apcd SANTA BARBARA COUNTY	SANTA BARBARA COUNTY AIR POLLUTION CONTROL DISTRICT POLICIES AND PROCEDURES

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This policy and procedure provides guidance to staff regarding safety while conducting inspections in the field. More safety information is available in the SBCAPCD Field Safety Manual, SBCAPCD Injury Illness and Prevention Program document, *District Vehicle Use, Assignment, and Taxability* P&P 1100.070, and on the OSHA website. District field staff attend monthly safety meetings to review specific safety topics, and District-wide training throughout the year on general safety topics.

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A. Safety Equipment

District staff are provided with safety equipment necessary to conduct inspections. Each staff member is responsible for identifying all safety equipment needed for each inspection, ensuring they have the appropriate safety equipment and that it is in good working condition. Staff should have the necessary safety equipment with them at all times when in the field. If staff requires new, replacement, or additional safety equipment, they should contact their supervisor and obtain the safety equipment prior to conducting any inspections.

At a minimum, staff are issued the following safety and personal protective equipment (PPE):

1. Safety Glasses
2. Ear Protection
3. Hard Hat
4. Work Gloves
5. Steel-Toed/Composite-Toed Safety Shoes
6. Safety Vest

Additional safety equipment and PPE may be issued as needed, such as:

7. Safety Cones
8. Personal Hydrogen Sulfide (H2S) Monitor
9. Half-Face/Full-Face Respirator and Cartridges for Organic Vapors and Dust
10. Self-Contained Breathing Apparatus (SCBA)
11. Powered Air Purifying Respirator (PAPR)
12. Emergency Escape Pack Respirator
13. Nomex Flame-Resistant Clothing
14. Tyvek Suit
15. Splash Goggles/Full Face Mask
16. Snake/Tick Gaiters
17. First Aid Kit

B. Pre-Inspection Preparation

Prior to each inspection, staff should familiarize themselves with the safety equipment applicable and review potential safety hazards. As part of the pre-inspection interview, staff should inquire about potential safety hazards, ask to be instructed in specific safety practices required by the source, and familiarize themselves with the location of emergency safety equipment and emergency evacuation route, at a minimum.

As a general rule, staff should conform to the safety practices required by the source being inspected. However, if staff feels that safety practices do not eliminate the threat to their safety, staff should withdraw. Staff should only return when the needed safety equipment is acquired and/or modifications of source operations have neutralized the hazard.

C. Situational Awareness

The most important aspect of safety is the awareness of potential hazards. Staff should remain alert and cautious throughout the entire inspection of a source. The following behavior will enhance staff's awareness while conducting inspections:

1. Focus on the task at hand.

2. While walking, keep conversation to a minimum and do not write.

3. Eyes should be focused well ahead, with occasion glances in the surrounding area.

4. Always follow the source escort. Do not physically lead the inspection. If you feel you are being directed away from an area you are concerned about, ask the escort to lead you to that area. If the escort has paused for any reason, wait for the escort to resume the lead.

5. When moving from outside areas to inside areas, stop walking to allow eyes to adjust to the dimmer light.

6. If a potential hazard is recognized ahead, do not walk into it.

D. Respiratory Hazards

Respiratory hazards may include fumes, particulate pollutants, mists and/or toxic gases. Airborne particulate pollutant respiratory hazards may include dust, asbestos, aerosols, paint and/or fiberglass overspray, and combustion particulates. Sources of fumes include solvent use, surface coating operations, gasoline storage and dispensing facilities, and crude oil production, processing and transfer facilities. Toxic gases such as hydrogen sulfide (H_2S) occur in crude oil production, processing, and transfer; waste water treatment and disposal; and well water operations. Other less common toxic gases may be present in electronic parts manufacturing facilities or other similar operations.

Staff may subject themselves to respiratory hazard when using their nose to detect potential odors. Therefore, staff should avoid using their nose to determine if odors are being emitted from equipment, containers, or other appurtenances. If the nose must be used, staff should use the standard laboratory technique of wafting, or waving one's hand over the opening to draw the air

sample to the nose. Staff should never place their nose directly over the opening of any vessel or exhaust.

Where potential respiratory hazards exists, there are two methods of respiratory protection:

1. Respirators: There are two types of respirators, filter-type respirators and supplied air types. The safest form of protective equipment is the supplied air type of respirator. If properly used, the supplied air type of respirator will protect staff from many types of respiratory hazard. Filter type respirators are light-weight and come in various styles and filter designs to meet various hazard situations. Both types of respirators are good forms of respiratory protection if chosen for the appropriate hazard and correctly used. BEFORE USING ANY RESPIRATORY PROTECTION DEVICE, FIT TESTING AND TRAINING IS REQUIRED.

   The following general guidelines should be followed, as applicable:

   a. When preparing to conduct an inspection, determine any potential respiratory hazards present at the facility.

   b. Prior to the inspection, equip yourself with the proper respiratory protection.

   c. Remain clean shaven (moustache is permissible) to facilitate proper respirator seal.

   d. Conduct a fit test to verify the equipment seals properly. Conduct any other tests recommended by the manufacturer.

   e. Pay attention to weather conditions which may affect respiratory hazards, such as wind speed and direction.

   f. Know what type of respiratory protection is recommended by OSHA, NIOSH or MSHA for the specific type of hazard to be encountered.

   g. Do not enter any area which may contain respiratory hazards for which you do not have the proper protective equipment.

   h. Keep the filter-type respirator, or supplied air respirator (as applicable) on your person during the inspection and don the respirator if the need arises.

2. Escape: The potential for respiratory hazards does not always warrant wearing respirators at all times while at the source. However, at such sources there is always the potential that an unforeseen event may result in an acute and unexpected respiratory hazard. In this case, escape or quick access to respiratory protection equipment is essential to prevent injury or death. Staff should keep their filter-type respirator, or supplied air respirators (as applicable) on their person during the inspection in case the need arises. Staff should don their respirator if the need arises.

   The procedure for escape will differ from source to source. Staff should be aware of these procedures before conducting the facility inspection. If there are central locations for respiratory protection equipment or areas in the plant designated as safe or specified routes of escape, staff should know these safety procedures.

If at any point during an inspection staff perceives a threat to their respiratory safety, regardless of verification by source operators, and staff is not equipped with the proper respiratory protective device for the situation, the inspection should be ended and staff should withdraw immediately. Likewise, in the investigation of a complaint, if staff determines that the emissions causing the complaint are producing an imminent respiratory hazard, staff should withdraw immediately.

The following general guidelines should be followed when escaping from a respiratory hazard:

a. Escape upwind, unless going in that direction would take you closer to the source of the emissions. If that is the case, escape at right angles to the wind.

b. If available, escape to the nearest respiratory protection device or area designated as safe.

c. If possible, leave the source. The inspection may be conducted at another time.

d. If you must choose between documenting a violation and escaping to protect your safety, ALWAYS CHOOSE SAFETY FIRST!

E. Moving Equipment Hazards

Moving equipment and vehicles are collision and impact hazards.

Moving equipment creates two types of hazards, entanglement and subsequent pulling toward the moving parts and reciprocal impact. The following guidelines should be used to prevent injuries from moving equipment:

1. Secure or eliminate dangling objects such as strap-supported instruments, and loose clothing which may become caught in moving equipment.

2. Secure long hair so it does not dangle away from the body.

3. Assume that equipment intended to be in motion will activate, without warning, at any moment.

4. Do not reach into the range of moving equipment or hand-held tool for any reason.

Moving vehicles such as forklifts, earth moving equipment, trucks and cranes have poor visibility from the driver's cab. Consequently, staff should assume that the drivers of these vehicles cannot see them. The following guidelines should be used to prevent injuries from moving vehicles:

1. Be defensive. Assume the driver cannot see you.

2. Always let the escort lead the way.

3. Watch for movement patterns before proceeding. Industrial vehicles usually follow very distinct routes and movement patterns as they go about their tasks.

4. Never walk between railroad cars or other vehicles.

5. Never stand still on roads, railroad tracks or impressions in the ground made by vehicles.

6. Allow a 75-foot clearance from any stopped railroad engine or cars when crossing tracks.

7. Wear PPE that enhance your visibility, such as safety vests, in areas of industrial vehicle traffic.

F. Burn/Heat/Electrical Hazards

All sources of combustion are potential burn hazards. In addition, contained combustion processes present radiant heat hazards. There are also burn hazards associated with gathering samples of heated materials. Lastly, electrical hazards may cause burns, heat exposure, and/or electric shock.

Open Fires:

During the inspection of open fires, staff should use the following measures to mitigate burn hazards:

1. Always stand upwind from the burn. Large piles of burning materials may reach very high temperatures and could burn victims that are a considerable distance downwind of the blaze. Generally, the fire will spread in the direction of wind flow and anything downwind of the fire can be engulfed in flames.

2. Do not approach an open fire in your vehicle because you may not feel the heat and may drive too close to the fire before you realize you are in danger. Park your vehicle well away from the fire and approach on foot.

3. Wear your hard hat. Forces of convection may take burning debris airborne, which will then drop to the ground as the wind takes it out of the convection current.

4. Wear cotton or wool clothing that completely covers your arms and legs. Nylon and polyester may melt and adhere to your skin if subjected to high heat or open flame. Cotton will scorch first and offer better protection.

5. Wear gloves and wait until material has cooled completely before removing physical evidence from any fire.

6. If a fire begins to burn out of control during an inspection, withdraw immediately to a place of safety and call 9-1-1.

Radiant Heat Sources:

Contained combustion sources produce radiant heat which causes a potential contact burn hazard. The heat may not be obvious. Boilers, compressors, exhaust ducts, steam lines and some air pollution control equipment may have hot surfaces and should not be touched. Staff should use the following measures to prevent burns from contact with sources of radiant heat:

1. If you do not know if a surface is hot, assume that it is.

2. Do not lean against or sit on any equipment that may be sources of radiant heat.

3. Avoid areas where you observe steam venting at ground level.

4. Wear cotton, wool, leather, or Nomex flame-resistant clothing that completely covers your arms and legs.

5. In close quarters look in the direction you want to move before you move. Moving too quickly can put your body in contact with hot surfaces before you realize it.

6. Wear gloves when taking samples of hot liquids.

7. Wear your hard hat. The potential injury from bumping your head can be compounded if you bump it on a hot surface.

The following PPE should be worn, when needed, to prevent burns or heat injuries:

1. Nomex Flame-Resistant Clothing

Electrical Hazards:

In order to avoid potential burns, radiant heat, or electric shock, staff should recognize, avoid contact, and stay away from electrical hazards such as exposed electrical wiring, and unsafe electrical connections.

G. Abrasive Surface and Sharp Object Hazards

Abrasive surfaces or sharp objects present abrasion, cut and puncture hazards. Any time staff encounters such surfaces or objects they should avoid contact if possible. If it is necessary to handle sharp or abrasive objects in order to verify compliance, staff should wear gloves to prevent injury.

The use of draeger tube gas sampling equipment requires staff to break the ends of glass ampules. This should be done with care and while wearing gloves. If it is necessary to insert the end of a sample ampule into a length of rubber tubing, the ampule should be inserted into the tubing prior to being placed in the receptacle in the hand pump. This will mitigate the potential for severe deep puncture should the ampule break.

Reaching into spill buckets to remove pipe caps during the inspection of Phase I vapor recovery systems may subject staff's hand to abrasion, cut and puncture hazard. Staff should always wear gloves when removing these caps.

When climbing ladders, the rungs may be contaminated with dirt or abrasive chemicals, or may have sharp points on weld beads. To improve grip and prevent abrasion or puncture, staff should always wear gloves when climbing ladders.

Staff should avoid brushing up against railings, walls, pipes and other surfaces. Long sleeved shirts or jackets made of sturdy cotton or wool help protect the limbs against abrasive surfaces.

Unless specifically required, glass containers should not be used to gather samples. Glass may slip out of the hand or fracture from thermodynamic stress resulting in cut and puncture hazards. If glass containers are required, gloves should be worn while handling the containers.

The following PPE should be worn, when needed, to prevent abrasion and puncture injuries:

1. Work Gloves (choose the applicable type for the specific task)

H. Walking Hazards

Walking hazards include slipping, tripping and uneven surfaces. Proper footwear will help mitigate these hazards. Shoes should have low or no heel and have non-slip sole design. Oil-resistant soles may be warranted at some facilities. Staff should remain aware of the area ahead of them and avoid walking on wet or slippery surfaces.

Areas within facilities may be equipped with bulk head designed doors or raised metal lips or berms for spill containment. All of these designs present trip hazards. Staff should remain aware of raised surfaces on the ground or on any platform. Taking care to pick up your feet rather than shuffling is a method of neutralizing most trip hazards when the ground is not wet or slippery.

On platforms, mining facilities, and in facilities undergoing construction, there may be uneven surfaces including holes of various widths and depths. Staff should remain aware of their path and avoid these. Should staff need to approach a hole to inspect its contents, they should remain at least six feet from the edge. The sides of excavations may collapse without warning. In addition, staff should use caution when performing oil & gas inspections on or near well cellars and always check to ensure that the metal grate is sturdy before stepping onto it.

Never walk while looking through the view finder of a camera.

I. Falling/Climbing Hazards

Many inspections involve falling hazards if the inspection requires climbing ladders or stairs, walking on platforms, catwalks or roofs.

The following guidelines should be used when climbing stairs or ladders:

1. If the stairs or ladders appear unsafe, do not climb. Request and obtain safe access from the source before proceeding. This may include additional fall protection measures.

2. Stairs or ladders should not be climbed when wet or slippery.

3. Hands should remain free of equipment when climbing stairs or ladders.

4. If staff needs to take equipment up stairs or ladders, that equipment should be transported on a shoulder strap, in a backpack, or hauled up by rope once staff has arrived at the desired level.

5. When climbing stairs, always keep at least one hand on a handrail and maintain 3 points of contact.

6. Makeshift ladders and stools should never be used.

7. Before climbing a ladder, visually inspect the overall integrity of the ladder, verifying that there are no broken, corroded, or missing rungs.

8. Ladder rungs should be no more than 12 inches apart and not more than 16 inches long.

9. A fixed ladder with a safety cage should extend at least 3.5 feet above the surface of the elevated platform.

10. There should be at least 8 inches clearance between the rungs and the wall to which the ladder is attached.

11. When using a portable ladder, verify that the bottom is secure, and have someone hold the bottom of the ladder if possible.

12. The top of an extension ladder should extend approximately 3 feet above the top of the working surface.

13. Regardless of its height and strength, only one person should climb a ladder at a time.

14. Wear gloves at all times when climbing ladders.

15. Use both hands when climbing a ladder.

16. Grasp the rungs, not the rails, of the ladder when climbing.

The following guidelines should be used when walking on platforms, catwalks, or roofs:

1. Check the structure visually to make sure it is intact and not corroded.

2. Do not lean against rails on platforms, catwalks and roofs.

J. Head Hazards

Some types of hazards which could result in head injury include low overhead objects or ceilings and falling objects. Staff should look for overhead hazards prior to entering new areas. If there is a high potential for falling object hazard, staff should not enter the area.

The following PPE should be worn, when needed, to prevent head injury:

1. Hard hat

K. Eye Hazards

Potential hazards to the eyes may be caused by particulate emissions, moving machinery, low overhead projections, optical radiation, toxic gases and hazardous liquids.

In facilities where there is potential for H_2S exposure, contact lenses are prohibited for two reasons: H_2S may get under the contact lenses and cause injury to the eye, and contact lenses may be blown off or forced up under the eyelid by positive-pressure respirators. If staff requires corrective lenses, they should wear prescription safety glasses in facilities where there is potential for H_2S exposure, and respirator-mounted corrective lenses when wearing positive-pressure respirators.

Staff should not look directly into boiler or process heater fireboxes as blackbody radiation given off by fireboxes may damage the eyes.

The following PPE should be worn, when needed, to prevent eye injury:

1. Impact resistant safety glasses equipped with side shields
2. Splash goggles
3. Full face shields

L. Hearing Injury Hazards

Staff may be exposed to acute noise exposure during their inspections. For example, loud and high pitched noises are produced by many types of industrial machinery. The cumulative result of short acute exposures to loud noises may be permanent hearing loss. In noisy environments staff should wear sufficient ear protection at all times. If communication becomes difficult, hearing protection should not be removed. Instead, questions should be communicated in writing or asked in an area where noise levels do not pose a potential hazard. On the other hand, hearing protection should not be worn when it is not necessary because the inability to hear warning bells, horns and sirens or spoken warnings from the escort could result in exposure to other types of hazards.

The following PPE should be worn, when needed, to prevent hearing injury:

1. Earplugs
2. Ear muffs

M. Body and Hand Hazards

Injury to the body and hands may occur during exposure to chemicals or other hazardous materials or while handling hot or cold objects.

The following PPE should be worn, when needed, to prevent body and hand injury:

1. Work Gloves

2. Safety Vest

3. Tyvek Suit

4. Nomex Flame-Resistant Clothing

N. Foot Hazards

Injuries to the feet may result from falling objects, stubbing, misstep, or chemical spill. These injuries can be prevented with proper foot wear. Staff should wear sturdy shoes that cover the entire foot and have low or no heel. The soles of the shoes should be of a non-slip design and material. Some sources where solvents are in continuous use may require the use of leather soled shoes.

The following PPE should be worn, when needed, to prevent foot injury:

1. Steel-Toed/Composite-Toed Safety Shoes

O. Explosive Hazards

Explosion hazards may exist in areas where there is a potential for fugitive gaseous hydrocarbon emissions or where there are large amounts of organic solid material stored. Explosions or explosive releases could be initiated by open flame and embers, sparks from battery operated equipment, accumulated static electricity, or pressurized equipment. The following guidelines should be used by staff to minimize the danger in potentially explosive environments.

1. Do not use battery operated equipment in a potentially explosive environment unless that equipment is certified as intrinsically safe.

2. Never take smoking materials with you on an inspection.

3. Wear clothing and shoes designed to prevent the accumulation of static electricity. Facility operators may require this in certain situations.

4. Avoid areas where work is being performed on pressurized equipment.

P. Confined Space Hazards

District staff should not enter confined spaces, and therefore, District staff are not trained or certified in confined space safety. Entry is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space. If permitted equipment is located in areas designated as confined spaces, staff should contact their Supervisor to discuss options for conducting an inspection of that equipment.

Q. Radiation Hazards

The District does not regulate sources of radioactivity. Consequently, there should be no reason to enter areas where a radiation hazard exists. However, if permitted equipment is located in areas designated as potential radioactive areas, staff should contact their Supervisor to discuss options for conducting an inspection of that equipment.

R. Safety Reporting

All safety injuries, exposures, incidents, concerns, and/or potential hazards should be reported to the Supervisor or Manager as soon as possible.