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Approved By: Safety Supervisor	Ergono	omics	Garyville Refining Safe Practice
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## 1.0 <u>PURPOSE</u>

**1.1** To ensure potential employee exposure to ergonomic stressors are evaluated and controlled to minimize the risk of occupational injury and illness that may result from these stressors in the workplace.

### 2.0 <u>APPLICATION</u>

**2.1** This standard applies to refinery operations and office locations to minimize ergonomic related illnesses and injuries that can occur from office duties, manual lifting, and assembly or manipulation of tools.

### 3.0 **IMPLEMENTATION**

**3.1** This standard shall be implemented in the design phase of new projects or the purchase of new equipment, and proper controls implemented where feasible. For existing structures, ergonomic surveys shall be conducted and recommendations implemented according to priority and where feasible.

#### 4.0 ADMINISTRATION/RESPONSIBILITIES

- **4.1** The Division's HES Team #8 (Health & Hygiene) has been designated as the ergonomic committee to evaluate ergonomic issues in the Refinery. Team #8 is represented by the LRD medical department, HESS department and selected employees.
- **4.2** The LRD medical department shall request physician referrals for recognized musculoskeletal disorders as needed.
- **4.3** The HESS department shall provide guidance in recognition of ergonomic hazards and assistance in recommendations for control measures from the ergonomic committee.
- **4.4** Supervisors shall assist in identifying any ergonomic concerns by reporting them to the ergonomic committee and assisting with implementation of identified control measures.
- **4.5** Employees shall identify ergonomic concerns to their supervisor or ergonomic team and assist in surveys conducted in their immediate work areas.

#### 5.0 **DEFINITIONS**

- **5.1** *Administrative Control:* A change in work procedures, including policies, rules, supervision, schedules and training, that reduces the duration, frequency, and severity of exposure to hazards.
- 5.2 *Engineering Control:* The work environment and/or the job itself are

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designed to eliminate hazards or reduce exposure to hazards.

- **5.3** *Ergonomic Stressor:* Factors that increase the chance of developing a MSD. These factors include force, direct pressure, repetition, vibration, and awkward or static postures.
- **5.4 Established Exposure Limit:** There are no OSHA Permissible Exposure Limits for ergonomics. Selection of criteria for evaluating ergonomic stress will be based on the most relevant tools that are supported and validated by the best available scientific information.
- **5.5** *Musculoskeletal Disorder (MSD):* A disorder of the muscles, nerves, tendons, ligaments, joints, cartilage, or spinal discs that usually occurs over a period of time from repetitive motions. MSD may include muscle strains and tears, ligament sprains, joint and tendon inflammation, pinched nerves, and spinal disc degeneration. Included are such medical conditions as: low back pain, tension neck syndrome, carpal tunnel syndrome, rotator cuff syndrome, DeQuervain's syndrome, trigger finger, tarsal tunnel syndrome, sciatica, epicondylitis, tendonitis, Reynaud's phenomenon, hand-arm vibration syndrome, carpet layer's knee, and herniated spinal disc. Not included are injuries caused by slips, trips, falls, vehicle accidents, or similar accidents.
- **5.6 Static Posture:** Maintaining the same posture for an extended period of time. This can cause problems including pooling of blood, fatigue in muscles and contact stress.

## 6.0 **REQUIREMENTS**

- **6.1** Surveys of process areas determined by injury analysis will be conducted by employee interviews in various locations throughout the refinery. These surveys will be used to identify personnel and work tasks with the potential for ergonomic type injuries. Any identified areas of concern shall be evaluated for a recommended control.
- **6.2** Past injury records, to define types of injuries (e.g., strains, sprains, joint problems, etc.), shall be reviewed by the HES Team and identified for problem areas. These problem areas shall be prioritized and given recommended controls.
- **6.3** Engineering controls are the preferred method of eliminating or reducing the risk of developing MSDs, and shall be implemented when feasible.
- **6.4** If engineering controls are not feasible, or cannot reduce the hazard sufficiently, then administrative controls shall be implemented.
- **6.5** Personal equipment (wrist supports, back belts/braces, etc.) has not yet been regarded as offering personal protection against ergonomic hazards. They should not be used as prophylactic PPE to prevent the development of musculoskeletal discomfort or disorders. The dependency on this equipment to provide protection should be minimized, unless directed otherwise by a medical professional.
- 6.6 A stretching program has been developed as a preventive measure to

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decrease the likelihood of injury due to overexertion. See Appendix A.

- 6.7 Reporting MSD Signs and Symptoms
  - **6.7.1** Employees should promptly report all MSD signs and symptoms to Medical, at which point the LRD Industrial Hygienist will assist in addressing the MSD.
  - **6.7.2** Not all reported musculoskeletal discomforts are work related or lead to an ergonomic injury, and therefore, cannot be corrected in the workplace. Personal conditioning, habits, hobbies, sports, and lifestyles can also lead to musculoskeletal discomforts.
  - **6.7.3** Employee discomforts may be resolved with a workstation evaluation, modification, and other recommendations by the LRD Industrial Hygienist.
    - **6.7.3.1** Recommendations may include the use of ergonomic aids and/or ergonomic equipment/furniture.
    - **6.7.3.2** Proactive ergonomic tips are provided in Appendix B.
    - **6.7.3.3** Office personnel may use Appendix C for guidance on setting up an ergonomic workstation.
- 6.8 Workstation Specifications
  - 6.8.1 Area
    - **6.8.1.1** It is encouraged that office personnel allow adequate space on the desk surface to keep accessories and materials within easy reach (e.g. keyboard, mouse, phone, calculator, document holder).
    - **6.8.1.2** It is encouraged that office personnel allow adequate space beneath the desk, free from obstructions, to provide leg room to accommodate multiple positions.
    - **6.8.1.3** Operators and maintenance personnel should be conscientious of their surroundings, their work environment, and their movements within these areas.
  - 6.8.2 Lighting
    - **6.8.2.1** General lighting typically provides adequate brightness to perform duties.
    - **6.8.2.2** Task lighting may be necessary for more intricate tasks.
    - **6.8.2.3** Task lighting should be placed in such a manner that will minimize glare.
    - **6.8.2.4** Window luminance should be controlled to reduce glare and excess brightness. Controls may include shades and drapes.
      - **6.8.2.4.1** Computer monitors should be placed perpendicular to windows to avoid glare.

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- 6.8.3 Work Breaks
  - **6.8.3.1** Office personnel are encouraged to take regular breaks from sitting as well as looking at the monitor.
  - **6.8.3.2** Incorporate alternate work tasks throughout the work shift to avoid static posturing and eye strain.
  - **6.8.3.3** It is encouraged that operations and maintenance personnel performing tasks requiring awkward posturing take frequent breaks to alleviate strain on the body.
- 6.8.4 Work Specifications
  - 6.8.4.1 Lifting
    - **6.8.4.1.1** When possible, use assistive lifting devices before performing a manual lift.
    - **6.8.4.1.2** Prior to lifting, the weight, balance, and dimensions of an object should be tested.
    - **6.8.4.1.3** Depending on individual capabilities, single person lifts of objects must be restricted to 55 pounds or less. Even with objects weighing less than 55 pounds, an employee should request assistance if they feel the weight, balance, or dimensions exceed their capabilities or puts them at risk for injury.
    - **6.8.4.1.4** An additional employee is required to assist in lifting for every additional 55 pounds of weight and/or the balance or dimensions render it necessary.
    - **6.8.4.1.5** Under certain circumstances, due to the distribution of weight of an object, it is possible to reduce the number of employees required to lift a heavy object, given HES approves of the lift and reduction in the number of employees performing the lift.
  - 6.8.4.2 Ergonomic Aids
    - **6.8.4.2.1** Foot rests can be ordered to assist computer users to better fit their workstation.
    - **6.8.4.2.2** Knee pads can be provided to protect against knee impact or extended kneeling.
    - **6.8.4.2.3** Anti-vibration gloves can be provided to reduce vibration and impact hazards that cause hand and wrist fatigue.
    - **6.8.4.2.4** Chair cushions or back rests can be provided to assist office workers in alleviating discomforts during extended sitting.

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#### 7.0 TRAINING

- 7.1 A computer based training (CBT) is available.
- **7.2** The OEH group from Health Services offers a training class for ergonomics committees.

#### 8.0 REFERENCES

- 8.1 American National Standards Institute, Control of Work-Related Cumulative Trauma Disorders. Part I, Upper Extremities (ANSI Z-365) (working draft)
- **8.2** NIOSH Applications Manual for the Revised NIOSH Lifting Equation (1994)
- 8.3 DOC. LIB. No.: 311.39

### 9.0 APPENDICES

- **9.1** Appendix A: LRD Voluntary Stretching Program
- **9.2** Appendix B: Proactive Ergonomic Tips
- **9.3** Appendix C: Computer Workstation Setup

#### 10.0 REVISION HISTORY

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	Change procedural format	Safety	Refinery Management Team (RMT)	10/15/09	10/15/09
1	Expanded program to include details and appendices	Jessica Myers	VPP 8/21/14 RLT 9/4/14	9/9/14	9/9/14
2	No changes, routine review	Jessica Myers	Safety	7/20/2017	7/20/2017
3	Routine triennial review, no changes	Alex Mapel	Safety	7/30/2020	7/30/2020
4	Routine triennial review, no changes	Kristen Brickner	Safety	7/24/2023	7/24/2023

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## Appendix A LRD Voluntary Stretching Program

This is a voluntary program.

The benefits of stretching are well documented and these stretches are recommended.

- 1) Stretching should be conducted during the morning tool box talk.
- 2) Only takes a few minutes.
- 3) It can be repeated any time during the day.
- 4) Only stretch within your means.
- 5) Stop when it is painful or uncomfortable.
- 6) Don't rush the stretch, go slow and give it time to work.
- 7) Don't bounce as this may cause injury.
- 8) Perform a few different stretches each day or throughout the day.
- 9) Breathe slowly when doing the stretch, holding your breath causes you to tense and could cause injury.
- 10) Have fun and relax!

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# **Helpful Points on Stretching**

## • Benefits of Stretching

- o Reduces risk of injury to joints, muscles and tendons
- Reduces muscle soreness
- $\circ$  Reduces muscle tension
- Increases flexibility
- o Increases mental and physical relaxation
- o Enhances physical activity
- Enhances ability to learn and perform skilled movements
- Enhances development of body awareness
- o Provides warmer and more elastic muscles
- Note that benefits only come from regularity

## • Breathing during Stretching



 $\circ$  Proper breathing control is important for a good stretch. It helps your body to relax. Breathing also increases the blood flow throughout the body and helps to mechanically remove lactic acid and other by-products of exercise. The proper way to inhale is slowly through your nose, expanding the abdomen (not the chest); hold the breath for a moment and then exhale slowly through the nose or mouth while the muscle is being stretched.

## • The Right Way to Stretch

- o Begin slowly
- Breathe easily
- o Relax
- o Tune into your body
- o Focus on those muscles and joints that are being stretched
- $\circ \ \ \, \text{Do not rush}$
- $\circ$  Feel the stretch

## • The Wrong Way to Stretch

- o Rushing
- Holding your breath
- $\circ \ \ Tensing \ up$
- $\circ \ \ \, \text{Not being focused on your body}$
- $\circ$   $\;$  Stretching to the point of pain
- $\circ$  Bouncing
- o Overstretching

## • Three Elements to a Good Stretch

#### $\circ$ Isolation:

- Isolating the muscle allows greater control over the stretch
- It is easier to change its integrity while isolated
- You experience resistance from fewer muscle groups
- The fewer muscles you try to stretch at once, the better

#### • Leverage:

• Leverage creates sufficient control over how fast and how intense the stretch becomes







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- Provides you the desired intensity of the stretch
- Provides you greater control over your stretch
- Decreases applied force to your outstretched limb
- Easier to overcome the resistance of inflexible muscles
- Stretches are made easier and more effective by adjusting them to greater leverage

#### • Risk:

- Stretching may cause stress to the joints
- May strain tendons or ligaments due to rotations involved
- May cause pressure on the disks of the back

## • Pain and Discomfort

• If you are experiencing pain or discomfort before, during, or after stretching, then you need to try to identify the cause. Severe pain (particularly in the joints, ligaments, or tendons) usually indicates a serious injury of some sort. You may need to discontinue stretching until you have sufficiently recovered. Note that some amount of soreness will almost always be experienced by individuals that have not stretched or exercised much in the last few months.

## • Overstretching

• You should *not* be sore the day after, if you have stretched properly. Overstretching will simply increase the time it takes for you to gain greater flexibility. The reason of increased time is because the damaged muscles need to repair themselves. To prevent this, you should go easier on your muscles by reducing the intensity of some or all of the stretches you perform each day.

## • Key Points:

- o Breathe slowly, consistent and under control
- o Take your time
- $\circ$  Stretch both sides with the same amount of time and
- Always stretch to your comfortable limits, never to the
- Never compare yourself to others, everybody is different comparing can lead to overstretching
- Any stretch that feels painful indicates you are overstretching
- Hold only stretch tensions that feel good
- Bouncing can cause small micro tears in the muscles cause injury
- You are stretching, NOT exercising. There is no need to push; stretching is a mild gentle activity!









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## Appendix B Proactive Ergonomic Tips

- 1. Engineering controls are physical changes to the job that eliminate or reduce the presence of musculoskeletal disorder hazards. Following are some examples:
  - A. Changing the way materials are transported, e.g.:
    - 1. Use mechanical assist devices: pallet jacks, transport carts, hand trucks, cylinder carts, tugs, cranes, or lifts.
    - 2. Use handles or slotted hand holes in packages.
  - B. Changing the location or angle of frequently used items, e.g.:
    - 1. Install keyboard tray underneath a desk, and adjust angle and height.
    - 2. Move computer monitor closer/farther, up/down, and angle screen up/down.
  - C. Modify equipment positions, e.g.:
    - 1. Lower or raise work surface platforms.
    - 2. Allow sit/stand options if possible.
    - 3. Adjust chair positions: seat up/down, seat and back tilt forward/backward, lumbar support up/down, armrests up/down, and armrests in/out.
  - D. Change or modify workstation layout, e.g.:
    - 1. Use foot stool, foot rest, or foot rail.
    - 2. Locate frequently used items within short reaching distances: phone, keyboard, mouse, and calculator.
    - 3. Use a document holder.
    - 4. Use telephone headset for frequent phone use.
    - 5. Use anti-glare screen protectors for excessive lighting.
- 2. Administrative controls are dictated work practices or policies to reduce or prevent ergonomic risks. Following are some examples:
  - A. Change job rules and procedures, e.g.:
    - 1. Schedule frequent breaks from tiring tasks.
    - 2. Vary or broaden the job content (typing, filing, copying, faxing, delivering, assembling, fabricating).
    - 3. Reduce shift length or curtail overtime.
    - 4. Get help to lift, push, or pull heavy or large objects/items.
  - B. Rotate workers through more physically tiring job tasks.
  - C. Train employees to learn techniques for reducing strain and stress, e.g.:

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- 1. Follow the 20/20/20 rule; rest your eyes from computer reading by looking 20 feet away for 20 seconds at least every 20 minutes.
- 2. Change body positions occasionally during stationary job tasks (e.g., desk work).
- 3. Take breaks from sitting during stationary job tasks (e.g., desk work).
- 4. Stretch and exercise the hands, fingers, neck, shoulders, legs, and back.
- 5. Blink often, especially when staring at computer monitors for long periods of time.

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## Appendix C Computer Workstation Setup

Workstation Tips:

- A backrest, pillow or rolled towel may be used as additional lumbar support if needed.
- Allow at least one to two inches space between edge of seat and back of knees.
- "G" and "H" keys on keyboard should be centered.
- Avoid resting wrists on sharp edges, use wrist rest if needed.
- Avoid cradling the phone between the shoulder and ear for extended periods.
- Stand up periodically to reduce stress on the back.
- Don't bang on the keyboard.

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