



# Health & Safety

## 2018 Year in Review

The total recordable incident rate (TRIR) is a measurement based on our safety statistics. When we look at the average rates for our industry according to the Bureau of Labor Statistics, the 2017 national average TRIR for engineering services (NAICS 54133) is 0.7. The TRIR is calculated using an equation provided by the Department of Labor. The TRIR calculation is equal to: (number of OSHA recordable incidents for the year) X 200,000 (set number from the government) divided by the total amount of hours worked by the company.

Below is a breakdown comparison of Ardaman's safety statistics for 2016, 2017, and 2018. Our continued efforts in our relentless pursuit for an injury free workplace are showing good progress relative to pre-2011 years. In relation to injuries, we see that the proactive first aid case reporting and case management are contributing towards a reduction in the number of recordable cases. This shows that we are reporting and managing incidents earlier to ensure proper care is administered to help reduce severity of injuries. Improved safety and case management has also resulted in our being able to maintain OSHA recordable numbers lower than industry standards and lower than recordable rates in prior years. **Our TRIR will be approximately 0.26 for 2018.** While our TRIR is lower than average for the engineering industry indicating your own commitment to safety, we should continue to strive for a TRIR of Zero!

Now we begin a new year, and we must continue our efforts in building our safety culture. Our **vehicle incident rate is still very high** and we must continue to improve our driving behavior and not be distracted while driving. There are still a large number of property damage incidents involving vehicles during the past year so many of our drivers need to do a better job of being observant while driving on the road, construction sites, and in parking lots. Remember to use the Smith Systems 5 keys when driving or stopping, try to back vehicles into parking spaces or pull through so that your vehicle is facing outwards and **limit distractions**. If unsure of distances to other vehicles always stop and walk around the vehicle. Here at Ardaman our goal is that "Nobody Gets Hurt" and we aim to have zero incidents. Let us all work together to make this happen!

Incidents/Injuries	2016	2017	2018
First Aid	29	20	20
Workers Comp	6	6	6
<b>OSHA Recordable</b>	<b>2</b>	<b>1</b>	<b>1</b>
<b>Total Cases</b>	<b>35</b>	<b>26</b>	<b>26</b>
<b>AAI- TRIR / OSHA Rate</b>	<b>0.50</b>	<b>0.26</b>	<b>0.26</b>
<b>Industry TRIR Engineering</b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>

Vehicle Incidents	2016	2017	2018
Collision caused by Employee	8	9	7
Collision caused by Other Driver	10	12	10
Vehicle related theft	1	4	1
Property/ Equipment Damage to vehicle	29	32	28
<b>Total Cases</b>	<b>48</b>	<b>57</b>	<b>46</b>

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### Safety Question:

**What ASTM standard is used for safety toed work boots and can be found in the tongue of the shoe/boot?**

- A. F2125-12**
- B. F3256-09**
- C. F2413-11**
- D. None of the above**

Answer on page 6



## SAFETY EXCELLENCE

### 2018 Heroes of Safety

Ardaman management is proud to announce our "Safety First" Heroes of the year for their outstanding Health and Safety actions and leadership. Six Ardaman employees were recognized this past fiscal year for safety excellence in their respective department/division/branch and each received a safety incentive bonus in amounts of \$1000 for Safety Honorees and \$2,000 for Safety Heroes.

Please join us in congratulating the following 2018 Ardaman Safety Heroes and Honorees:

**Robert Pitts IV:** Bartow, Corporate Engineering  
**Evelio Garcia Jorge:** Miami, Drilling  
**Liselle Vega-Cortez:** Orlando, Corporate Engineering  
**Ken Stern:** Sarasota, Engineering  
**Ryan Brunet:** Baton Rouge, Engineering  
**Thomas Foster:** Cocoa, CMT



These employees were recognized for excelling in one or more of the following categories:

- Promoting our safety culture;
- Performing additional safety audits on their own initiative;
- Safety leadership;
- Safety recognition by their colleagues or co-workers;
- Hazard recognition and mitigation;
- Proactive behavior towards safety;
- Safety recognition by the safety committee (e.g., safety stickers) and/or nomination by others (emails or calls from clients and other sources);
- Safety at client sites.

## 2018 Health and Safety Recognition Award

Safety is an integral part of the daily activities at Ardaman. Each year we continue to develop our safety culture both here at Ardaman and throughout Tetra Tech.

Each year, the Ardaman Safety Committee reviews all of the individuals that received Health and Safety Recognition Award stickers. The individual who is nominated for the annual award receives an additional award of a \$250 gift card. We are pleased to recognize **Linda Hunt, an asphalt plant inspector in the Orlando Branch**, as the 2018 Safety Recognition Award recipient for demonstrating a strong commitment to safety, great observation skills, and a proactive approach in hazard recognition.

Ardaman is developing a safety culture to ensure our workforce has a safe experience each day and we appreciate everyone's efforts throughout the year in promoting such a safety culture.





## Safe Lifting

Preventing back injuries is a major challenge. According to the Bureau of Labor Statistics (BLS), more than one million workers suffer back injuries each year. Typically, back injuries account for one out of every five workplace injuries and illnesses, and one-fourth of all Workers Compensation claims are a result of back injuries. The pain and discomfort of back injuries can have a dramatic change in an employee's life.

OSHA has evaluated ways to help prevent lifting injuries. They specify two types of controls: engineering and administrative.

- Engineering controls are used to redesign the workspace to minimize lifting hazards.
- Administrative controls include carefully selecting and training workers, so that they can perform their jobs safely.

When employees use smart lifting practices and work in their "power zone," they are less likely to suffer from back sprains, muscle pulls, wrist injuries, elbow injuries, spinal injuries, and other injuries caused by lifting heavy objects.

### Safe Work Practices To Reduce Back Injuries At Work:

It is important to identify and avoid risk factors that increase your chance of injury. Any one or more of the following factors may increase the risk of a back injury is increased:

- Weight of Objects
- Awkward Postures
- High-Frequency and Long-Duration Lifting
- Inadequate Handholds
- Environmental Factors

### **1. Weight of objects**

Some loads, such as large bags, bundles of drill rod, or heavy tools and machinery place great stress on muscles, discs, and vertebrae.

Lifting loads heavier than about 50 pounds will increase the risk of overexertion

#### **Possible Solutions:**

- Use mechanical means such as forklifts or hoists, when lifting heavy materials and machinery.
- Use pallet jacks and hand trucks to transport heavy items.
- Use ramps or lift gates to load machinery into trucks rather than lifting it.
- Materials that must be manually lifted should be placed at "power zone" height, about mid-thigh to mid-chest. Special care should be taken to ensure proper lifting principles are used. Maintain neutral and straight spine alignment whenever possible. Usually, bending at the knees, not the waist, helps maintain proper spine alignment.
- Order supplies in smaller quantities and break down loads off-site. When possible, request that vendors and suppliers break down loads prior to delivery.
- Prefabricate items in a central area where mechanical lifts can be used. Only transport smaller, finished products to the site.
- Limit weight you lift to no more than 50 pounds. When lifting loads heavier than 50 pounds, use two or more people to lift the load





## Safe Lifting Continued

### 2. Awkward Postures

Bending while lifting forces the back to support the weight of the upper body in addition to the weight you are lifting. Bending while lifting places strain on the back even when lifting something as light as a screwdriver.

Bending moves the load away from the body and allows leverage to significantly increase the effective load on the back. This increases the stress on the lower spine and fatigues the muscles.

Reaching moves the load away from the back, increases the effective load, and places considerable strain on the shoulders.

Carrying loads on one shoulder, under an arm, or in one hand, creates uneven pressure on the spine.

Poor housekeeping limits proper access to objects being lifted, and forces awkward postures.

#### **Possible Solutions:**

- Move items close to your body and use your legs when lifting an item from a low location.
- Store and place materials that need to be manually lifted and transported at "power zone" height, about mid-thigh to mid-chest.
- Minimize bending and reaching by placing heavy objects on shelves, tables, or racks.
- Avoid twisting, especially when bending forward while lifting. Turn by moving the feet rather than twisting the torso.
- Keep your elbows close to your body and keep the load as close to your body as possible.
- Keep the vertical distance of lifts between mid-thigh and shoulder height. Do not start a lift below mid-thigh height nor end the lift above shoulder height. Lifting from below waist height puts stress on legs, knees, and back. Lifting above shoulder height puts stress on the upper back, shoulders, and arms.
- Use ladders or aerial lifts to elevate employees and move them closer to the work area so overhead reaching is minimized.
- Break down loads into smaller units and carry one in each hand to equalize loads. Use buckets with handles, carts, or similar devices, to carry loose items.
- Keep the load close to the body when lifting large or bulky loads.

### 3. High-Frequency and Long-Duration Lifting

Holding items for a long period of time, such as when moving cylinder molds or lifting rods, even if loads are light, increases risk of back and shoulder injury, since muscles can be starved of nutrients and waste products can build up.

Repeatedly exerting, such as when performing densities or hand augering, can fatigue muscles by limiting recuperation times. Inadequate rest periods do not allow the body to rejuvenate.

#### **Possible Solutions:**

- Rotate tasks when possible so employees are not exposed to the same activity for too long.
- Work in teams; one employee lifts and holds items while the other assembles.
- Take regular breaks and break tasks into shorter segments. This will give muscles adequate time to rest. Working through breaks increases the risk of musculoskeletal disorders (MSDs), accidents, and reduces the quality of work because employees are over fatigued.
- Plan work activities so employees can limit the time they spend holding loads.

### 4. Inadequate Handholds

Inadequate handholds make lifting more difficult, move the load away from the body, lower lift heights, and increase the risk of contact stress and of dropping the load.

#### **Possible Solutions:**

- Utilize proper handholds, including handles, slots, or holes, with enough room to accommodate gloved hands.
- Move materials from containers with poor handholds or without handholds into containers with good handholds.
- Wear proper personal protective equipment (PPE) to avoid finger injuries and contact stress. Ensure that gloves fit properly and provide adequate grip to reduce the chance of dropping the load.

**(Safe Lifting Continued)****5. Environmental Factors**

Cold temperatures can cause decreased muscle flexibility, which can result in muscle pulls.

Excessively hot temperatures can lead to dehydration, fatigue, and increased metabolic load.

Low visibility or poor lighting increases the chance of trips and falls.

**Possible Solutions:**

- Adjust work schedules to minimize exposure to extreme temperatures.
- Wear warm clothing when exposed to cold temperatures.
- Drink lots of water to avoid dehydration in excessive heat.
- Provide proper lighting for areas with low light and perform work during daylight hours.

## Ardaman Update

**Injury Incidents:**

- **NO INJURIES IN DECEMBER! Keep up the great work!**

**Vehicle and Equipment Incidents:**

- Employee was traveling on the roadway when a vehicle traveling in the opposite direction turned from the median in front of our vehicle. Our driver struck the other vehicle that turned across the right of way traffic. Other driver was at fault.
- Employee was parked in the roadway in front of his home. During the overnight hours, another vehicle side swiped our parked vehicle. When available, try to park vehicles in parking lots or other area with less traffic and potential exposure.
- Employee was traveling on the roadway and failed to maintain a safe following distance. The vehicle in front of our driver suddenly stopped, and our driver struck the other vehicle which was then pushed into a third vehicle. Remember to always Aim High In Steering and look 15 seconds ahead, maintain a safe following distance of 4 seconds, and limit your distractions.
- Employee was pulling into a gas station. While turning in the gas station area they misjudged the turning radius and struck a bollard. When unsure of distances to objects, stop and get out to verify how far away you are. Ask for assistance from a spotter.
- Employee opened up the passenger side door and a gust of wind caught the door and bent it backwards damaging the door and hinges. When opening vehicle doors ensure you are grasping the door firmly to help maintain control of it at all times.
- Employee had the back window of his truck smashed during the overnight hours while parked in front of his residence. Try to park in well lit areas away from traffic when possible.
- A contractor on site was operating a front end loader in the early hours without sufficient light. While traveling on the site, the operator ran over one of our marked air meters. OSHA general construction area lighting requires a minimum of 5 lumens/foot-candles of light.
- Employee vehicle was parked at the office. A police officer struck our parked vehicle while pulling away from the parking spot next to our vehicle.

**Safety Audits:**

**Identified Hazards from 15 Safety audits conducted in the month of November.**

**Slip/Trip/Fall:** Employee observed several trip hazards in the lab due to poor housekeeping and clutter. Remember to clean up continuously each day and ensure that all walkways and emergency exit routes are clear at all times.

**“IF IT’S NOT SAFE, STOP...DO IT THE SAFE WAY.”**



## Ardaman Update Continued

### Near Miss/ Hazard Identification:

#### Highlighted Near Misses from 21 reports received for the Month of December.

- Drill crew was on site reviewing the 811 call in ticket. The Crew Chief noticed red markings for electrical in an area nearby and the ticket stated the area was marked. He was getting ready to hand auger the area when the locator nearby on site came over to tell them he had not marked that area, even though the ticket was several days old and said the utilities were marked. The locator marked the utility and our crew off set the hole. They began hand augering again and encountered an electrical line at 4.5 feet but did not damage it. The locator had to locate the area again! This is an important reminder about why our hand augering policy must be followed. Many locate companies across the country are only as good as the employees that perform the tasks, and in this case a lack of effort and accuracy could have resulted in death.
- Employee was monitoring a 2-foot deep anchor trench that was backfilled with material to hold the liner down temporarily. It rained a couple of inches and the material became soft in several areas. Our technician was walking across the area to inspect the liner and sank down into the trench. Always inspect paths and areas prior to accessing them for stability. A probe rod can be used to assess the surface and verify if the material is stable prior to walking on it.
- Employee observed a portable toilet located too close to active mobile equipment on a construction site. The portable toilet was not guarded/protected by barriers and was occupied at the time. Portable toilets should always be located in a designated area away for all vehicular activities. In addition, jersey barriers or other safe work practices should be implement to avoid a crush/struck by hazard from occurring. A critical incident had occurred on another client site last year in which a motor grader had backed up and crushed an empty portable toilet.

## Ardaman Health and Safety Recognition Awards



A safety sticker was awarded to the following individuals:

- ◆ **Ryan Brunet** for recognition and actions regarding a potential contact hazard. Employee identified the lack of a spotter as a contractor operating a man lift almost struck an overhead pipe rack. Employee notified the operator to stop work until a spotter was in place. (Baton Rouge)
- ◆ **Tom Foster** for recognition and actions regarding a crush/engulfment hazard. Employee identified the incorrect installation of a trench box in an excavation and had the competent person on site correct the issue prior to accessing the area. (Cocoa)
- ◆ **Steven Winget** for observation and actions taken regarding an overhead electrical line. The client had assured our project manager that the line was completely deenergized prior to the work starting. The crew chief requested verification that the line was deenergized. The line was still active and the borehole was offset to ensure safety and compliance. (Tampa)

#### Safety Question Answer: C

Employees will find ASTM F2413-11 on the inside tongue of an approved safety toed boot that is worn during all field and CMT lab activities.

# January 2019 Safety Quiz

Please circle the letter of the answer that fits best. Some answers can be found in the newsletter

1. The approximate TRIR for Ardaman in 2018 was \_\_\_\_.  
A. 0.26      B. 0.54      C. 0.50      D. 0.7
2. OSHA has 2 types of controls for reducing back injuries, administrative and \_\_\_\_\_.  
A. PPE      B. Engineering      C. Environmental      D. All the above
3. When is your back at risk for injury when lifting?  
A. Turning at the waist while lifting or carrying a load      B. Heavy Lifting      C. Reaching and lifting  
D. All the above
4. How many vehicle related accidents were caused by Ardaman employees in 2018.  
A. 17      B. 9      C. 7      D. 8
5. Which of the following are risk factors that may cause back injury?  
A. Awkward position      B. Weight of object      C. Frequency of lifts      D. All the above
6. In order to change direction while performing a lift you should move using your \_\_\_\_\_.  
A. Head      B. Waist      C. Feet      D. Throw the load in that direction
7. To avoid lifting it is a good idea to store objects up off the floor or on an elevated surface in the "power zone".  
A. False      B. True
8. Which of the following are methods to reduce overexertion while performing a heavy lift?  
A. Use a cart      B. Divide the load      C. Team lift      D. All the above
9. Which method decreases the chances of dropping the load?  
A. Adequate handholds      B. Environmental Factors      C. Awkward Postures      D. All the above
10. You should keep the load close to your body when performing a lift.  
A. False      B. True
11. To reduce the potential for overexertion while entering and exiting excavations you should?  
A. Try to get someone to pass equipment to you      B. Take multiple trips to avoid overloading when carrying equipment      C. Do not step over structures while carrying equipment      D. All the above
12. The amount of property damage involving vehicles in 2018 was 28, this number is \_\_\_\_\_.  
A. acceptable      B. not acceptable

All Ardaman employees must complete the quiz and turn it in by the end of each month. For those individuals who cannot attend the monthly safety meeting please complete the quiz and submit it to your supervisor for approval. These will be sent to HR/H&S. All others must submit the quiz at the designated location at your office. The supervisor only needs to sign the quiz if you are unable to attend the meeting, you must explain the reason in the box below:

\_\_\_\_\_  
Print Name Here

\_\_\_\_\_  
Sign Name Here

\_\_\_\_\_  
Date

\_\_\_\_\_  
Supervisor Print Name Here

\_\_\_\_\_  
Supervisor Sign Name Here

\_\_\_\_\_  
Date