A copy of any employee complaint (edited, if requested, to conceal the employee’s identity) is available to the employer. An employer representative may accompany the inspector during the inspection. An authorized representative of the employees, if any, also has the right to participate in the inspection. The inspector may review records, collect information and view work sites. The inspector may also interview employees in private for additional information. Federal law prohibits discrimination in any form by employers against workers because of anything that workers say or show the inspector during the inspection or for any other OSHA protected safety-related activity.

Investigations of imminent danger situations have top priority. An imminent danger is a hazard that could cause death or serious physical harm immediately, or before the danger can be eliminated through normal enforcement procedures. Because of the hazardous and unpredictable nature of the fire ground, a fire department’s failure to comply with the two-in/two-out requirements creates an imminent danger and the agency receiving a related complaint must provide an immediate response. If inspectors find imminent danger conditions, they will ask for immediate voluntary correction of the hazard by the employer or removal of endangered employees from the area. If an employer fails to do so, federal OSHA can go to federal district court to force the employer to comply. State occupational safety and health agencies rely on state courts for similar authority.

Federal and state OSHA agencies are required by law to issue citations for violations of safety and health standards. The agencies are not permitted to issue warnings. Citations include a description of the violation, the proposed penalty (if any), and the date by which the hazard must be corrected. Citations must be posted in the workplace to inform employees about the violation and the corrective action. **[29 CFR 1903.3(a)]**



It is important for labor and management to know that this regulation can also be used as evidence of industry standards and feasibility in arbitration and grievance hearings on fire fighter safety, as well as in other civil or criminal legal proceedings involving injury or death where the cause can be attributed to employer failure to implement two-in/two-out procedures. Regardless of OSHA's enforcement authority, this federal regulation links fire ground operations with fire fighter safety.

*21. What can be done if a fire fighter does not comply with fire department operating procedures for two-in/two-out?*

Fire departments must amend any existing policies and operational procedures to address the two-in/two-out regulations and develop clear protocols and reporting procedures for deviations from these fire department policies and procedures . Any individual violating this safety regulation should face appropriate departmental action.

*22. How can I obtain additional information regarding the OSHA respirator standard and the two-in/two-out provision?*

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