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Safety Tips for Entry-level Employees

By Wynne Casteel, Staff Assistant Geologist – Houston, Texas

Entry-level employees in the environmental consulting industry face a distinct set of challenges in staying safe on the job. Typically young and inexperienced, entry-level employees can be unfamiliar with the specific job steps, hazards, hazard mitigation

entry-level employees grasp important job and site-specific safety measures once out at the job site. When conversing with entry-level employees, it is best to assume that this is the first time they are performing a task. Even if the employee assures you that they are proficient, they may have previously performed the task in a deficient and/or potentially unsafe way, and there was no adverse effect. Finally, project managers should make themselves available to answer phone calls from an entry-level employee throughout fieldwork. A major component of ensuring proper understanding is ensuring two-way communication is ongoing throughout the project between the field staff and the project team.

methods, and/or the emergency response procedures for a particular scope of work without the proper preparation. These employees can reduce their risk of being involved in an on-the-job incident by reviewing all job-specific safety documentation before starting work; asking questions before, during, and after the work; and using Stop Work Authority when anything appears unsafe.

Entry-level employees should prepare for fieldwork by reviewing proposals, job safety analyses (JSAs), job planning documentation, and site-specific safety procedures. These documents contain information on types of work to be performed, how it will be performed, which hazards will be present, how the hazards can be eliminated or mitigated, and what to do in an emergency. As an entry-level employee, you should be proactive and ask your project manager or supervisor to provide you with these documents. When reviewing, take notes and ask questions if there is anything you do not understand.

An open line of communication between the project manager and entry-level employee is also crucial. Project managers should set up their field staff to succeed by ensuring they are thoroughly trained before beginning work, and verifying that

Out in the field, entry-level employees should be encouraged to use Stop Work Authority when anything appears unsafe. For example, if someone enters a heavy equipment exclusion zone (HEEZ) without using the “show-me-your-hands” policy with the operator of the heavy machinery, the entry-level employee should use verbal, hand signals, radio, or other means to stop work. While it can be difficult for entry-level employees to verbalize safety concerns due to fear that it may be perceived as ignorance by coworkers or subcontractors, it is essential that safety concerns are communicated. At best, the worker has helped to prevent a potential incident from occurring. At worst, the worker has stimulated a discussion about the hazards and mitigating actions associated with the task.

With the right job and safety training, independent thinking, communication, and encouragement, entry-level employees can keep themselves and others safe on the job.

Useful Health and Safety Apps

By Allison Kaltenbach, Staff Engineer – Somerset, New Jersey

We all use our phones every day whether it be to stay connected on social media, stream the latest show, or play some fun games. Why not bring the convenience of apps into our work life as well? The good news is that some great apps are available that can help you stay safe in the field and out.

Sound Level Apps

The [NIOSH Sound Level Meter App](#) is exactly what the title implies—an app that measures how loud your surroundings are. According to OSHA and NIOSH, noise exposure at or above 85 decibels (dBA) averaged over 8 working hours or an 8-hour time weighted average can lead to hearing damage. When noises reach 100 dBA, it can take as little as 1 hour per day to damage your hearing. There are some obvious circumstances when hearing protection is needed, such as during drilling events. However, in some situations, we may not even realize how loud our environment is and can underestimate its effects on our long-term hearing. This app is extremely useful, quick, and easy to use (even for those of us that aren't technology experts). The app is tested and accurate up to ± 2 dBA.

An additional app I find useful is the noise app on my Apple Watch. This works in the same way, but with the added feature of notifying you whenever noise levels in your ambient surrounding go above 85 dBA. I have gotten these notifications both in the field and in my everyday life during times I was unaware my environment was so loud.

OSHA-NIOSH Heat Safety Tool App

Summer means fun at the beach, frequent ice creams trips, and time spent relaxing. However, summer also means very hot and humid conditions. Another app created by NIOSH and OSHA is the [Heat Safety Tool App](#), which is perfect for planning and monitoring outdoor work activities straight from your smartphone. The app includes the following features:

- A visual indicator of the current heat index and associated risk levels specific to your current geographic location;
- Precautionary recommendations specific to heat index-associated risk levels;
- An interactive, hourly forecast of heat index values, risk level, and recommendations for planning outdoor work activities in advance;
- Editable location, temperature, and humidity

controls for calculation of variable conditions; and

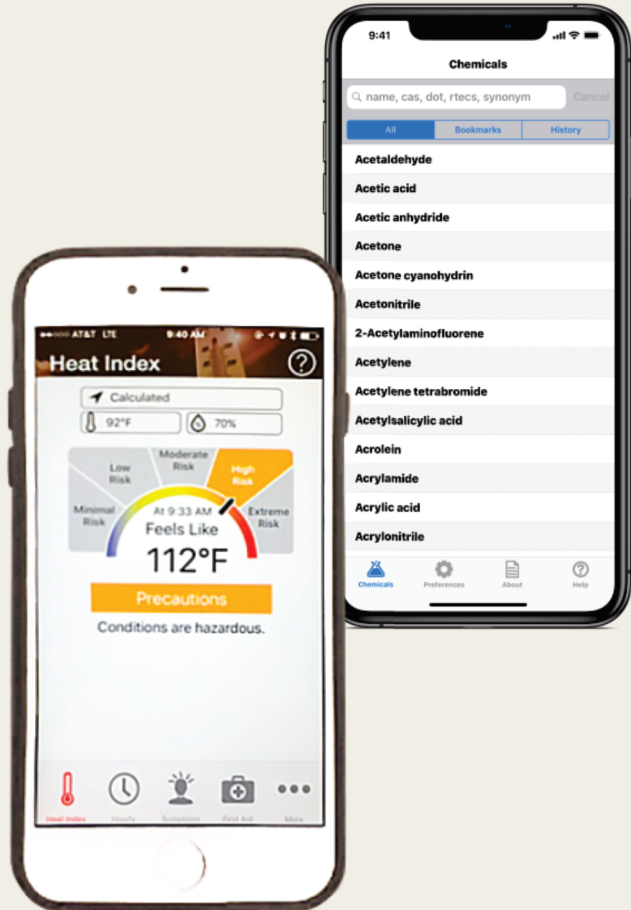
- Signs, symptoms, and first aid information for heat-related illnesses.

This app can help us all stay safe in the field and at home by keeping us aware of the weather and the dangers of heat.

NIOSH Mobile Pocket Guide

The [NIOSH Mobile Pocket Guide App](#), as well as many other available apps, gives users key information and data for chemicals or substance groupings that can be found in the work environment. The guide can help people to recognize and control occupational hazards. Sometimes we work with chemicals, whether it be during groundwater sampling or injections. Chemicals are also present in our daily lives, which many of us may not even realize. This app is a handy tool to learn more about the chemicals we are exposed to and how to safely handle them using correct personal protective equipment (PPE) and procedures.

As technology advances, we have more and more access to health and safety tools right at our fingertips. Most people have a smart phone and therefore the ability to use these apps on-the-go. Whether you are team iPhone or team Android, you should make your health a priority and take advantage of these apps.



The Importance of Good Housekeeping in the Field

By Carteret Lawrence, Staff Engineer – Oakland, California

Organization and tidiness in the field go a long way in helping to keep field work going smoothly. Although easy to neglect while trying to collect samples, it is extremely important to make sure you practice good housekeeping. There are several common hazards that are related to poor equipment management on-site. By allowing a sloppy workspace, common and minor hazards become exacerbated, becoming legitimate risks for workplace incidents.

Potential Issues Caused by Poor Housekeeping

Slip/Trip/Falls: The most common and obvious hazard associated with poor housekeeping is slips, trips, and falls. This can be dangerous to you, as well as others on the work site. Often, we find ourselves collecting samples in either active construction sites, or at businesses that are in operation. With all the hustle and bustle at these busy locations, there will undoubtedly be traffic throughout your workspace. If your equipment isn't orderly and tidy, things like power cords and sample containers left on the ground will inevitably cause someone to bump into, or trip over, your equipment; make sure to keep pathways clear at all times.

Exposure to Contaminants: Another common consequence of poor housekeeping is the increased risk of exposure to contaminants on-site. Because so much of our work deals with contaminated soils and water, there is an inherent risk of encountering contaminants of concern (COCs). Practicing poor housekeeping greatly increases this chance of exposure. If contaminated samples, cleaning agents, or preservatives aren't dealt with promptly, they can be spilled, which is messy and potentially dangerous. By leaving soil cuttings or cores out after collecting samples or logging, they will inevitably break up and get spread around. The more exposure pathways there end up being, the higher the chance that you will accidentally come into contact with potentially contaminated media; make sure to practice safe, appropriate sampling procedures.

Cross-contamination: Without good housekeeping, you also introduce the potential to increase your risk of cross-contamination of samples. Because of this, neatness and cleanliness are vital tools for proper sample collection. Our clients expect accuracy and professionalism, a standard and reputation that are important to maintain. Cross-contaminated samples can lead to misleading interpretations, and if

ultimately deemed unusable, are an expensive, embarrassing, and time-consuming mistake.

Tips to Practice Good Housekeeping

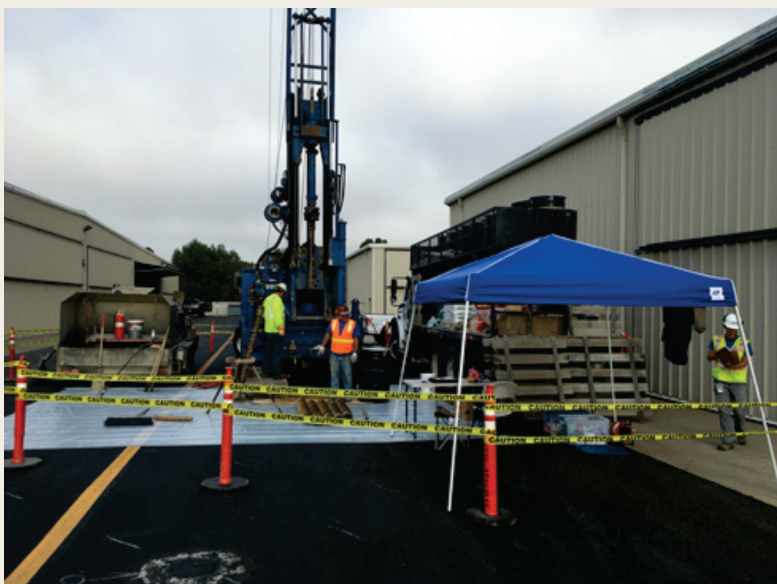
There are several tips to help maintain a clean and organized workspace in the field. Making lists as part of pre-field preparation helps with organization and goes a long way toward making the sampling go more smoothly.

Another great tip is to bring boxes. This simple tip cannot be overstated enough. This helps with organization, sample and equipment transport, and with keeping your stuff out of the way when you're not using it. Field events, especially sampling events, entail many pieces of equipment, and life is so much easier when items are all in the same place and easy to find and access.

One more tip is to clean as you go. This is a method I use in several aspects of life and have found that it translates well to sampling activities. Cleaning as you go helps reduce clutter, and also helps speed things up. If you don't clean as you go, not only will your workspace get more and more cluttered throughout the day, but the work you have to do at the end to clean up will seem much more daunting.

Conclusion

By keeping a tidy workspace, we can reduce potential negative impacts to the flow of work around the site, including injury. Although basic, these tips go a long way in helping to keep a tidy and safe workspace in the field. For the sake of accurate sampling, workplace safety, and keeping field work fun, stay tidy out there!



Poison Control Safety

By Brandon Vella, Project Scientist – Islandia, New York

Poisoning in the United States has been a significant problem and is one of the major causes of unintentional injury and death.

Who Can be Accidentally Poisoned?

Anyone; however, those groups at an increased risk of becoming accidentally poisoned include the very young/old, visually impaired, or disabled.

Common Accidental Poison Hazards in the Home

Accidental poisonings frequently occur via ingestion (swallowing). In addition, exposure to poisonous substances may also occur via inhalation, dermal (skin) and ocular (eye) absorption, or injection (penetration of skin by a contaminated object). Potentially poisonous substances commonly found in the average home include:

- Household cleaning products;
- Cosmetics, toothpaste, hand sanitizer, and deodorant;
- Cleaners, solvents, and paints;
- Prescription and over-the counter medications/supplements;
- Miscellaneous objects (silica gel packs, glow sticks, batteries, etc.).

Poison Control Center Resources

If you suspect that someone has been exposed to a poison, call **1-800-222-1222** (US number). Callers will be connected 24/7 with a Poison Control Specialist, who is a registered nurse or pharmacist trained to provide confidential assistance to patients who may have been exposed to poisonous substances.

If the individual suffering becomes unresponsive, experiences difficulty breathing, collapses, or begins having a seizure—call 911 immediately.

Although it can be difficult to remain calm if you suspect that you or someone you know has been poisoned, providing answers to as many of the following questions when speaking to a Poison Control Specialist can help with receiving life-saving help:

- Your name and the name of the person poisoned;
- The telephone number you are calling from;
- The age and weight of the person poisoned;
- The name and amount of the product or substance involved;
- How long ago the poisoning happened;
- Any symptoms the poisoned person is having.

Remember to try and stay calm as the more information you can give the Poison Control Specialist, the better the chance of the Specialist being able to provide potentially life-saving information and/or treatment recommendations.

Poison Control also maintains webPOISONCONTROL, a self-paced online help tool available at <https://triage.webpoisoncontrol.org/#!/exclusions>.

Household Poison Prevention Tips

- Educate yourself and those you know about the dangers of accidental poisonings and the potentially poisonous substances located in your home.
- Read the product labels, Safety Data Sheet (SDS) if available, and any included instructions before using a potentially poisonous product. Wear appropriate protective clothing (e.g., gloves, long sleeves/pants, eye goggles) when handling chemical products. Ventilate your work space by running a fan or opening a window if using chemical products such as cleaners. Do not mix household cleaning products.
- Keep medications, cleaning supplies, and other hazardous substances in designated storage areas, preferably locked and out of reach of children. Dispose of any unused, excess, or expired medications through approved means. The United States Food & Drug Administration provides useful information regarding the proper disposal of medication at the following link, [Where and How to Dispose of Unused Medicines](#).
- Avoid transferring chemicals or cleaners into unlabeled containers. Always ensure that containers are properly labeled so the contents can be easily identified. Store food and beverages separately from poisonous products. Some edible products can resemble hazardous substances.



Managing Third-Party Subcontractors

By Courtney Rempfer, Staff Scientist – Logan Township, New Jersey

A large part of project management includes subcontracting out work that may not be economical or may not be within the capabilities of typical environmental services. A project may include multiple services that need to be subcontracted, including laboratory analyses, drilling services, marine services, and heavy equipment operations, to name a few. These activities have the potential to create hazardous conditions for all involved. How do we maintain health and safety standards for subcontractors that are hired directly by our client, or another company working on our job site?

As most employees who have worked in the field can attest, health and safety standards and quality of work can vary from company to company. This makes it important to maintain the field staff and client's health and safety requirements while working with third-party subcontractors through the following methods:

- **Setting clear expectations** of field staff's and our client's Health and Safety protocols;
- **Planning** steps of the field event thoroughly, including simultaneous operations on-site;
- **Communicating** effectively and often through planning and executing stages;
- **Adapting** in real-time and reacting appropriately while in the field; and
- **Maintaining** good relationships with the project team and their subcontractors in the field and office.

Setting expectations: An essential part of working with third-party subcontractors is maintaining the field staff's health and safety requirements and any client-specific expectations. While clients often push to keep construction moving for their deadline goals, it is crucial that it doesn't come at a sacrifice to health and safety requirements. Setting clear expectations early in the process ensures the means and methods for the work coincides with safe work practices.

Planning: During project planning, employees typically focus on the work being completed by their staff and the hazards associated with that work. However, suppose the field staff is working on a larger site with third-party subcontractors. In that case, it is important to know what work is occurring and what hazards are associated. For example, field staff may be groundwater sampling near an excavator that is moving soil. If field staff is unaware of the work, the hazards associated with the soil work may put their personnel in unexpected danger. To prevent this situation, preplanning with third-party subcontractors in advance allows them to communicate their planned

work activities, and then plan steps to mitigate potential hazards. This may be the responsibility of the field staff, project manager, or project principal, depending on the roles within the project.

Communicating: If unexpected operations are occurring within or near the vicinity of the field staff's work area, field staff should communicate with the project manager, project principal, and subcontractor. The third-party's work scope, associated hazards, and potential delays due to unexpected work should be discussed. In the example above regarding the unexpected excavator in the work area, the field staff should stay out of the Heavy Equipment Exclusion Zone (HEEZ) and use hand signals to communicate with the excavator operator when needed. The field staff employee should also use the "show me your hands" procedure with the excavator operator throughout the field event, and make sure the excavator bucket grounded and fully deenergized if they need to enter within the swing/tip radius of the equipment.

Adapting: As with any site, all workers have a right to keep themselves protected and safe. Therefore, third-party subcontractors have the authority to stop work if ever there is a health and safety violation or potential hazard. For instance, if while discussing an excavation plan, a third party determines that the proposed LNAPL-contaminated excavation stockpile area is too close to an ignition source, it is important to take their concerns seriously as to keep their personnel safe. As such, it would be best for all involved to adapt the plan and move the ignition source away from the stockpile. Just as one company's field staff should take these steps, other contractors on-site have the same responsibility to prevent unsafe work from being completed by that company's subcontractor, and it is their responsibility to adapt their plans accordingly.

Maintaining: Working with other companies' subcontractors can be tricky at times; however, maintaining good relationships with both the contractor and their subs can ensure that the project runs smoothly. It helps when working with external project teams that are moving toward a common goal. In the end, health and safety should always be the top priority, and it is important to remember that includes third parties on sites as well.



Health and Wellness: Managing Caffeine Consumption

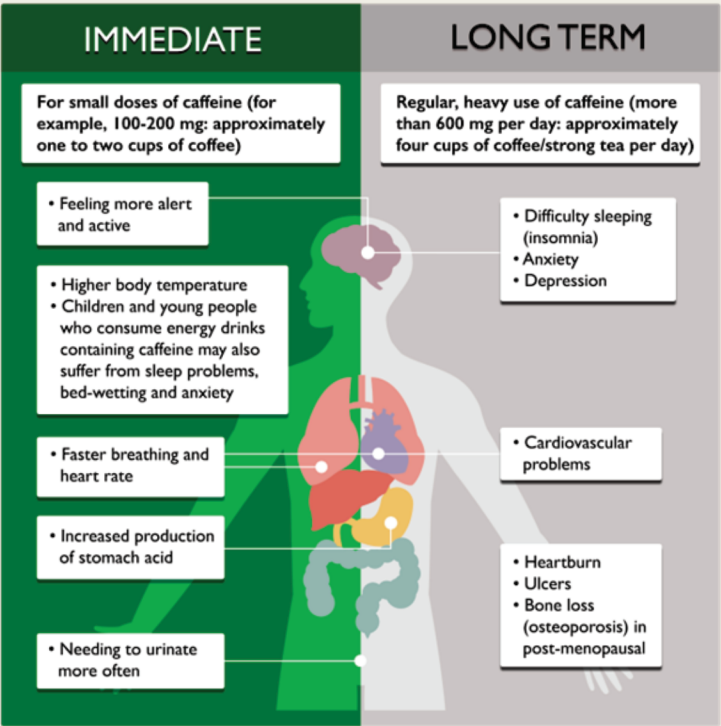
By Connor Bradley, Staff Engineer – Woburn, Massachusetts

Caffeine plays an important role in many of our lives. The primary vessels for caffeine consumption, coffee and tea, are staples in our morning routines. They taste good, they smell good, and, perhaps most notably, they make us feel good. The focus and energy boost provided by caffeine can play a positive role in our early morning commutes and while performing health and safety oversight at construction sites. When consumed responsibly and in moderation, caffeine can offer numerous health benefits. However, like all drugs, overuse and chronic consumption of caffeine has been linked to negative impacts on the body. Given the integral role that caffeine plays in many of our lives, it is important to know what caffeine is and how to consume it responsibly.

Caffeine is the most widely consumed psychoactive substance in the world. It is a naturally-occurring stimulant most commonly found in coffee, tea, and cacao plants. At a fundamental level, caffeine works by stimulating the brain and central nervous system, helping you stay alert and stave off fatigue. The primary mechanism by which caffeine achieves these feats is by blocking the effects of adenosine, a neurotransmitter that relaxes the brain and makes you feel tired. Typically, adenosine levels build up throughout the day, making you increasingly more tired. Caffeine helps you stay awake by connecting to adenosine receptors in the brain without activating them, thus blocking the effects of adenosine. Further, caffeine can increase blood adrenaline levels and increase brain activity of the neurotransmitter dopamine.

Regular caffeine consumption in moderation has been linked to the following health benefits: improved alertness and focus, improved cognitive function, decreased fatigue, and increased metabolic rate. While caffeine consumption has been linked to positive health effects, too much of a good thing can turn those tides.

Overconsumption of caffeine can be detrimental to one’s health and cognitive function. Negative health effects can include increased anxiety, restlessness, irritability, insomnia, headaches, acid reflux (pro tip: cold brewed coffee is less acidic than traditional hot brewed coffee), and dependency (i.e., you need to consume more to attain the same level of benefits you are seeking).



Outside of the caffeine dose you intake, the time at which you consume caffeine is a critical variable to always be cognizant of. One should always be cautious about consuming large quantities of caffeine late in the day when it could impact your quality of sleep and have a deeper ripple effect on your general health and long-term productivity. The next time you’re considering dashing to the kitchen for a mid-afternoon cup of coffee, consider pivoting to one of the alternatives listed below:

- Tea or decaffeinated coffee (a lower caffeine option);
- Nuts (a nutrient-dense and balanced food that can provide sustained energy);
- Berries (to satiate your sweet tooth with a nutrient-dense food);
 - Blueberries are also a good source of fiber and will offer a prolonged energy boost.
- Regular exercise to elevate baseline energy levels;
 - Take a short walk instead of an afternoon cup of coffee to elevate your energy.

In short, caffeine and the most popular vessels for it play an indispensable role in many of our lives. Those who dabble in the dark arts are no stranger to the benefits of caffeine and their rapid, gratifying onset. However, it is important to remain mindful of the negative impacts associated with chronic caffeine consumption and over consumption.