NRTL Program-specific policies to evaluate certification organizations. Under this approach, OSHA-recognized testing organizations would submit evaluation and testing results to OSHA-recognized certification organizations, and these organizations would authorize the certification of the product and conduct factory-surveillance on-site assessments.

a. Are you in favor of this approach? Please explain.

b. What are the benefits to this approach?

c. What are the weaknesses to this approach?

d. What resources and/or costs would be associated with this approach? Please explain.

e. Would there be any cost savings associated with this approach? Please explain.

f. If OSHA were to revise its regulation as described above, OSHA also may revise its regulation to require certification organizations authorized under the NRTL Program to accept test results from any testing organization authorized under the NRTL Program. Are you in favor of such a requirement? If OSHA had to adopt this requirement to successfully implement this model, would you be in favor of this requirement? Please explain.

B. Certification Marks for the NRTL Program

Under OSHA's current policy regarding certification marks, an NRTL is in compliance with the NRTL Program regulation, 29 CFR 1910.7, if it has a registered certification mark issued by the U.S. Patent and Trademark Office (USPTO) or by a national or international body under a registration system that requires ownership of the mark(s) and that is equivalent to the USPTO system of registration. Additionally, the NRTL can only use this certification mark(s) for its NRTL activities. OSHA is considering revising its policy to better account for ownership and use of certification marks for NRTL activities.

5. OSHA is considering making the following policy change: If an entity wholly owned by an NRTL owns a certification mark, and the NRTL uses that mark for its NRTL certifications, the entity owned by the NRTL could no longer use the mark for any purpose, including marketing or advertisement.

a. What impact would this policy change have on NRTLs? Please explain.

b. What resources and/or costs would be associated with this approach? Please explain.

6. OSHA is considering making the following policy change: Any mark owned by an NRTL, and used for its NRTL certifications, would need to be clearly distinguishable from the mark of another entity owned or affiliated with the NRTL (e.g., a mark used by an entity that is not a recognized NRTL would need to be clearly distinguishable from the mark used by the entity recognized as an NRTL, and a product certified by a non-NRTL could not appear to be a product certified by the NRTL).

a. What impact would this policy change have on NRTLs? Please explain.

b. What resources and/or costs would be associated with this approach? Please explain.

7. Under current OSHA policy, NRTLs need not add a unique identifier to their certification mark to signify work conducted under the NRTL Program and compliance to particular product-safety test standards (i.e.,, similar to the ''C'' mark for Canada). Some NRTLs voluntarily include the acronym ''NRTL'' with their regular certification marks. Under a policy change OSHA is considering, each NRTL would need to add a unique identifier to its certification mark to signify testing and certification conducted under the NRTL Program.

a. Are you in favor of requiring the NRTLs to add a unique identifier to their certification mark? Please explain.

b. What resources and/or costs would be associated with this approach? Please explain.

c. OSHA is considering delaying the effective date of this policy change for 2 years after it finalizes the policy change. Are you in favor of delaying the effective date of this policy change? If so, are you in favor of a 2 year delay? Please explain.

C. Factory Inspections

8. Under OSHA's current policy for factory inspections (OSHA Instruction CPL 01–00–003, NRTL Program Policies, Procedures, and Guidelines, App. C.III.A, ''*NRTL Follow-up Inspections at Manufacturing Facilities, Frequency of Inspections''* (Dec. 2, 1999)), NRTLs need to perform more frequent inspections at facilities where heightened safety concerns exist regarding the manufacture of products certified by the NRTLs. As outlined in the existing policy, an NRTL needs to perform no fewer than four (4) inspections per year at facilities where heightened safety concerns exist, but needs to perform no fewer than two (2) inspections per year at facilities where heightened safety concerns or similar situations do not exist. OSHA is considering modifying its policy regarding the frequency of inspections to allow each NRTL to adopt its own risk-based approach [1] to determine the frequency with which it performs factory inspections.

a. Should OSHA allow each NRTL to adopt its own risk-based approach to determine the frequency with which it performs factory inspections or should OSHA keep its current policy in which NRTLs must perform a minimum number of inspections per year? Please explain.

b. What resources and/or costs would be associated with allowing NRTLs to adopt their own risk-based approach to determine the frequency with which they perform factory inspections? Please explain.

9. Under OSHA's current policy for factory inspections (OSHA Instruction CPL 01–00–003, NRTL Program Policies, Procedures, and Guidelines, App. C.III.B, ''*NRTL Follow-up Inspections at Manufacturing Facilities, Policies and Procedures for Inspections''* (Dec. 2, 1999)), NRTLs need to determine the specific activities to undertake in performing each inspection, and document these activities. However, follow-up inspections activities (but not necessarily every inspection) need to at least include or address activities specified in the policy. OSHA is considering modifying its policy regarding factory inspections, and seeks input on the following questions:

a. Are you in favor of OSHA standardizing inspection content and processes for factory inspections? For example, should OSHA specify the activities NRTLs need to perform during each factory inspection and delineate how documentation should occur? Please explain.

b. Are you in favor of OSHA developing forms, with stakeholder involvement, for NRTLs to use during factoring inspections? Please explain.

c. What resources and/or costs would be associated with the modifications addressed in questions (a)–(c) above for your organization? Please explain.

D. Field Inspections

10. Under 29 CFR 1910.7(b)(2)(iii), an NRTL must conduct field inspections to monitor and assure proper use of its identifying mark or labels on products. OSHA is considering eliminating this requirement. Are you in favor of OSHA eliminating this requirement? Please explain.

E. Fees

11. OSHA currently requires NRTLs to pay all NRTL Program fees in U.S. dollars by check or money order. OSHA is considering allowing NRTLs to make online electronic payments only (e.g., through credit card or ACH), and disallowing payments made by check or money order.

a. What impact would such a change have? Please explain

b. What resources and/or costs would be associated with this approach? Please explain.

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BILLING CODE 4510–26–P

[1] See, for example, ISO 31000:2009; *Risk management—Principles and guidelines on implementation; International Organization for Standardization.*

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

[Docket No. OSHA–2012–0036]

Tully/OHL USA Joint Venture: Grant of a Permanent Variance

AGENCY: Occupational Safety and Health Administration (OSHA), Labor.

ACTION: Notice of grant of a permanent variance.

SUMMARY: In this notice, OSHA grants a permanent variance to Tully/OHL USA Joint Venture from the provisions of OSHA standards that regulate work in compressed-air environments at 29 CFR 1926.803.

DATES: The permanent variance specified by this notice becomes

effective on May 23, 2014 and shall remain in effect until March 31, 2015.

FOR FURTHER INFORMATION CONTACT: Information regarding this notice is available from the following sources:

Press inquiries: Contact Mr. Frank Meilinger, Director, OSHA Office of Communications, U.S. Department of Labor, 200 Constitution Avenue NW., Room N–3647, Washington, DC 20210; telephone: (202) 693–1999; email: *Meilinger.francis2@dol.gov.*

General and technical information: Contact Mr. David Johnson, Director, Office of Technical Programs and Coordination Activities, Directorate of Technical Support and Emergency Management, Occupational Safety and Health Administration, U.S. Department of Labor, 200 Constitution Avenue NW., Room N–3655, Washington, DC 20210; telephone: (202) 693–2110; email: *johnson.david.w@dol.gov.* OSHA's Web page includes information about the Variance Program (see *http://www.osha.gov/dts/otpca/variances/index.html*).

SUPPLEMENTARY INFORMATION:

Copies of this Federal Register notice. Electronic copies of this **Federal Register** notice are available at *http://www.regulations.gov.* This **Federal Register** notice and other relevant information are also available at OSHA's Web page at *http://www.osha.gov.*

I. Notice of Application

On July 12, 2012, Tully/OHL USA Joint Venture (''Tully'' or ''the applicant''), 355 Front Street, Construction Site, Staten Island, NY 10304, submitted under Section 6(d) of the Occupational Safety and Health Act of 1970 (''OSH Act''; 29 U.S.C. 655) and 29 CFR 1905.11 (''Variances and other relief under section 6(d)'') an application for a permanent variance from several provisions of the OSHA standard that regulates work in compressed air at 29 CFR 1926.803, as well as a request for an interim order pending OSHA's decision on the application for a variance (Document ID No. OSHA–2012–0036–0003). Specifically, Tully seeks a variance from the provisions of the standard that: (1) Prohibit compressed-air worker exposure to pressures exceeding 50 pounds per square inch (p.s.i.) except in an emergency (29 CFR 1926.803(e)(5)); [1] (2) require the use of the decompression values specified in decompression tables in Appendix A of the compressed-air standard for construction (29 CFR 1926.803(f)(1)); and (3) require the use of automated operational controls and a special decompression chamber (29 CFR 1926.803(g)(1)(iii) and .803(g)(1)(xvii), respectively).

Tully is a contractor that works on complex tunnel projects using recently developed equipment and procedures for soft-ground tunneling. Tully's workers engage in the construction of subaqueous tunnels using advanced shielded mechanical excavation techniques in conjunction with an Earth Pressure Balanced Tunnel Boring Machine (EPBTBM).

According to its application, Tully is currently the managing partner of Tully/OHL USA Joint Venture, the general contractor for the New York Economic Development Corporation's New York Siphon Tunnel Project. Tully is seeking the permanent variance solely for the duration of the New York Economic Development Corporation's New York Siphon Tunnel Project (hereafter, ''the project'').

The project consists of a 12-foot diameter tunnel beneath New York Harbor between Staten Island and Brooklyn. Tully will bore the tunnel below the water table through soft soils consisting of clay, silt, and sand. Tully employs specially trained personnel for the construction of the tunnel, and states that this construction will use shielded mechanical-excavation techniques. Tully asserts that its workers perform hyperbaric interventions at pressures greater than 50 p.s.i.g. in the excavation chamber of the EPBTBM; these interventions consist of conducting inspections and maintenance work on the cutter-head structure and cutting tools of the EPBTBM.

Tully asserts that innovations in tunnel excavation, specifically with EPBTBMs, have, in most cases, eliminated the need to pressurize the entire tunnel. This technology negates the requirement that all members of a tunnel-excavation crew work in compressed air while excavating the tunnel. These advances in technology modified substantially the methods used by the construction industry to excavate subaqueous tunnels compared to the caisson work regulated by the current OSHA compressed-air standard for construction at 29 CFR 1926.803. Such advances reduce the number of workers exposed, and the total duration of exposure, to hyperbaric pressure during tunnel construction.

Using shielded mechanical-excavation techniques, in conjunction with precast concrete tunnel liners and backfill grout, EPBTBMs provide methods to achieve the face pressures required to maintain a stabilized tunnel face through various geologies, and isolate that pressure to the forward section (the working chamber) of the EPBTBM. Interventions in the working chamber (the pressurized portion of the EPBTBM) take place only after halting tunnel excavation and preparing the machine and crew for an intervention. Interventions occur to inspect or maintain the mechanical-excavation components located in the working chamber. Maintenance conducted in the working chamber includes changing replaceable cutting tools and disposable wear bars, and, in rare cases, repairing structural damage to the cutter head.

In addition to innovations in tunnel-excavation methods, Tully asserts that innovations in hyperbaric medicine and technology improve the safety of decompression from hyperbaric exposures. According to Tully, the use of decompression protocols incorporating oxygen is more efficient, effective, and safer for tunnel workers than compliance with the decompression tables specified by the existing OSHA standard (29 CFR 1926, subpart S, Appendix A decompression tables). These hyperbaric exposures are possible due to advances in technology, a better understanding of hyperbaric medicine, and the development of a project-specific Hyperbaric Operations Manual (HOM) that requires specialized medical support and hyperbaric supervision to provide assistance to a team of specially trained man-lock attendants and hyperbaric or compressed-air workers.

OSHA initiated a technical review of the Tully's variance application and developed a set of follow-up questions that it sent to Tully on August 29, 2012 (Document ID No. OSHA–2012–0036–0004). On October 9, 2012, Tully submitted its response and a request for an interim order (Document ID No. OSHA–2012–0036–0005). In its response to OSHA's follow-up questions, Tully indicated that the maximum pressure to which it is likely to expose workers during interventions for the New York Economic Development Corporation's New York Siphon Tunnel Project is 58 p.s.i.g. Therefore, to work effectively on this project, Tully must perform hyperbaric interventions in compressed air at pressures higher than the maximum pressure specified by in the existing OSHA standard, 29 CFR 1926.803(e)(5), which states: ''No employee shall be

[1] The decompression tables in Appendix A of subpart S express the maximum working pressures as pounds per square inch gauge (p.s.i.g.), with a maximum working pressure of 50 p.s.i.g. Therefore, throughout this notice, OSHA expresses the 50 p.s.i. value specified by § 1926.803(e)(5) as 50 p.s.i.g., consistent with the terminology in Appendix A, Table 1 of subpart S.

subjected to pressure exceeding 50 p.s.i.g. except in emergency'' (see footnote 1 in this notice).

OSHA considered Tully's application for a permanent variance and interim order. On January 7, 2014, OSHA published a **Federal Register** notice announcing Tully's application for permanent variance and interim order, grant of an interim order, and request for comments (79 FR 844).

II. The Variance Application

A. Background

The applicant asserts that the advances in tunnel-excavation technology described in Section I of this notice modified significantly the equipment and methods used by contractors to construct subaqueous tunnels, thereby making several provisions of OSHA's compressed-air standard for construction at 29 CFR 1926.803 inappropriate for this type of work. These advances reduce both the number of employees exposed, and the total duration of exposure, to the hyperbaric conditions associated with tunnel construction.

Using shielded mechanical-excavation techniques, in conjunction with pre-cast concrete tunnel liners and backfill grout, EPBTBMs provide methods to achieve the pressures required to maintain a stabilized tunnel face, through various geologies, while isolating that pressure to the forward section (working or excavation chamber) of the EPBTBM.

Interventions involving the working chamber (the pressurized chamber at the head of the EPBTBM) take place only after the applicant halts tunnel excavation and prepares the machine and crew for an intervention. Interventions occur to inspect or maintain the mechanical-excavation components located in the forward portion of the working chamber. Maintenance conducted in the forward portion of the working chamber includes changing replaceable cutting tools and disposable wear bars, and, in rare cases, making repairs to the cutter head due to structural damage.

In addition to innovations in tunnel-excavation methods, research conducted after OSHA published its compressed-air standard for construction in 1971 resulted in advances in hyperbaric medicine. In this regard, the applicant asserts that the use of decompression protocols incorporating oxygen is more efficient, effective, and safer for tunnel workers than compliance with the existing OSHA standard (29 CFR 1926, subpart S, Appendix A decompression tables). According to the applicant, contractors routinely and safely expose employees performing interventions in the working chamber of EPBTBMs to hyperbaric pressures up to 75 p.s.i.g., which is 50% higher than the maximum pressure specified by the existing OSHA standard (see 29 CFR 1926.803(e)(5)). The applicant asserts that these hyperbaric exposures are possible because of advances in hyperbaric technology, a better understanding of hyperbaric medicine, and the development of a project-specific HOM that requires specialized medical support and hyperbaric supervision to provide assistance to a team of specially trained man-lock attendants and hyperbaric workers.

The applicant contends that the alternative safety measures included in its application provide its workers with a place of employment that is at least as safe and healthful as they would obtain under the existing provisions of OSHA's compressed-air standard for construction. The applicant certifies that it provided employee representatives of affected workers [2] with a copy of the variance application. The applicant also certifies that it notified its workers of the variance application by posting, at prominent locations where it normally posts workplace notices, a summary of the application and information specifying where the workers can examine a copy of the application. In addition, the applicant informed its workers and their representatives of their rights to petition the Assistant Secretary of Labor for Occupational Safety and Health for a hearing on the variance application.

B. Variance From Paragraph (e)(5) of 29 CFR 1926.803, Prohibition of Exposure To Pressure Greater Than 50 p.s.i.g. (See Footnote 1 in This Notice)

The applicant states that it may perform hyperbaric interventions at pressures greater than 50 p.s.i.g. in the working chamber of the EPBTBM; this pressure exceeds the pressure limit of 50 p.s.i.g. specified for nonemergency purposes by 29 CFR 1926.803(e)(5). The EPBTBM has twin man locks, with each man lock having two compartments. This configuration allows workers to access the man locks for compression and decompression, and medical personnel to access the man locks if required in an emergency.

EPBTBMs are capable of maintaining pressure at the tunnel face, and stabilizing existing geological conditions, through the controlled use of propel cylinders, a mechanically driven cutter head, bulkheads within the shield, ground-treatment foam, and a screw conveyor that moves excavated material from the working chamber. As noted earlier, the forward-most portion of the EPBTBM is the working chamber, and this chamber is the only pressurized segment of the EPBTBM. Within the shield, the working chamber consists of two sections: The staging chamber and the forward working chamber. The staging chamber is the section of the working chamber between the man-lock door and the entry door to the forward working chamber. The forward working chamber is immediately behind the cutter head and tunnel face.

The applicant will pressurize the working chamber to the level required to maintain a stable tunnel face. Pressure in the staging chamber ranges from atmospheric (no increased pressure) to a maximum pressure equal to the pressure in the working chamber. The applicant asserts that most of the hyperbaric interventions will be around 14.7 p.s.i.g. However, the applicant maintains that they may have to perform interventions at pressures up to 58 p.s.i.g.

During interventions, workers enter the working chamber through one of the twin man locks that open into the staging chamber. To reach the forward part of the working chamber, workers pass through a door in a bulkhead that separates the staging chamber from the forward working chamber. The maximum crew size allowed in the forward working chamber is three. At certain hyperbaric pressures (i.e., when decompression times are greater than work times), the twin man locks allow for crew rotation. During crew rotation, one crew can be compressing or decompressing while the second crew is working. Therefore, the working crew always has an unoccupied man lock at its disposal.

The applicant developed a project-specific HOM (Document ID No. OSHA–2012–0036–0006) that describes in detail the hyperbaric procedures and required medical examinations used during the tunnel-construction project. The HOM is project specific, and discusses standard operating procedures and emergency and contingency procedures. The procedures include using experienced and knowledgeable man-lock attendants who have the training and experience necessary to recognize and treat decompression sickness and diving-related illnesses and injuries. The attendants are under the direct supervision of the hyperbaric supervisor and attending physician. In addition, procedures include medical screening and review of prospective

[2] See the definition of ''Affected employee or worker'' below in section VI. D of this notice.

compressed-air workers (CAWs). The purpose of this screening procedure is to vet prospective CAWs with medical conditions (e.g., deep vein thrombosis, poor vascular circulation, and muscle cramping) that could be aggravated by sitting in a cramped space (e.g., a man lock) for extended periods or by exposure to elevated pressures and compressed gas mixtures. A transportable recompression chamber (shuttle) is available to extract workers from the hyperbaric working chamber for emergency evacuation and medical treatment; the shuttle attaches to the topside medical lock, which is a large recompression chamber. The applicant believes that the procedures included in the HOM provide safe work conditions when interventions are necessary, including interventions above 50 p.s.i.g.

C. Variance From Paragraph (f)(1) of 29 CFR 1926.803, Requirement To Use OSHA Decompression Tables

OSHA's compressed-air standard for construction requires decompression in accordance with the decompression tables in Appendix A of 29 CFR 1926, subpart S (see 29 CFR 1926.803(f)(1)). As an alternative to the OSHA decompression tables, the applicant proposes to use newer decompression schedules that supplement breathing air used during decompression with pure oxygen. The applicant asserts that these decompression protocols are safer for tunnel workers than the decompression protocols specified in Appendix A of 29 CFR 1926, subpart S. Accordingly, the applicant proposes to use the 1992 French Decompression Tables to decompress CAWs after they exit the hyperbaric conditions in the working chamber.

Depending on the maximum working pressure and exposure time*s,* the 1992 French Decompression Tables provide for air decompression with or without oxygen. Tully asserts that oxygen decompression has many benefits, including reducing decompression time by about 33 percent, and significantly lowering the rate of decompression illness (DCI), compared to the air-decompression tables in Appendix A of 29 CFR 1926, subpart S. In addition, the HOM requires a physician certified in hyperbaric medicine to manage the medical condition of CAWs during hyperbaric exposures and decompression. A trained and experienced man-lock attendant also will be present during hyperbaric exposures and decompression. This man-lock attendant will operate the hyperbaric system to ensure compliance with the specified decompression table. A hyperbaric supervisor (competent person), trained in hyperbaric operations, procedures, and safety, directly oversees all hyperbaric interventions, and ensures that staff follow the procedures delineated in the HOM or by the attending physician.

The applicant asserts that at higher hyperbaric pressures, decompression times exceed 75 minutes. The HOM establishes protocols and procedures that provide the basis for alternate means of protection for CAWs under these conditions. Accordingly, based on these protocols and procedures, the applicant requests to use the 1992 French Decompression Tables for hyperbaric interventions up to 58 p.s.i.g. for the project. The applicant is committed to follow the decompression procedures described in the project-specific HOM during these interventions.

D. Variance From Paragraph (g)(1)(iii) of 29 CFR 1926.803, Automatically Regulated Continuous Decompression

According to the applicant, breathing air under hyperbaric conditions increases the amount of nitrogen gas dissolved in a CAW's tissues. The greater the hyperbaric pressure under these conditions, and the more time spent under the increased pressure, the greater the amount of nitrogen gas dissolved in the tissues. When the pressure decreases during decompression, tissues release the dissolved nitrogen gas into the blood system, which then carries the nitrogen gas to the lungs for elimination through exhalation. Releasing hyperbaric pressure too rapidly during decompression can increase the size of the bubbles formed by nitrogen gas in the blood system, resulting in DCI, commonly referred to as ''the bends.'' This description of the etiology of DCI is consistent with current scientific theory and research on the issue (see footnote 8 in this notice discussing a 1985 NIOSH report on DCI).

The 1992 French Decompression Tables proposed for use by the applicant provide for stops during worker decompression (i.e., staged decompression) to control the release of nitrogen gas from tissues into the blood system. Studies show that staged decompression, in combination with other features of the 1992 French Decompression Tables such as the use of oxygen, result in a lower incidence of DCI than the OSHA decompression requirements of 29 CFR 1926.803, which specify the use of automatically regulated continuous decompression (see footnotes 5 through 10 below for references to these studies).[3] In addition, the applicant asserts that staged decompression is at least as effective as an automatic controller in regulating the decompression process because:

A. A hyperbaric supervisor (a competent person experienced and trained in hyperbaric operations, procedures, and safety) directly supervises all hyperbaric interventions and ensures that the man-lock attendant, who is a competent person in the manual control of hyperbaric systems, follows the schedule specified in the decompression tables, including stops; and

B. The use of the 1992 French Decompression Tables for staged decompression offers an equal or better level of management and control over the decompression process than an automatic controller and results in lower occurrences of DCI.

Accordingly, the applicant is applying for a permanent variance from the OSHA standard at 29 CFR 1926.803(g)(1)(iii), which requires automatic controls to regulate decompression. As noted above, the applicant is committed to conduct the staged decompression according to the 1992 French Decompression Tables under the direct control of the trained man-lock attendant and under the oversight of the hyperbaric supervisor.

E. Variance From Paragraph (g)(1)(xvii) of 29 CFR 1926.803, Requirement of Special Decompression Chamber

The OSHA compressed-air standard for construction requires employers to use a special decompression chamber when total decompression time exceeds 75 minutes (see 29 CFR 1926.803(g)(1)(xvii)). Another provision

[3] In the study cited in footnote 6, starting at page 338, Dr. Eric Kindwall notes that the use of automatically regulated continuous decompression in the Washington State safety standards for compressed-air work (from which OSHA derived its decompression tables) was at the insistence of contractors and the union, and against the advice of the expert who calculated the decompression table, who recommended using staged decompression. Dr. Kindwall then states, ''Continuous decompression is inefficient and wasteful. For example, if the last stage from 4 psig . . . to the surface took 1 h, at least half the time is spent at pressures less than 2 psig . . ., which provides less and less meaningful bubble suppression . . . .'' In addition, the report referenced in footnote 5 under the section titled ''Background on the Need for Interim Decompression Tables'' addresses the continuous-decompression protocol in the OSHA compressed-air standard for construction, noting that ''[a]side from the tables for saturation diving to deep depths, no other widely used or officially approved diving decompression tables use straight line, continuous decompressions at varying rates. Stage decompression is usually the rule, since it is simpler to control.''

of OSHA's compressed-air standard calls for locating the special decompression chamber adjacent to the man lock on the atmospheric pressure side of the tunnel bulkhead (see 29 CFR 1926.803(g)(2)(vii)). However, since only the working chamber of the EPBTBM is under pressure, and only a few workers out of the entire crew are exposed to hyperbaric pressure, the man locks (which, as noted earlier, connect directly to the working chamber) are of sufficient size to accommodate the exposed workers. In addition, available space in the EPBTBM does not allow for an additional special decompression lock. Again, the applicant uses the man locks, each of which adequately accommodates a three-member crew, for this purpose when decompression lasts up to 75 minutes. When decompression exceeds 75 minutes, crews can open the door connecting the two compartments in each man lock during decompression stops or exit the man lock and move into the staging chamber where additional space is available. This alternative enables CAWs to move about and flex their joints to prevent neuromuscular problems during decompression.

F. State Plan Impact

Tully only applied for an interim order and variance for one site, the New York Siphon Tunnel Project, so the permanent variance OSHA is granting Tully is in effect in the State of New York solely during completion of the project. While the State of New York has an OSHA-approved safety and health program, that program covers only public-sector employers and not private-sector employers such as Tully; therefore, Federal OSHA continues to cover private-sector employers in the State of New York.

III. Description of the Conditions Specified for the Permanent Variance

This section describes the alternative means of compliance with 29 CFR 1926.803(e)(5), (f)(1), (g)(1)(iii), and (g)(1)(xvii) and provides additional detail regarding the conditions that form the basis of Tully's permanent variance.

Condition A: Scope

The scope of the permanent variance limits coverage to the work situations specified under this condition. Clearly defining the scope of the permanent variance provides Tully, Tully's employees, and OSHA with necessary information regarding the work situations in which the permanent variance applies.

Condition B: Application

This condition specifies the circumstances under which the permanent variance is in effect, notably only for hyperbaric work performed during interventions. The condition places clear limits on the circumstances under which the applicant can expose its employees to hyperbaric pressure.

Condition C: List of Abbreviations

Condition C defines a number of abbreviations used in the permanent variance. OSHA believes that defining these abbreviations serves to clarify and standardize their usage, thereby enhancing the applicant's and its employees' understanding of the conditions specified by the permanent variance.

Condition D: Definitions

The condition defines a series of terms, mostly technical terms, used in the permanent variance to standardize and clarify their meaning. Defining these terms serves to enhance the applicant's and its employees' understanding of the conditions specified by the permanent variance.

Condition E: Safety and Health Practices

This condition requires the applicant to develop and submit to OSHA a project-specific HOM at least six months before using the EPBTBM for tunneling operations. This requirement ensures that the applicant develops hyperbaric safety and health procedures suitable for each specific project. The HOM enables OSHA to determine that the specific safety and health instructions and measures it specifies are appropriate and will adequately protect the safety and health of the CAWs. It also enables OSHA to enforce these instructions and measures. Additionally, the condition includes a series of related hazard prevention and control requirements and methods (e.g., decompression tables, job hazard analysis (JHA), operations and inspections checklists) designed to ensure the continued effective functioning of the hyperbaric equipment and operating system.

Condition F: Communication

Condition F requires the applicant to develop and implement an effective system of information sharing and communication. Effective information sharing and communication ensures that affected workers receive updated information regarding any safety-related hazards and incidents, and corrective actions taken, prior to the start of each shift. The condition also requires the applicant to ensure that reliable means of emergency communications are available and maintained for affected workers and support personnel during hyperbaric operations. Availability of such reliable means of communications enables affected workers and support personnel to respond quickly and effectively to hazardous conditions or emergencies that may develop during EPBTBM operations.

Condition G: Worker Qualification and Training

This condition requires the applicant to develop and implement an effective qualification and training program for affected workers. The condition specifies the factors that an affected worker must know to perform safely during hyperbaric operations, including how to enter, work in, and exit from hyperbaric conditions under both normal and emergency conditions. Having well-trained and qualified workers performing hyperbaric intervention work ensures that they recognize, and respond appropriately to, hyperbaric safety and health hazards. These qualification and training requirements enable affected workers to cope effectively with emergencies, as well as the discomfort and physiological effects of hyperbaric exposure, thereby preventing worker injury, illness, and fatalities.

Paragraph (2)(e) of this condition also requires the applicant to provide affected workers with information they can use to contact the appropriate healthcare professionals if they believe they are developing hyperbaric-related health effects. This requirement provides for early intervention and treatment of DCI and other health effects resulting from hyperbaric exposure, thereby reducing the potential severity of these effects.

Condition H: Inspections, Tests, and Accident Prevention

Condition H requires the applicant to develop, implement, and operate a program of frequent and regular inspections of the EPBTBM's hyperbaric equipment and support systems, and associated work areas. This condition helps to ensure the safe operation and physical integrity of the equipment and work areas necessary to conduct hyperbaric operations. The condition also enhances worker safety by reducing the risk of hyperbaric-related emergencies.

Paragraph (3) of this condition requires the applicant to document tests, inspections, corrective actions, and repairs involving the EPBTBM, and maintain these documents at the job site for the duration of the job. This

requirement provides the applicant with information needed to schedule tests and inspections to ensure the continued safe operation of the equipment and systems, and to determine that the actions taken to correct defects in hyperbaric equipment and systems were appropriate, prior to returning them to service.

Condition I: Compression and Decompression

This condition requires the applicant to consult with its designated medical advisor regarding special compression or decompression procedures appropriate for any unacclimated CAW. This provision ensures that the applicant consults with the medical advisor, and involves the medical advisor in the evaluation, development, and implementation of compression or decompression protocols appropriate for any CAW requiring acclimation to the hyperbaric conditions encountered during EPBTBM operations. Accordingly, CAWs requiring acclimation have an opportunity to acclimate prior to exposure to these hyperbaric conditions. OSHA believes this condition will prevent or reduce adverse reactions among CAWs to the effects of compression or decompression associated with the intervention work they perform in the EPBTBM.

Condition J: Recordkeeping

Condition J requires the applicant to maintain records of specific factors associated with each hyperbaric intervention. The information gathered and recorded under this provision, in concert with the information provided under Condition K, enables the applicant and OSHA to determine the effectiveness of the permanent variance in preventing DCI and other hyperbaric-related effects.

Condition K: Notifications

Under this condition, the applicant must, within specified periods: (1) Notify OSHA of any recordable injuries, illnesses, or fatalities that occur as a result of hyperbaric exposures during EPBTBM operations (using the OSHA 301 Incident Report form [4] to investigate and record hyperbaric recordable injuries as defined by 29 CFR 1904.4, and 1904.7 through 1904.12); (2) provide OSHA with a copy of the incident investigation report (using OSHA 301 form) of these events; (3) include on the 301 form information on the hyperbaric conditions associated with the recordable injury or illness, the root-cause determination, and preventive and corrective actions identified and implemented by the applicant; and (4) its certification that it informed affected workers of the incident and the results of the incident investigation. This condition also requires the applicant to: Notify OTPCA and the Manhattan Area Office within 15 working days should the applicant need to revise its HOM to accommodate changes in its compressed-air operations that affect its ability to comply with the conditions of the permanent variance; and provide OTPCA and the Manhattan Area Office, at the end of the project, with a report evaluating the effectiveness of the decompression tables.

These notification requirements enable the applicant, its employees, and OSHA to determine the effectiveness of the permanent variance in providing the requisite level of safety to the applicant's workers and, based on this determination, whether to revise or revoke the conditions of the permanent variance. Timely notification permits OSHA to take whatever action may be necessary and appropriate to prevent further injuries and illnesses. Providing notification to employees informs them of the precautions taken by the applicant to prevent similar incidents in the future.

This condition also requires the applicant to notify OSHA if it ceases to do business, has a new address or location for its main office, or transfers the operations covered by the permanent variance to a successor company. In addition, the condition specifies that OSHA must approve the transfer of the permanent variance to a successor company. These requirements allow OSHA to communicate effectively with the applicant regarding the status of the permanent variance, and expedite the Agency's administration and enforcement of the permanent variance. Stipulating that an applicant must have OSHA's approval to transfer a variance to a successor company provides assurance that the successor company has knowledge of, and will comply with, the conditions specified by permanent variance, thereby ensuring the safety of workers involved in performing the operations covered by the permanent variance.

[4] See 29 CFR 1904 (Recording and Reporting Occupational Injuries and Illnesses) (*http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9631);* recordkeeping forms and instructions (*http://www.osha.gov/recordkeeping/RKform300pkg-fillable-enabled.pdf*); and the OSHA Recordkeeping Handbook (*http://www.osha.gov/recordkeeping/handbook/index.html*).

IV. Comments on the Proposed Variance Application

OSHA received one public comment on the proposed variance application. Minda Nieblas, M.D. (occupational health physician), supported granting the permanent variance (Document ID No. OSHA–2012–0036–0012). In her comment, Dr. Nieblas proposed expanding and clarifying specific conditions of the proposed variance as follows: (1) Incorporating a clear definition of decompression illness (DCI) to include a broader range of hyperbaric health effects; (2) expanding the training provided to compressed air workers to improve their ability to recognize and report the signs and symptoms of decompression illness; (3) expanding the data collection associated with decompression illnesses experienced by CAWs to include a broader range of hyperbaric health effects; and (4) expanding the investigation and reporting criteria for hyperbaric incidents.

The remainder of this section describes the specific comments submitted by Dr. Nieblas and OSHA's responses to them.

Comment 1: The first comment addressed proposals to modify the definition of DCI and expand the training provided to compressed air workers. Regarding proposed conditions D and G (Definitions and Worker Qualification and Training), Dr. Nieblas recommended:

> It is important for CAW to recognize the signs and symptoms of decompression illness. However, it is also important that workers are trained about and how to recognize other adverse health effects from working at pressures. OSHA should consider adding requirements for training CAW regarding barotrauma, nitrogen narcosis, oxygen toxicity and any other health effects associated with work in compressed air or mixed gasses. It is not clear from the variance if the definition of DCI encompasses these adverse health effects.

OSHA's response: OSHA determined that the comments have merit and, therefore, is modifying the respective proposed conditions of the variance application. Tully's HOM provides the current decompression-illness definition, and the proposed variance did not include a distinct definition of this term. The HOM defines decompression illness as ''[an] illness caused by gas bubbles appearing in body compartments due to a reduction in ambient pressure.'' OSHA is adding a definition to proposed condition D that it adapted from the HOM's definition of DCI, as well as the National Institute for Occupational Safety and Health's (NOISH's) definition of

decompression sickness or decompression illness.[5] OSHA is also adding DCI to the list of abbreviations found in proposed condition C. Additionally, OSHA is amending proposed condition G (specifically G(2)(c)) to include training in recognizing the symptoms of DCI and other hyperbaric intervention-related health effects (e.g., barotrauma, nitrogen narcosis, and oxygen toxicity).

Comment 2: The second comment focused on proposals to modify and improve the recordkeeping requirements included in proposed condition J. Regarding proposed condition J (Recordkeeping), Dr. Nieblas recommended:

> Section J (Recordkeeping) OSHA should consider requiring additional recordkeeping for hyperbaric interventions. OSHA should consider requiring recordkeeping information to include post-intervention assessment of each individual worker for signs and symptoms of decompression illness, barotrauma, nitrogen narcosis, oxygen toxicity or other health effects associated with work in compressed air or mixed gasses for each hyperbaric intervention. Lack of standardized data collection has made it difficult to evaluate the incidence of adverse health effects in these workers. It would be useful if OSHA, NIOSH, and experts from academia and industry developed standardized tools to assess CAW pre/post intervention. This data collection could be used to refine tables and practices across the industry.

OSHA's response: Proposed condition J requires Tully to identify, investigate, and record all cases of work-related injury and illness requiring medical treatment as specified by 29 CFR 1904 (Recording and Reporting Occupational Injuries and Illnesses). Thus, Tully must identify each compressed air worker who requires medical treatment when presenting with signs and symptoms of decompression illness, barotrauma, or other health effects associated with work in compressed air during or after hyperbaric interventions. Additionally, Tully must complete OSHA form 301 (Injury and Illness Incident Report) and OSHA form 300 (Log of Work-Related Injuries and Illnesses) for each such recordable (medical treatment) case.

OSHA finds that the recommendation to develop standardized tools for assessing CAWs for pre- and post-hyperbaric intervention health effects, while undoubtedly highly useful for analyzing and evaluating the incidence of adverse health outcomes, is well beyond the scope of this variance. However, OSHA added language to conditions J and K to clarify the hyperbaric conditions that Tully must identify and include on the OSHA 301 form as part of the recordable injury or illness investigation.

Comment 3: The last of Dr. Nieblas' comments addressed proposals to modify and expand the notifications requirements included in proposed condition K. Regarding proposed condition K (Notifications), Dr. Nieblas recommended:

> OSHA should clarify that the incident must be reported even if the worker did not require recompression. OSHA should also be notified about injuries and illness that may have been the result of impairment from elevated nitrogen or oxygen partial pressures since these are the result of exposure to hyperbaric conditions. The incident investigation report must include an estimate of employee workload, the composition of the gas mixture, temperature in the work and decompression environments, a medical summary of the illness or injury, and the contact information for the treating healthcare provider.

This information is needed to determine the root cause of the injury/illness.

OSHA's response: As noted in the response to comment 2, proposed condition J requires Tully to identify, investigate, and record all cases of work-related injury and illness requiring medical treatment. Proposed condition K requires Tully to notify OSHA (OTPCA and the Manhattan Area Office) of any injury, illness (including decompression illness as defined by revised condition D(5)), or fatality resulting from exposure of a CAW to hyperbaric conditions. Additionally, Tully must provide a copy of the incident-investigation report within 24 hours of the incident.

As a result of these comprehensive reporting and notification requirements, OSHA finds that the recommendation to expand the information requirements, while undoubtedly highly useful for evaluating and determining the root cause of hyperbaric incidents, is well beyond the scope of this proposed variance application. However, OSHA added language to condition K to clarify that recordable hyperbaric injuries or illnesses include those conditions that do not require recompression treatment (e.g., nitrogen narcosis, oxygen toxicity, barotrauma).

V. Decision

As noted earlier, on January 7, 2014, OSHA granted Tully an interim order (79 FR 844) to remain in effect until completion of the project or until the Agency makes a decision on its application for a permanent variance. During this period, the applicant had to comply fully with the conditions of the interim order (as an alternative to complying with the requirements of 29 CFR 1926.803 (hereafter, ''the standard'')) that:

A. Prohibit employers using compressed air under hyperbaric conditions from subjecting workers to pressure exceeding 50 p.s.i.g., except in an emergency (29 CFR 1926.803(e)(5));

B. Require the use of decompression values specified by the decompression tables in Appendix A of the compressed-air standard (29 CFR 1926.803(f)(1)); and

C. Require the use of automated operational controls and a special decompression chamber (29 CFR 1926.803(g)(1)(iii) and .803(g)(1)(xvii), respectively).

After reviewing the proposed alternatives OSHA determined that:

A. Tully developed, and proposed to implement, effective alternative measures to the prohibition of using compressed air under hyperbaric conditions exceeding 50 p.s.i.g. The alternative measures include use of engineering and administrative controls of the hazards associated with work performed in compressed-air conditions exceeding 50 p.s.i.g. while engaged in the construction of a subaqueous tunnel using advanced shielded mechanical-excavation techniques in conjunction with an EPBTBM. Prior to conducting interventions in the EPBTBM's pressurized working chamber, the applicant halts tunnel excavation and prepares the machine and crew to conduct the interventions. Interventions involve inspection, maintenance, or repair of the mechanical-excavation components located in the working chamber.

B. Tully developed, and proposed to implement, safe hyperbaric work procedures, emergency and contingency procedures, and medical examinations for the project's CAWs. The applicant compiled these standard operating procedures into a project-specific HOM. The HOM discusses the procedures and personnel qualifications for performing work safely during the compression and decompression phases of interventions. The HOM also specifies the decompression tables the applicant proposes to use. Depending on the maximum working pressure and exposure times during the interventions, the tables provide for decompression using air, pure oxygen, or a combination of air and oxygen. The decompression tables also include delays or stops for various time intervals at different pressure levels during the transition to atmospheric pressure (i.e., staged

[5] See NIOSH's Decompression Sickness and Tunnel Workers page at *http://www.cdc.gov/NIOSH/topics/Decompression/*.

decompression). In all cases, a physician certified in hyperbaric medicine will manage the medical condition of CAWs during decompression. In addition, a trained and experienced man-lock attendant, experienced in recognizing decompression sickness or illnesses and injuries, will be present. Of key importance, a hyperbaric supervisor (competent person), trained in hyperbaric operations, procedures, and safety, will directly supervise all hyperbaric operations to ensure compliance with the procedures delineated in the project-specific HOM or by the attending physician.

C. Tully developed, and proposed to implement, a training program to instruct affected workers in the hazards associated with conducting hyperbaric operations.

D. Tully developed, and proposed to implement, an effective alternative to the use of automatic controllers that continuously decrease pressure to achieve decompression in accordance with the tables specified by the standard. The alternative includes using the 1992 French Decompression Tables for guiding staged decompression to achieve lower occurrences of DCI, using a trained and competent attendant for implementing appropriate hyperbaric entry and exit procedures, and providing a competent hyperbaric supervisor and attending physician certified in hyperbaric medicine, to oversee all hyperbaric operations.

E. Tully developed, and proposed to implement, an effective alternative to the use of the special decompression chamber required by the standard. EPBTBM technology permits the tunnel's work areas to be at atmospheric pressure, with only the face of the EPBTBM (i.e., the working chamber) at elevated pressure. The applicant limits interventions conducted in the working chamber to performing required inspection, maintenance, and repair of the cutting tools on the face of the EPBTBM. The EPBTBM's man lock and working chamber provide sufficient space for the maximum crew of three CAWs to stand up and move around, and safely accommodate decompression times up to 360 minutes. Therefore, OSHA determined that the EPBTBM's man lock and working chamber function as effectively as the special decompression chamber required by the standard.

OSHA conducted a review of the scientific literature regarding decompression to determine whether the alternative decompression method (i.e., the 1992 French Decompression Tables) proposed by the applicant provide a workplace as safe and healthful as that provided by the standard. Based on this review, OSHA determined that tunneling operations performed with these tables [6] result in a lower occurrence of DCI than the decompression tables specified by the standard.[7] [8] [9]

The review conducted by OSHA found several research studies supporting the determination that the 1992 French Decompression Tables result in a lower rate of DCI than the decompression tables specified by the standard. For example, H. L. Anderson studied the occurrence of DCI at maximum hyperbaric pressures ranging from 4 p.s.i.g. to 43 p.s.i.g. during construction of the Great Belt Tunnel in Denmark (1992–1996); [10] this project used the 1992 French Decompression Tables to decompress the workers during part of the construction. Anderson observed 6 DCS cases out of 7,220 decompression events, and reported that switching to the 1992 French Decompression tables reduced the DCI incidence to 0.08%. The DCI incidence in the study by H. L. Andersen is substantially less than the DCI incidence reported for the decompression tables specified in Appendix A. OSHA found no studies in which the DCI incidence reported for the 1992 French Decompression Tables were higher than the DCI incidence reported for the OSHA decompression tables, nor did OSHA find any studies indicating that the 1992 French Decompression Tables were more hazardous to employees than the OSHA decompression tables.[11]

Based on a review of available evidence, the experience of State Plans that either granted variances (Nevada, Oregon, and Washington) [12] or promulgated a new standard (California) [13] for hyperbaric exposures occurring during similar subaqueous tunnel-construction work, and the information provided in the applicant's variance application, OSHA is granting the permanent variance.

Under Section 6(d) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 655), and based on the record discussed above, the Agency finds that when the employer complies with the conditions of the following order, the working conditions of the employer's workers are at least as safe and healthful as if the employer complied with the working conditions specified by paragraphs (e)(5), (f)(1), (g)(1)(iii), and (g)(1)(xvii) of 29 CFR 1926.803. Therefore, Tully will: (1) Comply with the conditions listed below under ''Specific Conditions of the Permanent Variance'' for the period between the date of this notice and completion of the New York Siphon Tunnel Project, but no later than March 31, 2015; (2) comply fully with all other applicable provisions of 29 CFR part 1926; and (3) provide a copy of this **Federal Register** notice to all employees affected by the conditions, including the affected employees of other employers, using the same means it used to inform these employees of its application for a permanent variance. Additionally, this order will remain in effect until one of the following conditions occurs: (1) Completion of the New York Siphon Tunnel Project but no later than March 31, 2015; or (2) OSHA modifies or

[6] In 1992, the French Ministry of Labour replaced the 1974 French Decompression Tables with the 1992 French Decompression Tables, which differ from OSHA's decompression tables in Appendix A by using: (1) staged decompression as opposed to continuous (linear) decompression; (2) decompression tables based on air or both air and pure oxygen; and (3) emergency tables when unexpected exposure times occur (up to 30 minutes above the maximum allowed working time).

[7] Kindwall, EP (1997). Compressed air tunneling and caisson work decompression procedures: development, problems, and solutions. *Undersea and Hyperbaric Medicine,* 24(4), pp. 337–345. This article reported 60 treated cases of DCI among 4,168 exposures between 19 and 31 p.s.i.g. over a 51-week contract period, for a DCI incidence of 1.44% for the decompression tables specified by the OSHA standard.

[8] Sealey, JL (1969). Safe exit from the hyperbaric environment: medical experience with pressurized tunnel operations. *Journal of Occupational Medicine,* 11(5), pp. 273–275. This article reported 210 treated cases of DCI among 38,600 hyperbaric exposures between 13 and 34 p.s.i.g. over a 32-month period, for an incidence of 0.54% for the decompression tables specified by the Washington State safety standards for compressed-air work, which are similar to the tables in the OSHA standard. Moreover, the article reported 51 treated cases of DCI for 3,000 exposures between 30 and 34 p.s.i.g., for an incidence of 1.7% for the Washington State tables.

[9] In 1985, the National Institute for Occupational Safety and Health (NIOSH) published a report entitled ''Criteria for Interim Decompression Tables for Caisson and Tunnel Workers''; this report reviewed studies of DCI and other hyperbaric-related injuries resulting from use of OSHA's tables. This report is available on NIOSH's Web site: *http://www.cdc.gov/niosh/topics/decompression/default.html.*

[10] Anderson HL (2002). Decompression sickness during construction of the Great Belt tunnel, Denmark. *Undersea and Hyperbaric Medicine,* 29(3), pp. 172–188.

[11] Le Péchon JC, Barre P, Baud JP, Ollivier F (September 1996). Compressed air work—French tables 1992—operational results. *JCLP Hyperbarie Paris, Centre Medical Subaquatique Interentreprise, Marseille: Communication a l'EUBS,* pp. 1–5 (see Ex. OSHA–2012–0036–0005).

[12] These state variances are available in the docket: Exs. OSHA–2012–0035–0006 (Nevada), OSHA–2012–0035–0007 (Oregon), and OSHA–2012–0035–0008 (Washington).

[13] See California Code of Regulations, Title 8, Subchapter 7, Group 26, Article 154, available at *http://www.dir.ca.gov/title8/sb7g26a154.html.*

revokes this final order in accordance with 29 CFR 1905.13.

VI. Order

As of the effective date of this final order, OSHA is revoking the interim order granted to the employer on January 7, 2014.

OSHA issues this final order authorizing Tully/OHL USA Joint Venture (''the employer'') to comply with the following conditions instead of complying with the requirements of paragraphs 29 CFR 1926.803(e)(5), (f)(1), (g)(1)(iii), and (g)(1)(xvii). This final order applies to Tully/OHL USA Joint Venture at the New York Siphon Tunnel Project. These conditions are:

A. Scope

The permanent variance applies only to work:

1. That occurs in conjunction with construction of the New York Siphon Tunnel Project, a subaqueous tunnel constructed using advanced shielded mechanical-excavation techniques and involving operation of an EPBTBM;

2. Performed under compressed-air and hyperbaric conditions up to 58 p.s.i.g.;

3. In the EPBTBM's forward section (the working chamber) and associated hyperbaric chambers used to pressurize and decompress employees entering and exiting the working chamber; and

4. Except for the requirements specified by 29 CFR 1926.803(e)(5), (f)(1), (g)(1)(iii), and (g)(1)(xvii), Tully must comply fully with all other applicable provisions of 29 CFR part 1926.

5. This order will remain in effect until one of the following conditions occurs: (1) completion of the New York Siphon Tunnel Project, but no later than March 31, 2015; or (2) OSHA modifies or revokes this final order in accordance with 29 CFR 1905.13.

B. Application

The permanent variance applies only when Tully stops the tunnel-boring work, pressurizes the working chamber, and the CAWs either enter the working chamber to perform interventions (i.e., inspect, maintain, or repair the mechanical-excavation components), or exit the working chamber after performing interventions.

C. List of Abbreviations

Abbreviations used throughout this permanent variance include the following:

1. CAW—Compressed-air worker
2. CFR—Code of Federal Regulations
3. DCI—Decompression Illness
4. EPBTBM—Earth Pressure Balanced Tunnel Boring Machine
5. HOM—Hyperbaric Operations and Safety Manual
6. JHA—Job hazard analysis
7. OSHA—Occupational Safety and Health Administration
8. OTPCA—Office of Technical Programs and Coordination Activities

D. Definitions

The following definitions apply to this permanent variance. These definitions supplement the definitions in Tully's project-specific HOM.

1. *Affected employee or worker*—an employee or worker who is affected by the conditions of this permanent variance, or any one of his or her authorized representatives. The term ''employee'' has the meaning defined and used under the Occupational Safety and Health Act of 1970 (29 U.S.C. 651 *et seq.*)

2. *Atmospheric pressure*—the pressure of air at sea level, generally 14.7 p.s.i.a., 1 atmosphere absolute, or 0 p.s.i.g.

3. *Compressed-air worker*—an individual who is specially trained and medically qualified to perform work in a pressurized environment while breathing air at pressures up to 58 p.s.i.g.

4. *Competent person*—an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.[14]

5. *Decompression illness (also called decompression sickness or the bends)*—an illness caused by gas bubbles appearing in body compartments due to a reduction in ambient pressure. Examples of symptoms of decompression illness include (but are not limited to): joint pain (also known as the ''bends'' for agonizing pain or the ''niggles'' for sight pain); areas of bone destruction (termed ''dysbaric osteonecrosis''); skin disorders (such as cutis marmorata, which causes a pink marbling of the skin); spinal cord and brain disorders (such as stroke, paralysis, paresthesia, and bladder dysfunction); cardiopulmonary disorders, such as shortness of breath; and arterial gas embolism (gas bubbles in the arteries that block blood flow).[15]

Note: Health effects associated with hyperbaric intervention, but not considered symptoms of DCI, can include: barotrauma (direct damage to air-containing cavities in the body such as ears, sinuses, and lungs); nitrogen narcosis (reversible alteration in consciousness that may occur in hyperbaric environments and caused by the anesthetic effect of certain gases at high pressure); and oxygen toxicity (a central nervous system condition resulting from the harmful effects of breathing molecular oxygen (O_2) at elevated partial pressures).

6. *Earth Pressure Balanced Tunnel Boring Machine*—the machinery used to excavate the tunnel.

7. *Hot work*—any activity performed in a hazardous location that may introduce an ignition source into a potentially flammable atmosphere.[16]

8. *Hyperbaric*—at a higher pressure than atmospheric pressure.

9. *Hyperbaric intervention*—a term that describes the process of stopping the EPBTBM and preparing and executing work under hyperbaric pressure in the working chamber for the purpose of inspecting, replacing, or repairing cutting tools and/or the cutterhead structure.

10. *Hyperbaric Operations Manual*—a detailed, project-specific health and safety plan developed and implemented by the employer for working in compressed air during the New York Siphon Tunnel Project.

11. *Job hazard analysis*—an evaluation of tasks or operations to identify potential hazards and to determine the necessary controls.

12. *Man lock*—an enclosed space capable of pressurization, and used for compressing or decompressing any employee or material when either is passing into or out of a working chamber.

13. *Pressure*—a force acting on a unit area; usually expressed as pounds per square inch (p.s.i.).

14. *p.s.i.*—pounds per square inch, a common unit of measurement of pressure; a pressure given in p.s.i. corresponds to absolute pressure.

15. *p.s.i.a*—pounds per square inch absolute, or absolute pressure, is the sum of the atmospheric pressure and gauge pressure. At sea level, atmospheric pressure is approximately 14.7 p.s.i. Adding 14.7 to a pressure expressed in units of p.s.i.g. will yield the absolute pressure, expressed as p.s.i.a.

16. *p.s.i.g.*—pounds per square inch gauge, a common unit of pressure; pressure expressed as p.s.i.g. corresponds to pressure relative to atmospheric pressure. At sea level,

[14] Adapted from 29 CFR 1926.32(f).

[15] See Appendix 10 of ''A Guide to the Work in Compressed Air Regulations 1996,'' published by the United Kingdom Health and Safety Executive and available from NIOSH at *http://www.cdc.gov/niosh/docket/archive/pdfs/NIOSH–254/compReg1996.pdf*

[16] Also see 29 CFR 1910.146(b).

atmospheric pressure is approximately 14.7 p.s.i. Subtracting 14.7 from a pressure expressed in units of p.s.i.a. yields the gauge pressure, expressed as p.s.i.g.

17. *Qualified person*—an individual who, by possession of a recognized degree, certificate, or professional standing, or who, by extensive knowledge, training, and experience, successfully demonstrates an ability to solve or resolve problems relating to the subject matter, the work, or the project.[17]

18. *Working chamber*—an enclosed space in the EPBTBM in which CAWs perform interventions, and which is accessible only through a man lock.

E. Safety and Health Practices

1. Tully must develop and implement a project-specific HOM, and submit the HOM to OSHA at least six months before using the EPBTBM. Tully must receive a written acknowledgement from OSHA regarding the acceptability of the HOM.[18] The HOM shall provide the governing safety and health requirements regarding hyperbaric exposures during the tunnel-construction project.

2. Tully must implement the safety and health instructions included in the manufacturer's operations manuals for the EPBTBM, and the safety and health instructions provided by the manufacturer for the operation of decompression equipment.

3. Tully must use air as the only breathing gas in the working chamber.

4. Tully must use the 1992 French Decompression Tables for air, air-oxygen, and oxygen decompression specified in the HOM, specifically the tables titled ''French Regulation Air Standard Tables.''

5. Tully must equip man-locks used by its employees with an oxygen-delivery system as specified by the HOM. Tully must not store oxygen or other compressed gases used in conjunction with hyperbaric work in the tunnel.

6. Workers performing hot work under hyperbaric conditions must use flame-retardant personal protective equipment and clothing.

7. In hyperbaric work areas, Tully must maintain an adequate fire-suppression system approved for hyperbaric work areas.

8. Tully must develop and implement one or more JHAs for work in the hyperbaric work areas, and review, periodically and as necessary (e.g., after making changes to a planned intervention that affects its operation), the contents of the JHAs with affected employees. The JHAs must include all the job functions that the risk assessment[19] indicates are essential to prevent injury or illness.

9. Tully must develop a set of checklists to guide compressed-air work and ensure that employees follow the procedures required by this permanent variance (including all procedures required by the HOM, which this permanent variance incorporates by reference). The checklists must include all steps and equipment functions that the risk assessment indicates are essential to prevent injury or illness during compressed-air work.

10. Tully must ensure that the safety and health provisions of the HOM adequately protect the workers of all contractors and subcontractors involved in hyperbaric operations.[20]

F. Communication

1. Prior to beginning a shift, Tully must implement a system that informs workers exposed to hyperbaric conditions of any hazardous occurrences or conditions that might affect their safety, including hyperbaric incidents, gas releases, equipment failures, earth or rock slides, cave-ins, flooding, fires, or explosions.

2. Tully must provide a power-assisted means of communication among affected workers and support personnel in hyperbaric conditions where unassisted voice communication is inadequate.

a. Tully must use an independent power supply for powered communication systems, and these systems must operate such that use or disruption of any one phone or signal location will not disrupt the operation of the system from any other location.

b. Tully must test communication systems at the start of each shift and as necessary thereafter to ensure proper operation.

G. Worker Qualifications and Training

Tully must:

1. Ensure that each affected worker receives effective training on how to safely enter, work in, exit from, and undertake emergency evacuation or rescue from, hyperbaric conditions, and document this training.

2. Provide effective instruction, before beginning hyperbaric operations, to each worker who performs work, or controls the exposure of others, in hyperbaric conditions, and document this instruction. The instruction must include topics such as:

a. The physics and physiology of hyperbaric work;

b. Recognition of pressure-related injuries;

c. Information on the causes and recognition of the signs and symptoms associated with decompression illness, and other hyperbaric intervention-related health effects (e.g., barotrauma, nitrogen narcosis, and oxygen toxicity).

d. How to avoid discomfort during compression and decompression; and

e. Information the workers can use to contact the appropriate healthcare professionals should the workers have concerns that they may be experiencing adverse health effects from hyperbaric exposure.

3. Repeat the instruction specified in paragraph (2) of this condition periodically and as necessary (e.g., after making changes to its hyperbaric operations).

4. When conducting training for its hyperbaric workers, make this training available to OSHA personnel and notify the OTPCA at OSHA's national office and OSHA's Manhattan Area Office before the training takes place.

H. Inspections, Tests, and Accident Prevention

1. Tully must initiate and maintain a program of frequent and regular inspections of the EPBTBM's hyperbaric equipment and support systems (such as temperature control, illumination, ventilation, and fire-prevention and fire-suppression systems), and hyperbaric work areas, as required under 29 CFR 1926.20(b)(2) by:

a. Developing a set of checklists to be used by a competent person in conducting weekly inspections of hyperbaric equipment and work areas; and

b. Ensuring that a competent person conducts daily visual checks, as well as weekly inspections of the EPBTBM.

2. If the competent person determines that the equipment constitutes a safety hazard, Tully must remove the equipment from service until it corrects the hazardous condition and has the correction approved by a qualified person.

3. Tully must maintain records of all tests and inspections of the EPBTBM, as well as associated corrective actions and repairs, at the job site for the duration of the job.

[17] Adapted from 29 CFR 1926.32(m).

[18] The previously granted interim order (79 FR 844) constitutes such acknowledgement by OSHA of the acceptability of the HOM provided by Tully for the New York Siphon Tunnel Project.

[19] See ANSI/AIHA Z10–2012, American National Standard for Occupational Health and Safety Management Systems, for reference.

[20] See ANSI/ASSE A10.33–2011, American National Standard for Construction and Demolition Operations—Safety and Health Program Requirements for Multi-Employer Projects, for reference.

I. Compression and Decompression

Tully must consult with its attending physician concerning the need for special compression or decompression exposures appropriate for CAWs not acclimated to hyperbaric exposure.

J. Recordkeeping

Tully must maintain a record of any recordable injury, illness, or fatality (as defined by 29 CFR part 1904 Recording and Reporting Occupational Injuries and Illnesses) resulting from exposure of an employee to hyperbaric conditions by completing the OSHA 301 Incident Report form and OSHA 300 Log of Work Related Injuries and Illnesses.

Note: Examples of important information to include on the OSHA 301 Incident Report form (along with the corresponding question on the form) are: the task performed (Question (Q) 14); an estimate of the CAW's workload (Q 14); the composition of the gas mixture (e.g., air or oxygen (Q 14)); the maximum working pressure (Q 14); temperatures in the work and decompression environments (Q 14); unusual occurrences, if any, during the task or decompression (Q 14); time of symptom onset (Q 15); duration between decompression and onset of symptoms (Q 15); type and duration of symptoms (Q 16); a medical summary of the illness or injury (Q 16); duration of the hyperbaric intervention (Q 17); possible contributing factors (Q 17); the number of prior interventions completed by the injured or ill CAW (Q 17); the number of prior interventions completed by the injured or ill CAW at this working pressure (Q 17); contact information for the treating healthcare provider (Q 17); and date and time of last hyperbaric exposure for this CAW.

In addition to completing the OSHA 301 Incident Report form and OSHA 300 Log of Work Related Injuries and Illnesses, the employer must maintain records of:

1. The date, times (e.g., began compression, time spent compressing, time performing intervention, time spent decompressing), and pressure for each hyperbaric intervention.

2. The name of each individual worker exposed to hyperbaric pressure and the decompression protocols and results for each worker.

3. The total number of interventions and the total hyperbaric exposure duration at each pressure.

4. The results of the post-intervention physical assessment of each CAW for signs and symptoms of decompression illness, barotrauma, nitrogen narcosis, oxygen toxicity or other health effects associated with work in compressed air or mixed gases for each hyperbaric intervention.

K. Notifications

1. To assist OSHA in administering the conditions specified herein, the employer must:

a. Notify the OTPCA and the Manhattan Area Office of any recordable injury, illness, or fatality (by submitting the completed OSHA 301 Incident Report form [21]) resulting from exposure of an employee to hyperbaric conditions, including those exposures that do not require recompression treatment (e.g., nitrogen narcosis, oxygen toxicity, barotrauma), but still meet the recordable injury or illness criteria of 29 CFR 1904. The employer shall provide the notification within 8 hours of the incident or 8 hours after becoming aware of a recordable injury, illness, or fatality, and submit a copy of the incident investigation (OSHA form 301) within 24 hours of the incident or 24 hours after becoming aware of a recordable injury, illness, or fatality. In addition to the information required by the OSHA form 301, the incident-investigation report must include a root-cause determination, and the preventive and corrective actions identified and implemented.

b. Provide certification within 15 days of the incident that the employer informed affected workers of the incident and the results of the incident investigation (including the root-cause determination and preventive and corrective actions identified and implemented).

c. Notify the OTPCA and the Manhattan Area Office within 15 working days in writing of any change in the compressed-air operations that affects the employer's ability to comply with the conditions specified herein.

d. Upon completion of the New York Siphon Tunnel Project, evaluate the effectiveness of the decompression tables used throughout the project, and provide a written report of this evaluation to the OTPCA and the Manhattan Area Office.

Note: The evaluation report is to contain summaries of: (1) The number, dates, durations, and pressures of the hyperbaric interventions completed; (2) decompression protocols implemented (including composition of gas mixtures (air and/or oxygen), and the results achieved; (3) the total number of interventions and the number of hyperbaric incidents (decompression illnesses and/or health effects associated with hyperbaric interventions as recorded on OSHA 301 and 300 forms, and relevant medical diagnoses and treating physicians' opinions); and (4) root causes of any hyperbaric incidents, and preventive and corrective actions identified and implemented.

e. To assist OSHA in administering the conditions specified herein, inform the OTPCA and the Manhattan Area Office as soon as possible after it has knowledge that it will:

i. Cease to do business;

ii. Change the location and address of the main office for managing the tunneling operations specified herein; or

iii. Transfer the operations specified herein to a successor company.

f. Notify all affected employees of this permanent variance by the same means required to inform them of its application for a variance.

2. OSHA must approve the transfer of this permanent variance to a successor company.

[21] See footnote 4.

VII. Authority and Signature

David Michaels, Ph.D., MPH, Assistant Secretary of Labor for Occupational Safety and Health, 200 Constitution Avenue NW., Washington, DC 20210, authorized the preparation of this notice. Accordingly, the Agency is issuing this notice pursuant to Section 29 U.S.C. 655(6)(d), Secretary of Labor's Order No. 1–2012 (77 FR 3912, Jan. 25, 2012), and 29 CFR 1905.11.

Signed at Washington, DC on May 20, 2014.

David Michaels,

Assistant Secretary of Labor for Occupational Safety and Health.

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NATIONAL FOUNDATION FOR THE ARTS AND THE HUMANITIES

Agency Information Collection Activities: Proposed Collection; Comment Request; Generic Clearance for the Collection of Qualitative Feedback on Agency Service Delivery

AGENCY: Institute of Museum and Library Services, The National Foundation for the Arts and the Humanities.

ACTION: 30-Day notice of submission of information collection approval from the Office of Management and Budget and request for comments.

SUMMARY: As part of a Federal Government-wide effort to streamline the process to seek feedback from the public on service delivery, IMLS has submitted a Generic Information Collection Request (Generic ICR): ''Generic Clearance for the Collection of Qualitative Feedback on Agency Service