Ownership matrix	**USQ # N/A-4**

1.0 PURPOSE AND SCOPE
(5.1.1, 5.1.2)

This standard enhances worker safety through the incorporation of ergonomics criteria in Tank Operations Contractor (TOC) work activities. It establishes a process for identification and control of conditions presenting potential musculoskeletal injury (MSI) hazards to employees. Adherence to the requirements of this process will mitigate the frequency and severity of work-related musculoskeletal injuries.

2.0 IMPLEMENTATION

This procedure is effective on the date shown in the header.

3.0 STANDARD

The American Conference of Governmental Industrial Hygienists (ACGIH®[1]) lists ergonomics as a physical hazard requiring control. The ACGIH® publishes these controls as Threshold Limit Values (TLVs). (5.1.3) The U.S. Department of Energy (DOE) made compliance with the TLVs mandatory in 10 CFR 851. Compliance with this standard is further described in TFC-PLN-47. (5.1.6)

Specific TLVs are provided for:

- Hand Activity Level
- Lifting
- Hand-Arm Vibration
- Upper Limb Localized Fatigue
- Whole-Body Vibration.

In addition to the specific TLVs and controls from ACGIH, the TOC will provide for the following:

1. Establish/ensure the behavior based safety observation program includes ergonomics.

2. Provide medical surveillance (as provided by DOE occupational medicine contractor) for workers with potential MSI and to look for MSI precursors. Wherever possible, ergonomic-related hazards as they relate to a worker's job functions will be anticipated and documented on the Employee Job Task Analysis (EJTA), so medical monitoring can watch for stressors. (5.1.4)

3. Evaluation of jobs and tasks for MSI hazards through the use of the existing Integrated Safety Management System (TFC-POL-16) as implemented through the use of the Job Hazard Analysis (JHA) process, the industrial hygiene exposure assessment process, and the ergonomic evaluation checklist. These evaluations will focus on prevention of

[1] ACGIH is a registered trademark of the American Conference of Governmental Industrial Hygienists, Cincinnati, OH.

new injuries and interventions to mitigate the effect and aggravation of existing injuries or symptoms. (5.1.5, 5.1.7)

4. Evaluation of injuries will include an assessment as to whether ergonomic factors played a role in the injury. Injury and illness data will be tracked and trended by the Safety & Health Program. These trends will be used as part of the routine evaluation of the effectiveness of the ergonomics program.

5. An ergonomics trained industrial hygienist to serve as subject-matter expert for identifying and recommending controls for MSI hazards. Specific ergonomic evaluation tools will be used. The industrial hygienist will work to integrate ergonomic solutions into the work activity and to apply them to the work area.

    a. Work areas and tasks will be evaluated to identify those with potential MSI hazards and risk factors including repetition, awkward posture, force, vibration, sustained exertions, contact stress and/or low temperature. (5.1.5) An industrial hygiene technician may collect the field data, but an industrial hygienist shall make recommendations.

    b. Workstations in office settings will be evaluated according to the procedure TFC-ESHQ-IH-D-49.

    c. Controls will be identified and implemented that prevent or mitigate MSI hazards specific to the affected work area and activities. Controls will be selected and employed in the following order: (5.1.5)

        1) Elimination of the hazard through use of mechanical means or by changing the task design.

        2) Engineered controls will be developed in accordance with TFC-PLN-09.

        3) Administrative controls (safe work practices).

        NOTE: In many cases personnel protective equipment (PPE) can actually increase MSI hazards due to lack of feel and loss of dexterity. PPE should be evaluated by the project industrial hygienist prior to use.

        4) PPE.

6. Ergonomic training will include:

    - General employee awareness training
    - Industrial Hygienist/Industrial Hygiene Technician training on the use of the ergonomic assessment tools, as specified in TFC-ESHQ-IH-D-49.

7. The ergonomics program will be assessed on a periodic basis to address overall effectiveness and to evaluate the implementation of the requirements as described in TFC-PLN-47 and this standard.

4.0 DEFINITIONS

Administrative controls. Policies and procedures that both allow and require employee rotation, rest breaks, and stretching in order to mitigate MSI hazards.

Awkward posture. Any posture that deviates from a neutral posture resulting in stress on joints, muscles and ligaments. This includes hands above chest height, shoulder elevation, shoulder abduction greater than 30° (reaching across the body), shoulder flexion (arms above head), twisting of elbows and forearms, and wrist deviation of more than 20°.

Contact stress. Stress placed on nerves, blood vessels, and skin due to a body part being placed in contact with a hard surface.

Engineering controls. Controls that result in a change to the workplace, work conditions, or the work process that mitigate MSI hazards. Includes tools, mechanical assists, platforms, work stations.

Ergonomics. The science of fitting workplace conditions and job demands to the capabilities of the working population.

Force. The effort required to either move an object or to prevent its movement.

Musculoskeletal Injury (MSI) hazard. A condition in the work place that if uncorrected, could contribute to a musculoskeletal disorder.

Repetition. A series of motions having little variation repeated every few seconds. A task cycle time of less than 30 seconds is considered repetitive.

Sustained exertions. Force applied in a constant manner, such as carrying a load.

Threshold limit value. The time-weighted average exposure for an 8-hour workday and 40-hour work week.

Vibration. The presence of localized vibration can lead to excessive grip force. In addition, there are specific TLVs for partial and whole body vibration exposure.

Work-related musculoskeletal disorders. Disorders of the muscles, nerves, tendons, ligaments, joints, cartilage, or spinal discs that are not typically the result of an instantaneous event, but are of more gradual onset and which are contributed to by the work environment or processes.

5.0 SOURCES

5.1 Requirements

5.1.1 10 CFR 851, “Worker Safety and Health Program.”

5.1.2 American Conference of Governmental Industrial Hygienists (ACGIH), “TLVs and BEIs: Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.” (2016)

5.1.3 Occupational Safety and Health Act of 1970 Section 5(a)(1), “General Duty Clause.”

5.1.4 TFC-ESHQ- IH-C-17, “Employee Job Task Analysis.”

5.1.5 TFC-ESHQ-S_SAF-C-02, “Job Hazard Analysis.”

5.1.6 TFC-PLN-47, “Worker Safety and Health Program.”

5.1.7 TFC-POL-16, “Integrated Safety Management System Policy.”

5.2 References

5.2.1 NIOSH Publication 91-117, “Elements of an Ergonomics Program.”

5.2.2 TFC-ESHQ-IH-D-49, “Using Office Ergonomic Assessment Tools.”

5.2.3 TFC-PLN-09, “Human Factors Program.”