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Moran Environmental Recovery's Monthly

# Safety Brief

MER Moran Environmental Recovery

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## Best-In-Class Thoughts

*"There is no greatness without passion to be great, whether it's the aspiration of an athlete or an artist, a scientist, a parent, or a businessperson."*
*– Anthony Robbins*

*"Without passion you don't have energy, without energy you have nothing."*
*— Donald Trump*

## Note from Leanne

Everyday, each of us makes an untold amount of choices; most of our choices may seem like they're decisions based on thought or consideration, but really, many of the choices we make aren't really choices at all. They're habits. And over time, the habits that we have, regardless of how insignificant some of them may seem, can have a substantial impact our health, our happiness and many other aspects of our lives.

Being safe is really just a product of being attentive to our habits. By taking time to make conscious decisions about seemingly benign actions, whether it's how we pick up a box or if we look in our driver's side mirror before getting out of a truck, we will slowly build up good habits, and those good habits will help keep us safe, healthy and hopefully happy.

## What is a "Good Catch?"

The term "Good Catch" is used synonymously with the term "near miss" at MER to remind employees that reporting and investigating *near misses* are a positive part of our program. A Good Catch is defined as an unplanned occurrence that could have resulted in damage to persons, property or equipment. It means that a serious accident almost occurred. Suppose you are in your car and you are running late for an appointment. The car is in reverse and you are about to back out of the driveway. Suddenly, in your rear view mirror you notice an unfamiliar child's toy in the driveway. As a precaution you get out to check and find the neighbor's toddler sitting in the driveway behind your car. What if someone trips over a pallet, but doesn't fall? Two forklifts *almost* collide at a corner. A tool is dropped, but toes are missed…this time. All of these are examples of Good Catches. How many times have you shrugged off a Good Catch and never gave it a second thought? Next time, think twice because the difference between a Good Catch and an accident is often a fraction of a second or an inch. Unfortunately, when it happens again, that difference may not be there.

Statistics tell us that for every 330 incidents, 300 produce no injuries, 29 produce minor injuries and one produces a serious injury or fatality. Probability suggests if you reduce the number of near misses, you will reduce the number of injuries that occur.

Good Catch **without** incident – A mechanic nearly begins to perform welding repairs on a vacuum truck without testing the atmosphere inside the tank, but an employee stops and reminds him prior to ignition.

Good Catch **with** incident – A mechanic begins to perform welding repairs on a vacuum truck without testing the atmosphere inside the tank. As he begins, flammable vapors momentarily ignite, but no one is hurt and no property is damaged.

http://www.ehso.emory.edu/content-guidelines/ToolboxTraining_NearMiss_Jan09.pdf

MER

## Did you know…?

*The DOT changed basic description requirements on Hazardous Material Shipping Papers. The new order of information per 49 CFR 172.202 is:*

- *Identification number*
- *Proper shipping name*
- *Hazard class*
- *Subsidiary hazard (in parentheses)*
- *Packing group*

*Example: UN1993, Flammable liquid, n.o.s (contains methanol) 3, PGIII*

# Assigned Protection Factors

What type of respirator should I wear? When do air-purifying cartridges not offer enough protection? The answer involves determining the Maximum Use Concentration (MUC) level for a respirator. The MUC is the maximum atmospheric concentration of a hazardous substance that we can expect our respirator to protect us from. It is calculated by using the Assigned Protection Factor of the respirator (or class of respirators) and the exposure limit of the specific hazardous substance.

Each respirator has an Assigned Protection Factor (APF), which assists in determining the level of respiratory protection a respirator is expected to provide. An APF of 10 means that type of respirator (if worn properly) can be safely used in an atmosphere that has a hazardous concentration of up to 10 times the Permissible Exposure Limit (PEL) for that hazard. See the table below for APFs.

| **Type of Respirator** (All respirators are used with Full Face Pieces) | **Assigned Protection Factor (APF)** | **Maximum Use Concentration (MUC)** |
|---|---|---|
| Air-Purifying Respirator (APR) | 10 (Qualitative Fit Test)<br>50 (Quantitavive Fit Test) | 10 x PEL<br>50 x PEL |
| Powered Air-Purifying Respirator (PAPR) or Supplied-Air Respirator (SAR) (Continuous flow, pressure demand, or other positive pressure mode) | 1,000 | 1,000 x PEL |
| Self-Contained Breathing Apparatus (SCBA) (Pressure Demand or other positive pressure mode) | 10,000 | 10, 000 x PEL |

The MUC usually can be determined mathematically by multiplying the Assigned Protection Factor specified for a respirator by the permissible exposure limit (PEL), short-term exposure limit, ceiling limit, peak limit, or any other exposure limit used for the hazardous substance: **APF X PEL = MUC**

For example, benzene has a PEL of 1 ppm. As shown in the chart above, a full face APR has an APF of 10, which would make the MUC 10 ppm: **10 X 1 ppm = 10 ppm**

Therefore, the maximum concentration of benzene that an employee can be exposed to while wearing a full face APR (with the proper cartridges) is 10 ppm. If the potential concentration level is higher than 10ppm, the respirator would have to be upgraded to one with a higher APR, such as a SAR system. See the table below for examples of how to select the correct respirator.

| Chemical | PEL | Respirator APF | MUC | Concentration Level | Appropriate Respirator |
|---|---|---|---|---|---|
| Benzene | 1 ppm | APR 10<br>SAR 1,000<br>SCBA 10,000 | 10 ppm<br>1,000 ppm<br>10,000 ppm | 13 ppm | ~~APR (MUC 10 ppm)~~<br>SAR (MUC 1,000 ppm)<br>SCBA (MUC 10,000 ppm) |
| Phosphine | .3 ppm | APR 10<br>SAR 1,000<br>SCBA 10,000 | 3 ppm<br>300 ppm<br>3,000 ppm | 27 ppm | ~~APR (MUC 3 ppm)~~<br>SAR (MUC 300 ppm)<br>SCBA (MUC 3,000 ppm) |
| Lead | .05 mg/m3 | APR 10<br>SAR 1,000<br>SCBA 10,000 | .5 mg/m3<br>50 mg/m3<br>500 mg/m3 | .3 mg/m3 | APR (MUC .5 mg/m3)<br>SAR (MUC 50 mg/m3)<br>SCBA (MUC 500 mg/m3) |

Note that MUCs must not be applied to conditions that are immediately dangerous to life or health (IDLH); instead, they must use respirators listed for IDLH conditions. When the calculated MUC exceeds the IDLH level for a hazardous substance, or the performance limits of the cartridge or canister, then MUC must be set at that lower limit. For example, the IDLH level listed for Benzene is 500 ppm. The calculated MUC for a PAPR would be 1,000 ppm (1,000 x 1 ppm= 1,000 ppm). However, the PAPR is not appropriate for IDLH atmospheres, so the MUC for a PAPR must be set at 500 ppm (Benzene's IDLH limit).

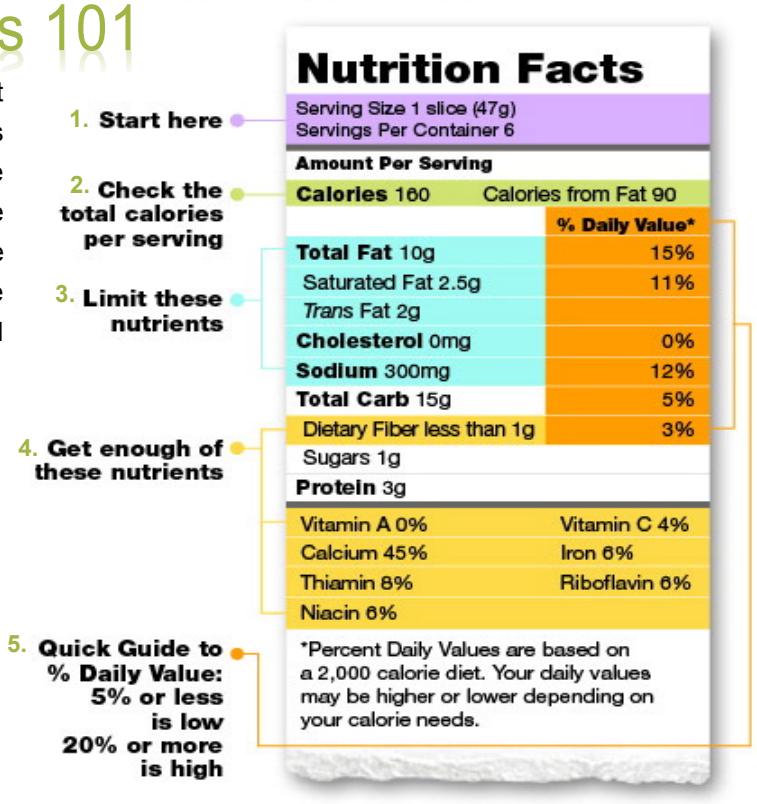
## There's an App for that!

***CMC Rescue***

*CMC Rescue has put its authoritative Rope Rescue Field Guide and Confined Space Entry And Rescue Guide into an invaluable, full-featured new app. It's packed with reference charts, diagrams, and how-to information. You can even customize it with your own notes, photos, and documents for quick reference in the field!*

# Nutrition Labels 101

Nutrition Labels can be great tools when deciding which foods to purchase, however, the numbers and labels can also be confusing. Here is a simple guide based on a 2000 calorie diet, to help you tackle the world of nutrition information.




**1. Start here.** Note the size of a single serving and how many servings are in the package.

**2. Check total calories per serving**. Look at the serving size and how many servings you're really consuming. If you double the servings you eat, you double the calories and nutrients, including the Percent Daily Value (% DV).

**3. Limit these nutrients.** Remember, you need to limit your total fat to no more than 56–78 grams a day — including no more than 15 grams of saturated fat, less than two grams of trans fat, less than 1500 mg of sodium, and less than 300 mg cholesterol (for a 2,000 calorie diet).

**4. Get enough of these nutrients.** Make sure you get 100% of the fiber, vitamins and other nutrients you need every day.

**5. Quick guide to % DV.** The % DV section tells you the percent of each nutrient in a single serving, in terms of the daily recommended amount. As a guide, if you want to consume less of a nutrient (such as saturated fat, cholesterol or sodium), choose foods with a lower % DV — 5 percent or less is low. If you want to consume more of a nutrient (such as fiber), seek foods with a higher % DV — 20 percent or more is high.

http://www.heart.org/idc/groups/heart-public/@wcm/@global/documents/downloadable/ucm_321860.pdf

## Fitness Challenge

**Run 1.5 Miles in 10 Minutes**

*Breaking the 10-minute mark for a mile and a half is an indicator of peak aerobic capacity—your body's ability to deliver oxygen to your working muscles. Regular aerobic exercise lowers your cholesterol and helps keep your body fat low—both of which significantly decrease your risk of heart disease.*

***The Test:*** *Run 1½ miles on a flat path as fast as you can.*

***The Scorecard:***

*12 min. or more: Slow*

*10 -12 min.: Ordinary*

*10 min. or less: Endurance excellence*

*Learn how to build your aerobic capacity:*

http://www.menshealth.com/mhlists/be_fit/Run_1_5_Miles_in_10_Minutes.php

## Wellness Tip:

### SNACKS – 100 Calories or Less

- *½ cup of slow-churned ice cream*
- *6 cups of microwave popcorn (check labels)*
- *½ cup of cottage cheese and a small wedge of cantaloupe*
- *14 almonds*
- *6 whole grain pretzel sticks*
- *baked apple*
- *1 blueberry smoothie = 1/3 cup of nonfat yogurt, 2/3 cup of frozen blueberries and ice*
- *1/3 cup of edamame*
- *3/4 cup frozen mango cubes*
- *8 baby carrots with 2 tablespoons of hummus*
- *1 small apple and 2 tablespoons of unsalted peanut butter*
- *frozen yogurt sandwich = 2 tablespoons of frozen yogurt and 2 graham cracker squares*
- *20 pistachios*
- *1 cup of tomato soup – low sodium*
- *1/3 cup dry oat squares cereal (no milk)*
- *1 cup of grapes*

*Don't make a habit of snacking on 100-calorie packs of crackers and cookies, which are mainly made with refined flour. These snack packs may be low in calories, but they're also low in nutrients. It's* better to make your snacks work for you by delivering protein, fiber, or antioxidants.

http://www.webmd.com/diet/ss/slideshow-100-calorie-snacks

## Values

Professionalism

Integrity

Mutual Respect

Discipline

# Mustard Gas Tank

Another example of exemplary behavior is currently being displayed by MER personnel performing a uniquely hazardous tank cleaning. MER is removing a tank liner, which is acting as a floating roof from the inside of a 144' diameter AST containing decomposing Mustard Gas. Historically, Mustard Gas was used in World War I as an incapacitating agent, and in some cases, was lethal to exposed individuals. Although this specific product has been stored for over 60 years allowing decomposition, the hazards posed by inhalation and skin absorption cannot be taken lightly. In addition to the health hazards, the product has an extreme stench at very low concentration levels; needless to say, vapor containment is a priority. Due the high risk involved, several types of controls are implemented including (but not limited to):

- Engineering –
  - Tank ventilation with a substantial carbon filtration system for the exhausted vapors
  - Three-stage sealed decontamination structure that also houses the CSE attendant
  - Large sealed containment structure for drumming and pumping process
- Administrative (Work Practice) –
  - Full-time designated safety person to monitor site and maintain SAR system/ equipment
  - Use of a drum vacuum & grounded liquid-ring vacuum truck
- PPE –
  - Level B PPE with SARs for all directly involved employees, including the CSE attendant

Throughout the entire process, the site has remained clean and organized. An outstanding demonstration of proper PPE use and decontamination procedures is exhibited by all MER employees. Additionally, the crew has remained diligent to stop work when necessary and correct any issues prior to continuing. MER's Best-in-Class safety habits aid in upholding an excellent relationship with our client. Thank you to all employees who have participated in this project & keep up the good work!

# Employee Development Corner

**Quick Reference Guides**

Moran's Safety and Training Team is excited to present new quick reference guides! These one page, tri-fold guides are designed to be used as a quick reference in the field, as well as to enhance daily safety tailgates. Currently the quick reference guides available to employees are:

MER Health & Safety – A basic overview of the MER H&S Guidelines and Policies

Confined Space Entry – MER specific requirements for CSE, atmospheric monitoring information, and equipment checklist

Confined Space Entry, Electrical Manhole – MER specific requirements, electrical shock first aid, equipment and personal protective equipment checklist

Bloodborne Pathogen – Universal precautions, decontamination of surfaces, spill clean-up procedures, and black water best practices

Excavation Competent Person Pocket Guide – Soil classification, hydraulic shoring, sloping and benching diagrams

Look for them in your Refresher classes! If you have a suggestion for a Quick Reference Guide, please feel free to contact the Health and Safety Team.

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**Safety Brief**

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