November 10, 2017

Response to OHSA December 12, 2012 Letter of Interpretation (LOI)

For over a decade, thousands of users have deployed SafeSide® Permanent Electrical Safety Devices (PESDs) in order to reduce their risks in isolating electrical energy. This elegantly simple innovation greatly reduced the likelihood of workers exposure as they re-confirmed 'zero voltage' during absence of voltage testing. This December 12, 2012 OSHA Letter of Interpretation (LOI) addresses compliance questions around voltage indicating devices. The users of SafeSide® PESDs will appreciate that the context of the quoted statement on page 2, paragraph 11 of OSHA's LOI taken from OSHA's Compliance Directive "The Control of Hazardous Energy – Enforcement Policy and Inspection Procedures" (CPL 02-00-147 page 3-52) makes a strong statement about the benefits and need for visual verifications for reducing risks for workers when isolating electrical energy. Remember that compliance does not necessarily mean that a worker is exposed to the lowest possible risk. In summary, this letter restates that presence-of-voltage indicators cannot be the sole means for isolating electrical energy in Lockout/Tagout (LOTO). Consider these key points:

- REM Safety Consultants drafted this for a large pulp and paper company. Their compelling question to OSHA was "how does an authorized employee verify that an electrically safe work condition exists without exposing himself/herself to the electrical hazards inside the energy control device?" Direct exposure of electrical energy is a high risk.
- An OSHA LOI only explains what compliance means in application specific situations without commenting on new technologies that go beyond compliance; in this case adding voltage indicators to disconnect switches. *"Our letters of interpretation do not create new or additional requirements but rather explain these requirements and how they apply to particular circumstances. This letter constitutes OSHA's interpretation of the requirements discussed. From time to time, letters are affected when the Agency updates a standard, a legal decision impacts a standard, or changes in technology affect the interpretation."*
- This letter is not specific to Grace SafeSide® voltage indicators even though many of us know that this pulp & paper company uses SafeSide® voltage indicators in their LOTO in most of their plants. The REM Safety Consultants letters (attached) has no reference to Grace SafeSide® indicators. OSHA's response, uses a broad definition for "LED type indication unit", which could apply to almost any non-labeled, non-listed, and sub-standard non-UL LED circuits--most of which would not survive long in an industrial environment.
- OSHA did not call an "LED type indicating device" a test instrument. In this case the NFPA 70E 110.4(B) test instrument rating definition applies, which requires a minimum of a UL 61010-1 certification. At the time of this letter was released, no "LED type indicating device" on the

market was ever certified to UL 61010-1. The Grace SafeSide® R-3W2 received a UL-61010-1 CAT III (1000V)/CAT IV (600V) certification just as this letter was released. Perhaps this might have influenced the language of the letter?

- The sentence quoted from OSHA Compliance Directive CPL 02-00-147 (paragraph.11 of the letter) needs to be read in the context of the entire paragraph. Lastly, the letter simply restates the requirement for the "bump test" as well as "additional verifications" to insure a de-energized state as per 1910.147 and the "voltmeter test" as per 1910.333.

What is an LED-Type Indicating Unit?

OSHA's broad definition of an "LED-type indicating unit" applies to virtually any voltage indicating circuit that meets these vague requirements of footnote 1, which says that an LED-type indicating unit is: field installed, has four leads and redundant LEDs that provides indication functionality for L1, L2, L3, GND. Imagine a facility putting an entire power distribution system at risk by installing non-labeled, non-listed, and sub-standard "LED-type indicating units" on their isolators, not to mention their liability if these devices were also deployed in LOTO. Here is a better definition:

- UL Certified and rated as a voltage presence devices suitable for use on power distribution equipment with a minimum CAT III (1000V) & CAT IV (600V).
- 3-phase or 4-phase (delta-wye with neutral) device and ground.
- Permanently wired to each phase and ground, therefore not susceptible to damage, wrong settings, and human error like a portable voltmeter.
- Ability to indicate both AC and DC voltages simultaneously with high impedance redundant circuitry.
- Self-powered from the voltage source, thereby requiring no batteries or a power supply.
- Operate on wide voltage and frequency range from 14.5VAC/VDC to 750AC/1000VDC in 50/60/400 HZ Robust reliability record exceeding one failure in 10million hours of operation, which is the reliability requirements for a UL absence of voltage tester.
- Insignificant ground leakage current under normal operation.[1]

Realizing that a failure mode of a voltage indicator is a phase-to-ground or phase-to-phase short circuit, a poorly designed voltage indicator circuitry puts an entire power distribution system at risk. A voltage indicator has to be hardwired between all three phases and ground to provide phase voltage indication. Therefore, the voltage indicator circuitry inherently provides a fault path between phases and ground through the device. This is why voltage testing instruments, or in this case a voltage indicator, should be surge tested for use in power distribution (CAT IV), panel boards and motor

[1] With voltage indicators installed on hundreds of isolators in a facility, the accumulation of ground leakage current for each installed device could adversely affect the grounding system. Under typical operating conditions, a SafeSide® voltage indicator has less than 60μAmps of ground leakage current.

control (CAT III) applications, which is part of the UL 61010-1 approval. A voltage indicator must be able to withstand 8000V impulse testing in order to receive a 600V CAT IV certification. Few voltage indication circuits would pass this stringent surge testing and be able to carry a UL and CAT III/IV mark on the device

The Context of Compliance Directive CPL 02-00-147

The three quotes listed below are from the same paragraph that is quoted in the letter on page 2. This context actually makes a case for alerting devices like a voltage indicator in LOTO. The last quote reiterates that each situation is unique and may require several energy detection methods.

- "…in the majority of situations, visual inspection techniques must be accompanied by physical tests to ensure that the steps taken to isolate hazardous energy have worked successfully."
- "…in order to reliably ascertain whether hazardous energy has been effectively isolated; the authorized employee generally will need to use a combination of visual inspection techniques and other detection methods."
- "The appropriate combination of verification methods will depend upon the types of machinery or equipment involved, the complexity of the system, and other factors."

The directive also states that in situations where only visual verification of energy isolation is used, the CSHOs should determine the adequacy, effectivity and properly document the verification process. Any citations based on the inadequacy of the visual verification techniques should be discussed with the OSHA Regional Office and Solicitor's Office. Below might be a typical LOTO procedure to lockout a typical motor control center bucket with a voltage indicator installed connected to a fan or pump.

1) Validates and document proper installation of the Voltage Indicator [Visual Inspection] [Physical Test].
2) Verify Voltage Indicator is functioning properly [Visual Inspection]
3) Operate the disconnect handle to the off position [Visual Inspection]
4) Verify the stored electrical energy is dissipated [Visual Inspection]
5) Verify Voltage Indicator is off [Visual Inspection]
6) Apply lock to disconnect handle.
7) Try to operate the handle [Physical Test]
8) Ascertain if the correct equipment has been isolated [Other Detection Method]
9) Attempt to restart the equipment [Restart Attempt]

CONCLUSION

Voltage indicators installed on isolators also brought an unexpected safety dividend to electrical LOTO by increasing the likelihood that workers are exposed only to zero voltage when they perform the

OSHA required absence of voltage test with their voltmeter. Over the past decade, voltage indicators amassed a stellar reliability record of over 100 years mean time between failure, which essentially makes it statistically improbable for a simultaneous failure of both the voltage indicator and isolator to occur. Even at abnormally high failure rates; Isolator at 0.1% (1 failure per 1000 units) and the SafeSide® of 0.01% (1 in 10,000 units) then the simultaneous failure rate would be (0.001)*(0.0001) or 1 failure in 10 million units, which is the reliability standard for a SIL-3 system. An electrically safe work condition can neither be created nor maintained without a functioning isolator, which means that the inclusion of a voltage indicator only increases the safety efficacy for workers creating an electrically safe work condition by identifying failed isolators.

Disclaimer: *The views and opinions expressed in this article are those of the authors, based on the latest technologies and trends in the electrical safety industry, and do not necessarily reflect the official policy or position of the Occupational Health and Safety Administration (OSHA). This document is for informational purposes only and shall not be construed as a legal interpretation of OSHA regulations.*

Standard Letter of Interpretation (LOI) & Instruction Directive References (attached):

1. LOI: Whether an LED-Type Device Can Be Used for the Isolation and Deenergization Verification Requirements of 1910.147 & 1910.333
    a. https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=28829
2. OSHA Instruction Directive: The Control of Hazardous Energy – Enforcement Policy & Inspection Procedures
    https://www.osha.gov/OshDoc/Directive_pdf/CPL_02-00-147.pdf

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U.S. Department of Labor

Occupational Safety and Health Administration
Washington, D.C. 20210

DEC 12 2012

Reply to the attention of: DEP/GIAE/RI/19936

Mr. Ralph Mosely
REM Safety Consultants, Inc.
3963 South Highway 97, Ste #317
Sandy Springs, Oklahoma 74063

Dear Mr. Mosely:

Thank you for your November 11, 2011, letter to the Occupational Safety and Health Administration's (OSHA's) Directorate of Enforcement Programs (DEP). You asked questions about OSHA's general industry requirements for the control of hazardous energy. We apologize for the delay in responding.

This letter constitutes OSHA's interpretation only of the requirements discussed and may not be applicable to any question not delineated within your original and subsequent correspondence and communications. For brevity, we combined and paraphrased your scenarios and questions; our replies follow.

Background: Your letter inquires about the use of light-emitting-diode (LED) type devices for the purpose of meeting the verification requirements for lockout-tagout procedures under OSHA's general industry standards. You indicated that the device is intended to be field installed and hardwired (connected) to the disconnecting (isolating; that is, the disconnect switch or circuit breaker) device that serves to lock out or tag out the machine. You stated that the LED device is connected to the disconnecting device such that it should illuminate when any individual phase is energized.[1]

Further, your letter proposes using these devices as part of the lockout-tagout requirements under two distinctively different work situations and two distinctively different work-practice standards: 29 CFR 1910.147 and 29 CFR Part 1910, Subpart S. Lockout or tagout under 29 CFR 1910.147 "covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy, could harm employees." (See §1910.147(a)(1)(i).) However, that standard does not apply if an employee is exposed "to electrical hazards from work on, near, or with conductors or equipment in electric-utilization installations, which is covered by Subpart S." (See §1910.147(a)(1)(ii)(D).)

Lockout and tagging under 29 CFR Part 1910, Subpart S covers employee exposure to "contact with parts of fixed electric equipment or circuits which have been deenergized." (See the introductory text to §1910.333(b)(2).) Consequently, Subpart S generally covers employee exposure to electrical hazards during servicing and maintenance, and

[1] The LED-type indicating unit has four leads coming out of it; three leads are connected at the respective phases (or poles) of the disconnecting (isolating) device, and the fourth lead is connected to neutral or ground. A redundant set of LEDs is provided for each indicated function—L1, L2, L3, and GND.

§1910.147 generally covers exposure to nonelectrical hazards associated with the unexpected energization or start up of the machines or equipment, or release of stored energy.

Question 1: Can the type of device described above be used to verify that isolation and deenergization of the machine or equipment have been accomplished under 29 CFR 1910.147(d)(6)? [2]

Response: No. However, the type of device that you describe, if installed correctly and maintained, might serve only as a redundant indicator that the disconnecting device is in the open ("off") position.

After locking out (or tagging out) the equipment, after controlling any potentially hazardous stored energy, and prior to starting any servicing or maintenance work, an authorized employee must verify that isolation and deenergization of the machine or equipment have been accomplished (29 CFR 1910.147(d)(6)).

In paragraph (d)(6) of 29 CFR 1910.147, the sixth step of the energy control procedure, the authorized employee must ensure the previous steps of the procedure were taken to isolate the machine or equipment effectively. Prior to starting the servicing or maintenance work, the authorized employee needs to walk down the points of isolation; that is, verify that the machine or equipment is turned off or shut down properly (29 CFR 1910.147(d)(2)); that all energy isolating devices are identified, located, and operated (29 CFR 1910.147(d)(3)); that the lockout or tagout devices are attached to energy isolating devices (29 CFR 1910.147(d)(4)); and that stored energy has been rendered safe (29 CFR 1910.147(d)(5)).

The verification provision of paragraph (d)(6) of 29 CFR 1910.147 requires an affirmative step on the part of an authorized employee to determine if the hazardous energy is effectively isolated, and relying solely on the LED device would not satisfy this requirement. One effective method of compliance would be a deliberate attempt by an authorized employee to start up the equipment, which should not be capable of activation because of the application of the energy control devices. This is an action intended to assure the employee that energy from the main power source has been effectively isolated, that residual or stored energy has been blocked, and that injury could not result from inadvertent activation of the operating controls.

OSHA's Compliance Directive CPL 02-00-147 for the Control of Hazardous Energy explains that, "in most cases, it is *only through the use of a test instrument* [by a "qualified employee" under 29 CFR Part 1910, Subpart S] *or a deliberate attempt to start-up a machine* that the authorized employee will be able to ascertain whether the steps taken to isolate hazardous energy (which were checked through visual inspection techniques [for example, by verifying the position of a disconnect switch handle or that

[2] Section 1910.147(d)(6), *Verification of isolation*, requires that "[p]rior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and deenergization of the machine or equipment have been accomplished."

all motion has stopped and that all coasting parts such as flywheels, grinding wheels, saw blades, etc. have come to rest.]) actually worked to isolate the energy from the machine."[3] [Emphasis added.] The use of a test instrument is particularly applicable for verifying isolation and deenergization in the case of jammed equipment as you also asked about in a telephone communication with an OSHA representative.

Question 2: Can the type of device described above be used to meet the lockout and tagging 29 CFR Part 1910, Subpart S requirements under 1910.333(b)(2)(iv)(B)?[4]

Response: No. However, the type of device that you describe, if installed correctly and maintained, might serve as only a redundant indicator that the disconnecting device is in the open ("off") position.

Lockout and tagout under 29 CFR Part 1910, Subpart S requires that conductors and parts of electric equipment that have been deenergized, but have not been locked and tagged out in accordance with 29 CFR 1910.333(b) by a qualified employee, must be treated as energized parts. Under 29 CFR 1910.333(b)(2)(iv)(B), a qualified employee must use test equipment to test *all* circuit elements and parts to which employees will be exposed and verify the circuit elements and parts *are deenergized.*

Regarding verifying deenergization, OSHA's Compliance Directive CPL 02-00-147 for the Control of Hazardous Energy explains that "*a qualified person must use test equipment* to verify de-energization by testing the electric circuit elements and equipment parts to which employees will be exposed," and that "[a] test is also required to *check for any voltage even though specific parts of a circuit have been deenergized and presumed safe because it is possible, under certain conditions, to feed circuits from the load side (e.g., back-feed; short circuit) or to have induced voltage.*"[5] [Emphasis added.] The device that you describe does not meet the requirements of the standard to provide that assurance.

Question 3: Could an employee, who may or may not be a qualified person (under 29 CFR Part 1910, Subpart S), use the LED-type devices and implement the detailed sequential procedure that was included in your initial correspondence to verify that any circuit elements and equipment are deenergized before an employee, who may or may not be a qualified person, works on or near them?

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[3] See page 3-52 at: http://www.osha.gov/OshDoc/Directive_pdf/CPL_02-00-147.pdf.

[4] 29 CFR 1910.333(b)(2)(iv)(B) requires: "A qualified person shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that the circuit elements and equipment parts are deenergized. The test shall also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment shall be checked for proper operation immediately after this test."

[5] idem.

Response: No. Under 29 CFR 1910.333(b)(2)(iv)(B), a qualified person must use test equipment to test the circuit elements and parts of electric equipment to which employees will be exposed and verify that they are deenergized.

This test must determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe; that is, the qualified person must determine that the electric circuit elements and equipment parts are at a zero-energy (zero volts) state. In this regard, the LED-type alerting devices are not test equipment. In addition, §1910.333(b)(2)(iv)(B) generally does not permit testing a circuit at a point remote from the circuit elements and equipment parts to which the employee will be exposed. This provision protects employees in the event that the wrong circuit is deenergized or the employee works on the wrong circuit—one that is not deenergized.

Question 4: Is there an option to use a different verification procedure other than the procedure specified under 29 CFR 1910.333(b)(2)(iv)(B)?

Response: No. As explained in Note 2 to 29 CFR 1910.333(b)(2), "[l]ockout and tagging procedures that comply with paragraphs (c) through (f) of 1910.147 will also be deemed to comply with paragraph (b)(2) of this section provided that: [1] The procedures address the electrical safety hazards covered by this Subpart; and [2] The procedures also incorporate the requirements of paragraphs (b)(2)(iii)(D) and (b)(2)(iv)(B) of [section 29 CFR 1910.333]."

Thank you for your interest in occupational safety and health. We hope you find this information helpful. OSHA's requirements are set by statute, standards, and regulations. Our letters of interpretation do not create new or additional requirements but rather explain these requirements and how they apply to particular circumstances. This letter constitutes OSHA's interpretation of the requirements discussed. From time to time, letters are affected when the Agency updates a standard, a legal decision impacts a standard, or changes in technology affect the interpretation. To assure that you are using the correct information and guidance, please consult OSHA's website at http://www.osha.gov. If you have further questions, please feel free to contact the Directorate of Enforcement Programs at (202) 693-2100.

Sincerely,

Thomas Galassi

Thomas Galassi, Director
Directorate of Enforcement Programs

U.S. Department of Labor

Occupational Safety and Health Administration
Washington, D.C. 20210

Reply to the attention of:

SEP 6 2016

Mr. Philip Allen
Grace Engineered Products, Inc.
1515 E. Kimberly Road
Davenport, IA 52807

Dear Mr. Allen:

This letter is in response to your August 8, 2016, Freedom of Information Act (FOIA) request, which was referred to the Occupational Safety and Health Administration's (OSHA) Directorate of Enforcement Programs (DEP) for response. Your request was assigned FOIA tracking number 811363. Please reference this number in any future correspondence regarding this request.

You requested a **"copy of the original request letter written on November 11, 2011, by Mr. Ralph Mosely of REM Safety Consultants, Inc. 3963 South Highway 97, Ste. #317 Sandy Springs, Oklahoma 74063."**

A reasonable search performed by DEP identified two documents as responsive to your request:

- November 11, 2011 – Ralph E. Mosely letter to Robert Isiminger
- November 11, 2010 – Ralph E. Mosely letter to Richard E. Fairfax

For your information, we have enclosed Mr. Mosely's November 11, 2010 letter, as it is referenced in his November 11, 2011 letter.

You have the right to appeal this decision with the Solicitor of Labor within 90 days from the date of this letter. The appeal must state, in writing, the grounds for the appeal, including any supporting statements or arguments. The appeal should also include a copy of your initial request and a copy of this letter.

If you appeal, you may mail your appeal to: Solicitor of Labor, U.S. Department of Labor, Room N-2420, 200 Constitution Avenue, N.W., Washington, D.C. 20210. Alternatively, you may email your appeal to foiaappeal@dol.gov, or fax your appeal to (202) 693-5538. The envelope (if mailed), cover email (if emailed), or fax cover sheet (if faxed), *and* the letter indicating the

grounds for appeal, should be clearly marked: "Freedom of Information Act Appeal." If we can be of further assistance, please feel free to contact DEP at (202) 693-2100.

Sincerely,

for Thomas Galassi, Director
Directorate of Enforcement Programs

Enclosures

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November 11, 2010

RE: Request for Interpretation of OSHA Lockout/tagout Requirements

Mr. Richard E. Fairfax, Director
Directorate of Enforcement Programs
U.S. Department of Labor, OSHA
200 Constitution Avenue, NW, RM N-3119
Washington, DC 20210

Dear Mr. Fairfax:

Several of my clients have asked the same question regarding compliance with a specific situation involving OSHA's Control of Hazardous Energy (Lockout/Tagout) standards, OSHA's Electrical standards, and NFPA 70E. We realize that OSHA has not adopted the latest version of NFPA 70E, but since NFPA 70E-1983 was used in the development of the Subpart S standards, and the 1910.333 wording comes from that NFPA standard, our question is relevant. We are hereby requesting guidance from your Directorate so that we may properly comply with the OSHA standards involved.

Central Issue: *When an "authorized employee" properly locks out energy sources (for example, an electrical disconnect for a machine), in order to perform work on that machine that does not involve exposure to or contact with electrical sources or conductors, how does that authorized employee verify that an electrically safe work condition exists without exposing himself/herself to the electrical hazards inside the energy control device?*

There is specific language in several OSHA standards (and in NFPA 70E) that requires actions that seem at conflict with one another. Please note the references from the respective standards below in the following scenario, which is performed by two different persons with different qualifications:

Situation 1) A lockout situation where authorized employees (but not necessarily a qualified electrician) may be primarily exposed to mechanical hazards that are driven by electrically driven motors and other devices. We believe the requirement in the lockout procedure to be followed is described in 1910.147(c)(4)(ii)(D), which is not specific, but a "performance standard":

"Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures."

This OSHA standard appears to allow the authorized person, operating in accordance with his employer and the machine-specific lockout procedures to use a company-approved method for "verifying the effectiveness of the lockout devices". It also appears to us that since this is a performance standard, a method that allows "visual verification" without opening the energy control box would be allowed.

Question #1: For Situation 1 described above, is a method that allows "visual verification" without opening the energy control box in compliance with OSHA requirements ?

Situation 2) A lockout situation where qualified electricians or other similar employees who are qualified under 1910.333 and NFPA 70E training requirements are performing tasks on the electrical system itself which we believe is described in 1910.333(b)(2)(iv)(B):

"A qualified person shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that the circuit elements and equipment parts are deenergized. The test shall also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment shall be checked for proper operation immediately after this test."

This standard describes the specific method that the qualified electrician is to use to verify a deenergized state; "...use test equipment to test the circuit elements.... and shall verify that the circuit elements and equipment parts are deenergized." This is understandable because the qualified electrician has specialized training and equipment to perform this task. This appears to require a very specific procedure and equipment by a qualified electrician which does not allow an optional verification methodology.

Question #2: For Situation 2 above, is there an option to use a different verification technique (one scenario is described on p. 3 and 4) other than the specific procedure contained in the regulation?

Situation 3) The description of requirements for establishing an electrically safe work condition as contained in **NFPA 70E** section 120.1(5) states:

"Use an adequately rated voltage detector to test each phase conductor or open circuit part to verify that are deenergized. Test each phase conductor or circuit part both phase to phase and phase to ground. Before and after each test, determine that the voltage detector is operating satisfactorily."

This again seems to apply to a qualified electrician and does not give room for optional verification methods.

Question #3: For Situation 3 above, is there an option to use a different verification technique (one scenario is described on p. 3 and 4) other than the specific procedure contained in the NFPA requirement as it relates to OSHA requirements?

Situation 4) The Principles of Lockout/tagout Execution contained in NFPA section 120.2(B)(6) state: *"Voltage shall be removed and absence of voltage verified."*

This is not specific but it seems to fall under procedures that are listed for activities that only qualified electricians may perform.

Question #4: Is the assumption correct that only qualified electricians would perform this verification or is there an option that employer might be permitted in the scenario described on pages 3-4 below to fulfill this NFPA requirement as it related to OSHA requirements?

Different personnel would typically be involved in Situations 2, 3, and 4 above as compared to Situation 1. Situations 2, 3, and 4 would normally involved qualified electricians whereas Situation 1 would normally involve an "authorized employee" who has been trained in LOTO procedures, but is not necessarily a qualified electrician.

Our question concerns utilizing a method of verification of the deenergization of energy sources in order to comply with OSHA 1910.147 lockout requirements, but without opening the energy control device and thereby exposing personnel to arc flash or other electrical hazards. At the same time, we do not want to be in violation of OSHA 1910.147 lockout or 1910.333 Subpart S Electrical standards.

The following scenario describes steps taken at an industrial site to verify that an electrical zero energy state exists when performing tasks on machinery that do not include electrical work or employee exposure to electrical sources or conductors. It specifically discusses a typical situation under item 1, above, but we would also like to know if the verification method in this scenario would also meet the requirements under Situations 2, 3, and 4, above.

The scenario involves using voltage indicating devices permanently mounted on the energy control device such as an electrical disconnect box, to verify that voltage is not detected after the electrical disconnect has been opened. Features of these devices include: redundant circuitry, long life LED indicators and AC and DC voltage sensing, and phase-to-phase and phase-to-ground for three phase and single phase systems. They are designed so as to be powered by the same voltage that feeds the circuit being monitored.

An employee (a person qualified to perform LOTO but likely not an electrician) who is authorized to perform a specific lockout procedure follows the steps contained in the machine-specific energy control plan required by 1910.147(C)(4). To control electrical energy that provides power to motors and other mechanical energy sources of the machinery, the authorized employee would use the following protocol.

As the Employee initiates the LOTO procedure, he/she would:

1.) Note the **PRESENCE** of voltage indicated on all three illuminated phase lights of the voltage indicating device connected to the incoming line. The remainder of the task is aborted and electrical assistance is obtained if all three phase lights are NOT illuminated on this device.
2.) Note the **PRESENCE** of voltage indicated on all three illuminated phase lights of the voltage indicating device for the line to the starter, breaker or switch door of the equipment to be locked out prior to the disconnect being opened. The remainder of the procedure is aborted and electrical assistance is obtained if all three phase lights are **NOT** illuminated on this device
3.) Throw the disconnect switch on the disconnect device, thereby intending to disconnect electrical current through the box to the equipment being locked out.
4.) Confirm the **ABSENCE** of voltage indicated on all three illuminated phase lights of the voltage indicating device on the starter/breaker/switch door being locked out. The remainder of the procedure is aborted and electrical assistance is obtained if **ANY** indicator remains illuminated.

5.) Confirm the **CONTINUED PRESENCE** of three phase lights on the indicator mounted on the incoming line. The remainder of the procedure is aborted and electrical assistance is obtained if all three phase lights are **NOT** still present on this device.
6.) If the voltage test stated above is successful for deenergization, the Employee would place an appropriate lockout device on the starter/breaker/switch according to the machine-specific energy control procedure.
7.) The Employee would then complete all additional steps in the machine-specific energy control procedure to control other forms of hazardous energy.
8.) Begin the intended task after all the above steps are completed satisfactorily.
9.) Follow the test procedures associated with the machine, including a start test, to verify the effectiveness of the energy control measures.
10.) Reverse the procedure to re-apply power and re-start the machine or piece of equipment in accordance with OSHA release from lockout or tagout requirements.

We feel this scenario would protect the employee performing the LOTO procedure and fully comply with the standard's requirements.

Question #4: Would the verification method in the scenario described above meet OSHA's regulatory requirements as applied to Situations 1, 2, 3 and 4?

We sincerely appreciate your attention to this somewhat complex but important regulatory matter.

Sincerely yours,

Ralph E. Mosely CSP

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November 11, 2011

RE: Request for Interpretation of OSHA Lockout/tagout Requirements

Mr. Robert Isiminger
Directorate of Enforcement Programs
U.S. Department of Labor, OSHA
200 Constitution Avenue, N.W. RM N-3119
Washington, DC 20210

[SENT VIA EMAIL - Isiminger.robert@dol.gov]

Dear Mr. Isiminger:

I have discussed our telephone conversation of August 8, 2011, with my client on several occasions. Due to vacations of several individuals and corporate and client travel requirements, more than normal delay was encountered in submitting my response to your telephone comments, and we apologize for that delay. It has now been more than one year since my original letter was submitted. We appreciate the opportunity to continue the discussion to ensure momentum.

In light of the national importance of the questions posed in my November 10, 2010 letter given the frequency of lockout activities and the safety enhancements inherent in my client's request for compliance clarification, we wish to vigorously continue to pursue a Letter of Interpretation with the Directorate of Enforcement Programs.

We have also thoroughly discussed your comments about the variance process and we do not believe a variance is indicated since we are not seeking an "alternate means of controlling a hazard that is different from the means required by a specific OSHA standard". Since the OSHA Standards in question do not specify a means to control a hazard we are perplexed why a variance would be mentioned since there are no specifics from which to vary. We are simply requesting an Interpretation to ensure that the method we have suggested meets the intent of the performance based requirements in the Standards referenced.

Although we understand the complexity and interrelationship of the questions/scenarios posed and the challenge in answering difficult questions, my letter provides OSHA an excellent opportunity to address these issues simultaneously, which is the most efficient way to avoid future complications and require repeated work for industry and OSHA. We are all captive to the increased technical sophistication of modern industrial systems and controls; hence, all the more reason for OSHA to provide a clarification.

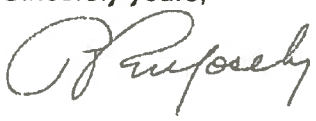
My client has invested significant resources in framing these important questions based on input from several organizations in a manner to assist OSHA in updating their compliance posture to keep pace with safety technology advancements.

Regarding your first comment in our August 8, 2011 telephone discussion, it seems to me that the manufacturer should bear the responsibility and liability of making sure that their devices meet the specific required UL tests – especially if they show the UL approval logo on their product literature. I realize that you are on a UL committee and probably have the experience to accomplish a review of the testing literature, but I do not believe that this should be a role that OSHA should play in answering our request for a Letter of Interpretation.

That being said, I feel like all four of the questions we asked in my original letter of November 11, 2010, can be answered with a comment such as the following; "For verification of lockout under CFR 1910.147(c)(4)(ii)(D), the employer may verify the effectiveness of the lockout devices and other energy control devices using methods and physical devices involving visual verification of the energy condition inside the energy control disconnect device enclosure without opening the disconnect device enclosure, as long as the devices being used to accomplish this activity meet the national testing requirements for the purpose for which they are being used".

Can you answer our questions with a Letter of Interpretation using that or similar wording?

Sincerely yours,



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