



RED LINE YARD (DIVISION 20) CONSTRUCTION



Rail Fleet Services News

September 2018

IN THIS ISSUE

In Progress: Red Line Yard Warehouse Expansion

by *Arnold Huntley, Rail Fleet Services Instruction*

Anyone who has visited the Red Line Yard (Division 20) during the past several weeks may have noticed the construction that is underway at the entrance of the facility. The warehouse construction project is the first of several that is driven by the expansion of the Red and Purple Lines during the next few years.

The warehouse expansion will enable Division 20 to store more supplies and equipment in support of additional rail vehicles in the future, including equipment for the new HR4000 Heavy Rail Vehicle (HRV).

When completed, the warehouse expansion will give Division 20 an additional 4,000 feet of storage space, including increased vertical storage capability. The warehouse expansion includes two rows of self-contained "Stack System" (Vertical Lift Machines) and the

inclusion of bays that will be capable of holding up to 2000 pounds per bay. The bays will store large and mid-sized train parts, according to Greg Parvin, Senior Material Manager from the Inventory Management Department.

Division 20 will continue to expand its footprint in the years to come. With the addition of the HRV 4000 and upgrade of the division's A650 fleet, more space is needed to accommodate and maintain the Red and Purple Line vehicles. New turn-back tracks and platforms are included in the expansion. These requirements and others will require the acquisition of land surrounding the division. In addition, the division will need more office space and staff to support expanded operations.

As Metro continues to expand and make improvements in its rail infrastructure, Division 20 will continue to be a part of Metro's growth in the years to come. ∞



Get to know...
Destination? Los Angeles!
Page 3



**What You Need to Know About
Skin Exposure**
Page 4



Bob's Corner

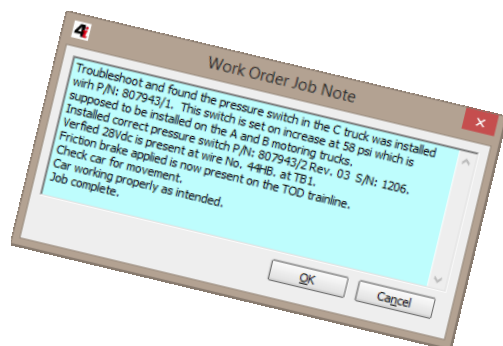
Greetings,

For this month's edition, I will focus on the importance of completing work orders. Every day we generate and submit hundreds work orders and

documents connected to everything we do here at RFS. Is there a real purpose to all of this paperwork? Does it matter how accurate the information is or if there is enough detail? Does my little work order mean anything looking at the big picture? The answer to all these questions are YES, YES and YES!

The purpose of work orders is to not only document the completion of work. Work orders are also important in determining future trends, aiding in improving equipment reliability, justifying the acquisition of additional personnel, managing material stock levels, highlighting areas that require monitoring, and a host of other reasons.

Our work order system has been developed over time to include all the essentials necessary to capture all relevant information. The key is obtaining accurate and complete information. The work order is only as good as the information entered onto it. All fields from the car number, description of the incident, troubleshooting performed, corrective action taken, etc. are essential pieces of the information needed to describe what was done to solve the incident/problem. You can never put too much information on a work order. For example, identifying the correct part number ensures we have parts re-ordered in a timely manner. Correct serialization could determine a "bad batch" and eliminate further incidents.



Work Order Accuracy

The "NOTES" section of the work order is critical. This is where details can be explained so that we can determine the root-cause and gather clues to better identify what caused the incident. Always be sure to think about the information you are entering on the work order because it is your way to contribute to the effectiveness of our maintenance operations. Also, our work order system is routinely audited by the California Public Utilities Commission (CPUC) and the Federal Transit Administration (FTA).

Keeping the information accurate, consistent and complete is everyone job and contributes to Metro's success. Knowledge is power, and the more we work at gathering and maintaining descriptive information, the stronger we are as a department. Some standards to be mindful of while completing a work order includes:

1. The incident or finding is clearly defined.
2. The notes accurately describe your approach to solving the incident or finding.
3. Ensure that all work order fields are completed.
4. If you are not sure about something, ask your supervisor for assistance.
5. The accurate completion of your work order matters and is part of a never-ending database of information.

The next time you read or write a work order, think about these qualities. They can enhance the efficiency of our operations.



Get to Know...

Matthew Hampton, Jr. is a Rail Fleet Services Manager at Division 24 (Monrovia)

Matthew Hampton is a native of Illinois where he grew up on the south side of Chicago with two older sisters and 2 younger brothers. He grew up in a family-oriented home where his hard-working parents had a profound influence on his life. His mother worked in clerical positions at a local university and his father supported the family by working two jobs – as a machinist building locomotives and a supervisor at a University print shop.

In his youth, Matthew's grandfather, a World War II Veteran, would take him to a local airport to watch airplanes take off and land. This led to Matthew attaining a growing interest in aviation. Upon graduation from high school, Matthew contemplated joining the military, although his parents thought he should follow alternative careers or attend college. However, after going to college for a year, he sought a new path. Matthew eventually decided to look to the military.

Having developed an interest in the field of Air Traffic Control, Matthew visited a local Air Force Recruiting Office a few times but was unable to arrange an appointment with an Air Force recruiter. The last time he visited, a Marine Corps recruiter approached him and they began to talk. This led to Matthew joining the Marine Corps and becoming an Aviation Electrician, working on aircraft such as the A-6 Intruder and the F/A-18 Super Hornet.



Matthew's military duty allowed him to experience something he always wanted to do – have the opportunity to see the world,

albeit on an aircraft carrier. He served two tours in the Persian Gulf, where he experienced working on a carrier flight deck at night, often 7 days a week and 12 hours per day. He considered this one of his most dangerous jobs. Matthew believes that the military created opportunities for him, a young man from the south side of Chicago to see different people from all walks of life as well as the opportunity to travel, a passion that he says fuels him to this day.



After leaving the military, Matthew sought employment in the airline industry. For a while, Matthew worked for McDonald Douglas in Long Beach, California, but was laid off. This led to Matthew going back to Illinois to finish his education and to start working in the rail industry. He was hired by the Chicago and North Western Railway before moving on to Metra, a commuter rail system. Later, Matthew moved on to the Chicago Transit Authority where he was employed for 25 years. Having a desire to return in work in California, he researched opportunities, and eventually signed on with Los Angeles Metro.

Matthew had no idea that those airport trips he took as a youth would spark a passion for aviation, and that working for the railroad industry would lead to a fulfilling career. Matthew considers himself a man of laughter, which he says he developed through family gatherings. He considers laughter to be food for the soul.



"So many people do not have the chance to create or pursue that "Bucket List", and you should, if you haven't done so", says Matthew.



Safety

Skin Exposures and Effects

The following article is adapted from the National Institute for Occupational Safety and Health (NIOSH), Health Effects Laboratory Division (HELD).

Overview

It is estimated that more than 13 million workers in the United States are potentially exposed to chemicals that can be absorbed through the skin. Dermal exposure to hazardous agents can result in a variety of occupational diseases and disorders, including *occupational skin diseases (OSD)* and systemic toxicity. Historically, efforts to control workplace exposures to hazardous agents have focused on inhalation rather than skin exposures. As a result, assessment strategies and methods are well developed for evaluating inhalation exposures in the workplace; standardized methods are currently lacking for measuring and assessing skin exposures.

OSD are the second most common type of occupational disease and can occur in several different forms including:

- Irritant contact dermatitis,
- Allergic contact dermatitis,
- Skin cancers,
- Skin infections,
- Skin injuries, and
- Other miscellaneous skin diseases.

Contact dermatitis is one of the most common types of occupational illness, with estimated annual costs exceeding \$1 billion.

Occupations at Risk



Workers at risk of potentially harmful exposures of the skin include, but are not limited to, those working in the following industries and sectors:

- Food service
- Cosmetology
- Health care
- Agriculture
- Cleaning
- Painting
- Mechanics
- Printing/lithography

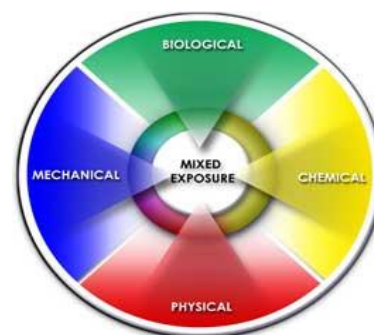
- Construction

Anatomy and Functions of the Skin

The skin is the body's largest organ, accounting for more than 10 percent of body mass. The skin provides a number of functions including:

- protection,
- water preservation,
- shock absorption,
- tactile sensation,
- calorie reservation,
- vitamin D synthesis,
- temperature control, and
- lubrication and waterproofing.

Skin Hazards



Causes of OSD include chemical agents, mechanical trauma, physical agents, and biological agents.

- **Chemical agents** are the main cause of occupational skin diseases and disorders. These agents are divided into two types: primary irritants and sensitizers. Primary or direct irritants act directly on the skin through chemical reactions. Sensitizers may not cause immediate skin reactions, but repeated exposure can result in allergic reactions.
 - A worker's skin may be exposed to hazardous chemicals through:
 - direct contact with contaminated surfaces,
 - deposition of aerosols,
 - immersion, or
 - splashes.
- **Physical agents** such as extreme temperatures (hot or cold) and radiation (UV/solar radiation).
- **Mechanical trauma** includes friction, pressure, abrasions, lacerations and contusions (scrapes, cuts and bruises).
- **Biological agents** include parasites, microorganisms, plants and other animal materials.

Dermal Absorption

Dermal absorption is the transport of a chemical from the outer surface of the skin both into the skin and into the body. Studies show that absorption of chemicals through the skin can occur without being

noticed by the worker, and in some cases, may represent the most significant exposure pathway. Many commonly used chemicals in the workplace could potentially result in systemic toxicity if they penetrate through the skin (i.e. pesticides, organic solvents). These chemicals enter the blood stream and cause health problems away from the site of entry.

The rate of dermal absorption depends largely on the outer layer of the skin called the *stratum corneum* (SC). The SC serves an important barrier function by keeping molecules from passing into and out of the skin, thus protecting the lower layers of skin. The extent of absorption is dependent on the following factors:

- Skin integrity (damaged vs. intact)
- Location of exposure (thickness and water content of stratum corneum; skin temperature)
- Physical and chemical properties of the hazardous substance
- Concentration of a chemical on the skin surface
- Duration of exposure
- The surface area of skin exposed to a hazardous substance

Research has revealed that skin absorption occurs via diffusion, the process whereby molecules spread from areas of high concentration to areas of low concentration. Three mechanisms by which chemicals diffuse into the skin have been proposed:

1. Intercellular lipid pathway (Figure 1)
2. Transcellular permeation (Figure 2)
3. Through the appendages (Figure 3)

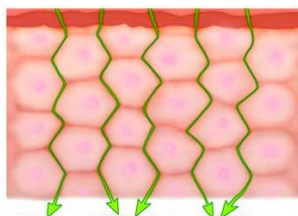


Figure 1: Intercellular lipid pathway

As shown in Figure 1, the stratum corneum consists of cells known as corneocytes. The spaces between the corneocytes are filled with substances such as fats, oils, or waxes known as lipids. Some chemicals can penetrate through these lipid-filled intercellular spaces through diffusion.

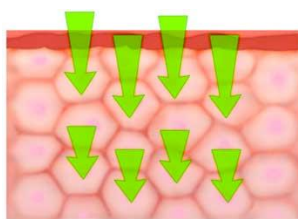


Figure 2: Transcellular permeation

As shown in Figure 2, another pathway for chemicals to be absorbed into and through the skin is transcellular, or cell-to-cell, permeation whereby molecules diffuse directly through the corneocytes.

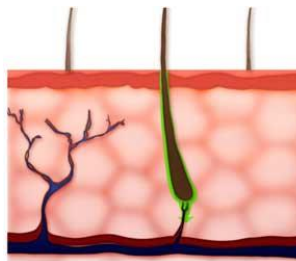


Figure 3: Through the appendages (hair follicles, glands)

As shown in Figure 3, the third pathway for diffusion of chemicals into and through the skin is skin appendages (i.e., hair follicles and glands). This pathway is usually insignificant because the surface area of the appendages is very small compared to the total skin area. However, very slowly permeating chemicals may employ this pathway during the initial stage of absorption.

Contact Dermatitis

Contact dermatitis, also called eczema, is defined as an inflammation of the skin resulting from exposure to a hazardous agent. It is the most common form of reported OSD, and represents an overwhelming burden for workers in developed nations. Epidemiological data indicate that contact dermatitis constitutes approximately 90-95% of all cases of OSD in the United States. Common symptoms of dermatitis include:

- Itching
- Pain
- Redness
- Swelling
- The formation of small blisters or wheals (itchy, red circles with a white center) on the skin
- Dry, flaking, scaly skin that may develop cracks

Occupational contact dermatitis is frequently divided into two categories:

1. **Irritant contact dermatitis (ICD)** is a non-immunologic reaction that manifests as an inflammation of the skin caused by direct damage to the skin following exposure to a hazardous agent. The reaction is typically localized to the site of contact. Available data indicates that ICD represents approximately 80% of all cases of occupational contact dermatitis. ICD may be caused by phototoxic responses (e.g., tar), acute exposures to highly irritating substances (e.g., acids, bases, oxidizing/reducing agents), or chronic cumulative exposures to mild irritants (e.g., water, detergents, weak cleaning agents).
2. **Allergic contact dermatitis (ACD)** is an inflammation of the skin caused by an immunologic reaction triggered by dermal contact to a skin allergen. For ACD to occur, a worker must be first sensitized to the allergen. Subsequent exposures of the skin to the allergenic agent may elicit an immunologic reaction resulting in inflammation of the skin. The reaction is not confined to the site of contact and may result in systemic responses. ACD may be caused by industrial compounds (i.e. metals, epoxy and acrylic resins, rubber additives, chemical intermediates), agrochemicals (i.e. pesticides and fertilizers), and commercial chemicals.

Because the symptoms and presentation of ICD and ACD are so similar, it is extremely difficult to distinguish between the two forms of contact dermatitis without clinical testing (e.g. patch testing).

The severity of contact dermatitis is highly variable and depends on many factors including:

- Characteristics of the hazardous agent (irritant and/or allergen)
- Concentration of the hazardous agent (irritant and/or allergen)
- Duration and frequency of exposure to the hazardous agent (irritant and/or allergen)
- Environmental factors (e.g., temperature, humidity)
- Condition of the skin (e.g., healthy vs. damaged skin, dry vs. wet)

Knowing your environment and exposure to chemicals and other hazards is the first step in taking preventative action. ∞



Department 101 for Fiscal Year 2019

July 2019 commenced a new year of Operations Department 101 training requirements. In addition to fiscal year 2018 requirements, there are new requirements in each of the five categories of employees (Frontline, Supervisor, Non-Contract (Non-Managers), Non-Contract (Managers and Directors), and Non-Contract (Executives). Among this year's new requirements are:

- Review Metro Employee Survey results and understand plan for improvement
- Developing and executing plan for improving Metro Employee Survey results

For more information, see the new fiscal year 2019 Department 101 chart at the divisions or contact your manager.

Perspective

The Importance of Attention to Detail

by Doug Witke

For anyone who has served in the United States military, the phrase "Take care of the little things and the big things will take care of themselves" will bring back memories. It just cannot be overstated how important it is for us to pay attention to the little details as we go about our business performing our jobs day in and day out.

We have a lot of very experienced and seasoned professionals in our ranks who are good at maintaining rail vehicles (both heavy and light) and meeting the transportation needs of Los Angeles County. As with any other work place, we need to remain vigilant to stave off complacency as we perform our jobs.

Metro is going through some phases of change with regards to our rail vehicles and the supporting shop equipment, and as such we need to adapt. For example, we have a new LRV to learn and maintain in the P3010 and new supporting shop equipment to maintain the P3010 such as the robojack tire pressing equipment.

In the last year, Metro has started pressing on new tires for the P2550 LRVs that use this same tire pressing equipment as the P3010. While the majority of the tires that have been pressed during this time have been problem free, we have spun two tires. Now while an occasional mistake may happen (no one is immune from them), we need to be able to learn from these mistakes and improve ourselves based on lessons learned. Otherwise we are subject to keep making the same mistakes over and over again. I believe that we are very capable of making ourselves better and improving upon the past.

This is where the attention to detail comes in. Some of us have been working on trains for 10, 15, 25 or even 30 years or more, but we all need to realize that because of improving technologies, equipment evolve and change. While the basic principle behind pressing tires remain the same, the details of how to use the new equipment has slightly changed, and it is imperative for us to all follow the Original Equipment Manufacturer (OEM) procedures.

We, as experienced railroaders, need to keep the equipment manual at the jobsite and open so we can follow each step as we press these tires. It is very easy to forget a step, and if we try to operate on memory, complacency can hurt us. So if we would just follow the little details of performing each step as we read them from the manual, then the bigger detail of not spinning a tire should automatically happen.

Tires are safety-critical components for a couple of reasons. The first obvious reason is that if we experience a catastrophic failure of the tire, then we might experience a derailment and that might result in possible death, serious injury and/or equipment damage. The second reason, particularly for a spun tire, is the failure of all tire shunts on the affected axle. Both the 750 Vdc return and the car body safety ground circuits rely on these tire shunts. In the case of a spun tire, all tire shunts have most likely been broken and the circuits open. In this situation, as the 750 Vdc return is trying to get back to the rail (assuming that both tires spun,) it

must back feed through the car body safety ground brush, thereby utilizing the car body grounding shunts to get to the next axle with good tire shunts. During this failure mode, the metallic components of the train become part of the 750 Vdc circuit. Components such as the truck frame, bolster, and maybe even the car body itself. For a stainless steel train, this can become extremely dangerous to our patrons and employees.

It is imperative that we press our tires properly so that we avoid a spun tire and maintain the integrity of our tire shunts for the safety of everyone! Therefore, we should all be vigilant when performing this task and we should ALL be using our OEM procedures during the process to ensure that we don't miss a step which may result in a spun tire with broken tire shunts.

Attention to detail, along with your commitment to excellence and professionalism will ensure that Rail Fleet Services provides Los Angeles County with a **SAFE**, clean and efficient transportation system!

Doug Witke is a Rail Equipment Maintenance Instructor at the Gold Line's Division 24 facility.



Apprentice Graduations

Recently the August 2017 cohort of Joint Apprenticeship Committee (JAC) has completed their 12-month vehicle training program. Congratulations to Maintenance Specialists **Bernard De Leon, Ruperto Martin, and Juan Ballesteros** as they join the maintenance workforce.

In Memory of Fard Wilkerson



Let's Hear From YOU!

The RFS Newsletter your source of delivering interesting and helpful information as well as receiving it. Your information contributions to this publication supports our maintenance community. Let us know what is going on at your shop!

For more information on how to submit an article or other items of interest, contact Arnold Huntley at huntleya@metro.net.