

INTRODUCTION

Welcome:

Your safety while working at Hemlock Semiconductor Operations LLC (HSC) is of utmost concern to us. This booklet has been developed to assist you in performing your work in a safe manner.

We have worked hard to build an effective safety program. To make this program a success, it is necessary for everyone to accept responsibility for working safely at all times.

In order to work safely, good communications are necessary between you, your supervisor, your co-workers and site personnel. Before you begin any work, you must obtain a safe work permit and understand the hazards of the job to avoid personal injury and prevent damage to site equipment or the environment.

Please become familiar with all sections of this manual and use it to refresh your knowledge whenever you encounter different work situations.

Contractors shall comply with all applicable provisions of Federal, State and Municipal safety and health laws.

HSC has developed specific safety rules and procedures that are intended to provide safe work practices within a safe work environment. These rules are set forth in this handbook in a condensed form and are not to be taken as a complete guide to site requirements.

As a contractor, you are responsible for your employee's and subcontractor's compliance with these rules and procedures. In addition, you are expected to use judgment and discretion with regard to safety procedures in situations not specifically covered in this handbook.

IMPORTANT: Failure to follow these safety rules and procedures could be cause for immediate corrective action, up to and including prompt removal from the site and/or prohibition of future work at HSC.

Thank you for helping make our sites a safe place to work!

DEFINITIONS

ACCEPTABLE: See “Approved”

APPROVED: Acceptable to the Site Representative

AS DIRECTED, SPECIFIED or DESCRIBED: Means that the correction, permission or requirement of the Site Representative is intended

COMPETANT PERSON: Means a person who is experienced and capable of identifying an existing or potential hazard in surroundings, or under working conditions, that are hazardous or dangerous to an employee and who has the authority and knowledge to take prompt corrective measures to eliminate the hazards.

CONTRACTOR SUPERVISOR: This term shall mean the person authorized by the Contractor, in writing, to act in a representative capacity for the Contractor in matters covered by a particular contract.

CONTRACTOR PERSONNEL: This term shall mean only Contractor employees, who by virtue of their employment have reason to be at the site.

HIGH ENERGY HOT WORK: Hot work involving open flame or that is capable of projecting sparks or hot slag. Examples: welding, cutting, soldering, brazing, grinding, gas fired torches, gas fired burners, and portable gas fired heaters.

HSC PERSONNEL: This term shall mean only HSC employees or consultants other than Owner’s Rep. who have been designated by HSC to issue permits or to administer other programs. However, such personnel shall have no authority to direct the work of the Contractor except through Owner’s Rep.

SATISFACTORY: See “Approved”

SHALL: Indicates mandatory requirements

SUBCONTRACTOR: This term shall mean only an organization that has a direct contract with the Contractor and is performing work at the job site.

QUALIFIED PERSON: Means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his or her ability to solve or resolve problems related to the subject matter, the work, or the project.

TABLE OF CONTENTS

ACCIDENTS / INCIDENTS.....	1
ALCOHOL & ILLEGAL DRUGS	1
ASBESTOS CONTAINING MATERIAL	1
ASPHYXIATION HAZARDS	2
BACKGROUND CHECKS.....	2
BARRICADES/BARRICADE TAPE.....	2
CAMERAS.....	4
CELL PHONES	4
CHEMICAL EXPOSURE, PROCEDURES FOR HANDLING	4
<i>EXPOSURE OF EYES TO CHEMICALS OR FOREIGN OBJECTS:.....</i>	<i>4</i>
<i>EXPOSURE OF SKIN TO CHEMICALS:</i>	<i>5</i>
<i>EXPOSURE OF SKIN TO HOT SURFACES, OPEN FLAME, ETC. (BURNS):..</i>	<i>5</i>
<i>INHALATION OF CHEMICAL FUMES OR VAPORS:</i>	<i>5</i>
CHEMICAL HAZARD COMMUNICATION	5
CONFINED SPACES.....	6
CRANES AND LIFTING EQUIPMENT.....	7
DEMOLITION	7
DRIVING AND PARKING.....	8
ELEVATED WORK (FALL PROTECTION)	9
ELEVATED WORK PLATFORMS	10
<i>FALL PROTECTION</i>	<i>11</i>
<i>BARRICADES.....</i>	<i>11</i>
<i>GROUND PERSONS.....</i>	<i>11</i>
EMERGENCIES	12
ENERGIZED WORK	13
ENVIRONMENTAL PROTECTION	14
ESCORTING	14
EVACUATION.....	14
<i>BUILDING EVACUATION.....</i>	<i>14</i>
<i>SITE EVACUATION</i>	<i>15</i>
<i>EVACUATION ASSEMBLY POINTS / ROUTES.....</i>	<i>15</i>

EXCAVATIONS.....	15
FALL PROTECTION.....	16
FIRE EXTINGUISHERS.....	16
FIRE PREVENTION.....	16
FIRE PROTECTION EQUIPMENT	17
FIRE WATCH.....	18
GAMBLING	18
GROUND FAULT CIRCUIT INTERRUPTERS (GFCI)	18
HEAVY EQUIPMENT	18
HOT TAPS.....	19
HOUSEKEEPING.....	19
INFORMATION CONTROL.....	19
LADDERS (PORTABLE).....	20
LEAD.....	21
LINE AND EQUIPMENT OPENING	21
LOCKOUT/TAGOUT.....	22
<i>LOCKS</i>	<i>22</i>
<i>PROCEDURES.....</i>	<i>23</i>
MUSIC PLAYERS	24
MUSTER PROCEDURES.....	24
ORIENTATIONS	25
OVERTIME AND ODD HOURS	25
PERMITS AND APPROVALS	25
<i>SAFE WORK PERMIT.....</i>	<i>26</i>
<i>CONFINED SPACE ENTRY PERMIT</i>	<i>26</i>
<i>ELECTRICAL HAZARD ANALYSIS</i>	<i>27</i>
<i>EXCAVATION PERMIT</i>	<i>27</i>
<i>LIFT PERMIT.....</i>	<i>27</i>
<i>CRITICAL LIFT PERMIT.....</i>	<i>27</i>
PERSONAL CONDUCT.....	28
PERSONAL PROTECTIVE EQUIPMENT (PPE).....	28
<i>EYE PROTECTION</i>	<i>28</i>

<i>HEAD PROTECTION</i>	29
<i>FOOT PROTECTION</i>	29
<i>CLOTHING</i>	29
<i>FALL PROTECTION</i>	29
<i>HAND PROTECTION</i>	29
<i>CHEMICAL PROTECTIVE CLOTHING</i>	30
<i>HEARING PROTECTION</i>	30
<i>RESPIRATORY PROTECTION</i>	30
PHOTOGRAPHY	31
PORTABLE LIGHTS	31
RADIATION	31
RADIOS (TWO--WAY)	32
READING MATERIAL	32
RESPIRABLE CRYSTALLINE SILICA	32
ROOF WORK	33
SAFETY DEVICES, TAMPERING WITH	33
SAFETY TRAINING	33
SAFETY STANDARDS	33
SANDBLASTING	33
SCAFFOLDS	34
<i>ERECTION</i>	34
<i>SCAFFOLD INSPECTIONS</i>	35
SEAT BELTS	36
SECURITY	36
SECURITY INSPECTIONS	36
SIGN--IN PROCEDURES	37
SITE ACCESS / IDENTIFICATION BADGES	37
<i>ACCESS REQUIREMENTS</i>	37
<i>IDENTIFICATION BADGES</i>	38
SLEEPING	38
SMOKING	38
SOLICITATION AND DISTRIBUTION	38
STEEL ERECTION	38

TEMPORARY ENCLOSURES	39
THEFT / VANDALISM	40
THREATENING / DISORDERLY BEHAVIOR	40
TOOLS	40
VARIANCES	40
WEAPONS.....	41
WELDING AND CUTTING.....	41
REFERENCES	42

OEMS Policy:

HSC is committed to:

- Complying with all relevant laws, regulations, and other applicable requirements.
- Protecting the environment and the health and safety of our employees, our customers, the communities in which we operate and the public consistent with our Values and Responsible Care®. We strive to conduct our activities in a sustainable manner by developing products and processes that minimize any adverse impact on environment, health and safety.
- Providing customers with products and services that meet their needs and providing necessary information and support so customers can use our products safely and effectively.
- Continually improving our processes and performance to help us achieve industry leadership. We establish objectives and targets, conduct regular performance evaluations, and report on our performance to our stakeholders.

ACCIDENTS / INCIDENTS

Contractor personnel shall promptly report all accidents/incidents (e.g., injury, illness, fire, spill, release, property damage, vehicle accident, equipment loss/damage, near miss, etc.) to the appropriate Site Representative. If the matter is a serious incident or imminent danger situation, Safety & Emergency Services shall be immediately notified. DO NOT LEAVE THE AREA. See EMERGENCIES for more information.

Contractors shall investigate all accidents and submit a copy of the report to the appropriate Site Representative. Safety & Emergency Services may also conduct a separate investigation of the accident, which may or may not involve the representative from the contractor company.

ALCOHOL & ILLEGAL DRUGS

Possession, use, or working under the influence of alcohol or illegal drugs while on HSC property is strictly prohibited. Any contractor personnel violating this rule or appearing to be under the influence of alcohol/illegal drugs shall be immediately escorted off site property.

ASBESTOS CONTAINING MATERIAL

Only contractors licensed to do so shall remove and dispose of asbestos.

Barricades with warning signs shall be posted at areas where asbestos materials are being removed or handled.

Some HSC buildings contain Asbestos. If a building contains or is presumed to contain Asbestos a list will be posted on the building safety board indicating location and building components affected. If unsure whether or not it is Asbestos, DO NOT TOUCH and notify your supervisor and/or Representative for further information.

Asbestos Tag: All loose asbestos waste after being placed in an approved container must have correct "Asbestos" tag before being transported or disposed of. See Environmental Service or the Asbestos Site Coordinator to assure compliance with this rule.

ASPHYXIATION HAZARDS



CAUTION: There are many areas in the plant which contain asphyxiation hazards.

Possible asphyxiation areas on some Site's include, but are not limited to:

- Refrigeration Rooms
- Vacuum Sheds
- Instrument Sheds
- Lab areas
- Plant vent buildings
- Temporary enclosures

Primary, fixed areas with a risk of asphyxiation are provided with continuous oxygen monitors. The oxygen monitors provide visible and audible warnings outside each entry door to the area.

If the red light is lit, the audible alarm is sounding, or neither light is lit, **DO NOT ENTER!** Please report these situations to HSC personnel.

It is only safe to enter if ONLY the green light is lit.



BACKGROUND CHECKS

Unless waived by Site Security, all contractor employees must have a criminal background check and be a U.S. citizen (or permanent resident alien). See SITE ACCESS / IDENTIFICATION BADGES.

BARRICADES/BARRICADE TAPE

Contractors shall use temporary barricades for the protection of people, equipment, and property where unsafe or dangerous conditions exist such as excavations, overhead work, and elevated work platforms in roadways, cranes, door blockage, asbestos removal, sandblasting, and other situations.



Caution tape, traffic cones, or A-frame type barricades (saw horses) are acceptable forms of barricades, though specific types of barricades may be required in some situations. Barricades shall be highly visible and the barricades must entirely surround the work site area.

Temporary openings in floors, walls or roofs must be protected by railings with a mid-rail or else completely covered. The cover must be constructed to support twice the maximum intended load and shall be installed in a manner that prevents displacement.

Barricades used for elevated work platforms positioned in or near roadways must be of the A-frame type. Before completely blocking or barricading one or more lanes of a roadway, a Lane Closure permit must be obtained from Safety & Emergency Services.

Barricades shall be marked as to be visible day and night. Red Tape Must be used for life threatening situations such as:

- Crane and other lifting operations (red tape shall be used to define the drop zone)
- Pipe plug use and hot zone for emergency response.

Yellow Tape May be used where there are non-life-threatening, potential hazards or unsafe situations:

- Sand blasting areas, excavation in a low traffic areas, and painting work.

Barricade Tags that are affixed to barricade tape may be necessary at some Sites. Check with your Site Rep for details.

Yellow Tape with Magenta (Purple) Writing: This barricade says "Caution: Radiation Area" and is used to mark areas where X-Ray work is being done.

Do not cross this barricade.

Contractor employees shall not remove, alter, or otherwise compromise barricades without proper authorization.

CAMERAS



Cameras are permitted on site only when approved by HSC in accordance with each Sites Photography Policy. Photography permits are required prior to taking photographs on or of property. Photographs that will be used or transmitted off site must be approved prior to removal or transmission. Digital cameras shall be used.

CELL PHONES



Use and possession of a cell phone will be regulated by site policy. Please note that using a cell phone in certain areas of our site may be prohibited. Please check with your Safe Work Permit writer to determine if a phone may be used in your work area. **Use of a cell phones with a camera for the**

purpose of photography is strictly prohibited and grounds for removal from site.

Cell phones may not be used while operating a vehicle or other equipment (e.g., cranes, fork trucks, earth moving equipment, elevated lift platforms, etc.). **While a vehicle is in motion, the driver may not communicate using a cell phone, even in “hands--free” mode.** *Note: This applies to two-way type cell phone operation.*

CHEMICAL EXPOSURE, PROCEDURES FOR HANDLING



If exposed to chemicals, IMMEDIATE ACTION IS ESSENTIAL! ONLY WATER should be used to wash the exposed area.

The first priority is to always immediately use the nearest eyewash/safety shower. The activation of the eyewash or safety shower will trigger an alarm which will summon aid from building and Safety & Emergency Services personnel.

Exposure of eyes to chemicals or foreign objects:

Rinse eyes with flowing water at the nearest eyewash station and hold eyes open for a minimum of 15 minutes.

Exposure of skin to chemicals:

Wash the exposed area with flowing water in the nearest eyewash/safety shower station for at least 15 minutes or until removed by Safety & Emergency Services.

If exposed to Hydrofluoric Acid / Hydrogen Fluoride or Caustic (Sodium Hydroxide), remain in the station for a minimum of 30 minutes.

Remove any contaminated clothing. If wearing goggles, do not remove goggles until the chemical has been washed off.

Exposure of skin to hot surfaces, open flame, etc. (burns):

Wash the area with flowing water in the nearest safety shower.

Inhalation of chemical fumes or vapors:

Move to fresh air immediately and call for assistance. Assistance can be summoned by activating the eyewash or safety shower station or by calling the site emergency number.

CHEMICAL HAZARD COMMUNICATION

HSC uses and stores many hazardous materials on our sites. Process area Safe Work Permit rooms contain posters that list safety and exposure information about the process chemicals in that area. Consult your company representative, your Safe Work Permit writer, a Construction Safety Representative, or Site Safety & Emergency Services personnel.

HSC maintains Safety Data Sheets (SDSs) for all chemicals on the site. These lists safe handling limits & procedures, effects of overexposure, first aid treatment, and other important safety information. SDSs for site materials are available electronically through the Site computer system.

Contact a Site Representative or Safety & Emergency Services to obtain a copy.

HSC reserves the right to know what hazardous materials contractors may bring on site. Contractors must have all chemicals approved and have SDSs on file at the job site and available to site personnel prior to use.

If you are delivering, picking up, or working with hazardous materials, you must have proper training and use appropriate clothing and equipment consistent with the hazards of the materials.

CONFINED SPACES



Due to the sheer number of spaces at our sites, confined spaces are not marked in any way. Contractor personnel therefore must be aware of the characteristics of a confined space (below) and be able to recognize a confined space.

A safe work permit is required before commencing work.

To be classified as a confined space, a space will have all of the following characteristics:

- (1) Big enough to physically enter
- (2) Not designed for continuous human occupancy, and
- (3) Egress in the event of an emergency inside or nearby the confined space may be difficult or impeded

Contractor personnel shall not enter a confined space without a Confined Space Entry Permit, unless classified as a non-permit space (“entry” shall be considered as occurring when any body part breaks the plane of the opening into the space). Confined Space Entry Permits shall be issued only by authorized personnel.

Contractor personnel must submit a Confined Space, Entry Specific Safety Plan for approval before entering a Confined Space. Contact the Building Rep, Construction Work Coordinator or Safety & Emergency Services at least 48 hours before access to the Confined Space is needed.

The permit, along with the accompanying Safe Work Permit, will dictate appropriate safeguards to be followed during entry. This will also include procedures for both the entrants and the observer to follow, both of which will be trained at the point of entry. These safeguards and procedures shall be strictly followed and should the scope of the work or conditions inside the space change, personnel must exit the space and contact the person issuing the permit (or Safety & Emergency Services).

If more than 15 minutes elapses between the pre-entry test and the entry itself, another atmospheric test shall be performed.



Another atmospheric test shall be conducted if the space is vacated for more than 15 minutes or when renewing the entry permit.

NEVER enter a permit-required confined space without a permit and **NEVER** attempt to rescue entrants in need of help, regardless of the situation.

CRANES AND LIFTING EQUIPMENT

Operation of cranes and other lifting equipment shall be done safely and in accordance with all applicable safety regulations. Only properly trained and authorized personnel shall operate such equipment.



At no time shall personnel walk beneath a suspended load or a load be moved above personnel working in the area. Drop zones must be barricaded or marked to ensure no entry of unauthorized personnel.

Lift permits are required when using portable cranes and other portable equipment to lift objects (except for fork lifts, skyjacks and similar equipment where objects are resting on forks and special rigging is not necessary). Under certain conditions, a “critical” lift permit may also be required. This includes lifting of personnel in a “man basket”.

DEMOLITION

Special care must be exercised in the demolition of structures and equipment.

The contractor shall inspect all lines, electrical service and equipment to be certain they have been cleaned or purged, tagged or otherwise cleared for safe removal. All lines and equipment should be considered unsafe until confirmed otherwise.

Special care shall be exercised to define and locate underground utilities or otherwise hidden lines.

The pre-job safety meeting shall devote special attention to pre-planning the safety aspects of demolition jobs.

Temporary provisions shall be made where eyewash/safety shower stations and fire extinguishers are moved in the work area.

Special attention shall be given to the marking of hazards and barricading of hazardous areas for the protection of all personnel, including those not directly involved in the work.

DRIVING AND PARKING



Extreme caution must be exercised while driving vehicles on site. Drivers must be on constant alert for other vehicles, pedestrians, bicycles, small carts, heavy equipment, trucks, cranes, elevated work platforms, and other equipment.

NOTE: Speed limits are posted throughout the site.

- Seatbelts must be worn by drivers and all passengers, front seat and back.
- All traffic signs shall be obeyed.
- Cell phones shall not be used while operating a vehicle.
- When towing trailers, safety chains must be used.
- The use of flatbeds, stake beds, etc. as transportation for personnel is not permitted, and personnel may not ride on sideboards or in the beds of pickup trucks.
- Drivers must have a valid driver's license.
- HSC may have specific Driving and Parking Rules. Contact your Site Rep for details. All vehicles must meet all laws governing safe operation
- When parking, do not block roadways, service drives, loading docks, dumpsters or fire hydrants. Keys must be left inside vehicles in case they need to be moved in the event of an emergency (except when parked outside the fence line or at a designated contractor trailer after hours).
- Parked vehicles should not be left unattended with engines running.
- Material being hauled that overhangs the side of trucks, trailers or cranes by over one foot must be flagged at the area of the overhang. Material extending more than three feet from the front or back shall be red flagged.
- Dragging or skidding material and objects on site roadways is prohibited.
- Trucks hauling waste or demolition materials shall be equipped with an adequate rear and top closure to prevent material from dropping or blowing onto the roadway.
- Vehicle accidents must be reported to Safety & Emergency Services Department. Failure to follow traffic and parking rules may result in revocation of onsite vehicle privileges.

ELEVATED WORK (FALL PROTECTION)



Approved fall protection shall be used by contractor personnel performing work at a certain height above the ground. Check with your Site Rep for details. When doing work that is defined as “Construction Work” according to OSHA, fall protection must be used at four (4) feet or more from the next lowest level.

Where approved handrails or other fixed fall protection is not provided, personnel shall wear an approved Personal Fall Arrest System (PFAS), i.e., a full-body harness with a lanyard incorporating a shock absorbing device and double locking snap hooks (body belts are not allowed). Self-retractable lanyards (SRLs) may be used in lieu of standard lanyards and are encouraged whenever possible. Alternatives to a PFAS are permitted when performing “roof work” as defined by MIOSHA rules.

Where a PFAS is required, 100% anchorage (tie-off) is required at all times. This means that twin lanyards or “Y” style lanyards must be used where it is necessary to disconnect a lanyard in order to facilitate personnel movement (such as when exiting an elevated work platform to access a highline). Twin SRL’s may also be used.

A PFAS is also required when moving or working in elevated work platforms and in crane supported “man baskets”. See ELEVATED WORK PLATFORMS.

Fall protection equipment shall be maintained in proper working condition and must be routinely inspected, including before each use. Equipment found in questionable or poor condition may be removed from service without notice.

Personnel using fall arrest systems shall be trained in the correct use, inspection and maintenance of the equipment. Fall protection devices used shall be of the full body type, meeting the requirements of ANSI Standard. Contractor Company is responsible to provide all training.

Whenever work is conducted that requires a PFAS, a safe work permit is required. Proper anchor points must be selected and agreed upon with the permit issuer. Such anchor points shall be robust and of adequate load bearing capacity. Anchoring to hand rails, floor grating, cables/wires, conduit, instrumentation, valves, small diameter piping (3” diameter or less), sprinkler

pipng (any size), tubing, lightweight joists & purlins and other lightweight objects is not permitted. For assistance in selecting anchor points, contact Safety & Emergency Services.

ELEVATED WORK PLATFORMS

Elevated work platforms include, but are not limited to: bucket trucks, articulating lift platforms, telescoping boom lifts, and scissors lifts.

Personnel shall not sit or climb on the handrails (or toekick) of the basket for any reason. Wood planking, ladders or other objects to improve personnel access shall not be used in elevated work platforms. Climbing on or over handrails to gain access to an elevated location is strictly prohibited; Elevated Work Platforms can only be exited through the man gate.

Personnel operating elevated work platforms must be properly trained and certified to operate the particular equipment being used. Proof of training must be with operator at all times.

All platforms must be maintained in proper working order and inspected **before** each use. Daily inspection checklist must be kept with the equipment or operator. Equipment not working properly or deemed unsafe shall not be used and removed from service.

A safe work permit is required for operating an elevated work platform except when moving the platform to/from the work site, (permits will be required when moving platforms into tank farms, process areas, and other electrically classified areas).

A Pre-Task Analyst Card must be completed by the lift operator before using the elevated work platform.

Emergency escape packs may be specified by the Safe Work Permit writer for certain situations.

Escape (“bite block”) respirators may be substituted for escape packs if provided by Contractors Company.

Work platforms shall not be used for lifting, moving, positioning or supporting objects other than those inside the work platform basket. The manufacturer’s stated capacity for the work platform must not be exceeded. Compressed gas cylinders inside work platforms must be adequately secured to the platform.

Personnel shall be prohibited from walking or standing beneath a raised boom

or work platform. If necessary, caution tape or means to block area shall be provided.

Scissor lifts must be equipped with anti-tip devices and automatically closing gates.

Fall Protection

All personnel working in elevated platforms must use a Personal Fall Arrest System (PFAS) when the platform is elevated or being moved. Fall restraint systems (short 4' lanyards without shock absorber or self-retractable lanyards) are required. Fall arrest / restraint must be attached to a manufactures approved anchor point in the platform.



Barricades

When platforms are used in or immediately adjacent to roadways, an A-frame style barricade shall be placed on both sides of the platform (cones are not permitted). If the boom of an articulating lift extends across a roadway, additional barricades, as necessary, shall be placed in the roadway to prevent other vehicles from hitting the boom or the basket. Road Closure Permit must be obtained from Safety & Emergency Services for any partial or complete road closure.



Ground Persons

A ground person is required at almost all times. Completing the required Pre-Task Analysis card will help determine when one is necessary. Check with your Site Rep for details.

Ground persons shall be responsible for the following:

- (1) Continuously observing work and remaining at ground level while work is occurring,
- (2) Knowing how to operate ground controls and lower work platform in an emergency,
- (3) Knowing how to summon help,
- (4) Having a means to communicate with the lift operator.

EMERGENCIES



To ensure the safety of all personnel on site, it is essential that contractor personnel follow proper procedures during an emergency and do not interfere with emergency response operations.

If a serious accident, imminent danger, or other emergency situation is discovered, Safety & Emergency Services shall be notified immediately. Notification may be made by:

- (1) Calling the site emergency number.
 - a. Internal Plant Phone Dial **7373**
 - b. Mobile Phone **(989) 642--7373**
- (2) Activating the nearest eyewash/safety shower station,
- (3) Activating the nearest fire pull station (if fire), *or*
- (4) If available, calling Safety & Emergency Services via plant radio

In the event of a chemical emergency (chemical spill or release), fire, or explosion, personnel may be instructed to either muster or evacuate. This shall normally be indicated by an alarm, though indication could be via other means. Contractor personnel should, however, not wait for instructions if perceived to be in immediate danger. In such situations, personnel should immediately proceed to a safe location.

Mustering (i.e., sheltering inside a building or vehicle) is the *default* procedure during chemical emergencies and should be the first choice of action. See MUSTER PROCEDURES and EVACUATION for more information.

Alarms

The three primary emergency alarms are listed below (note that there are a number of other non-emergency process alarms in use which may be disregarded).

Alarm	Meaning
Alternating high-low tone	MUSTER ALERT – Personnel should immediately proceed to nearest muster or other safe location
Slow “whoop”	BUILDING EVACUATION – Personnel should immediately evacuate the building and proceed to the nearest evacuation assembly point
Pulsed Wail	SITE EVACUATION – Personnel should immediately evacuate the site and proceed to an evacuation assembly point outside the plant fence
Steady Tone With message	TORNADO WARNING ALERT - indicates a severe thunderstorm with tornadoes may be imminent and Hemlock Semiconductor personnel should immediately proceed to the nearest tornado shelter.

To hear these alarm sounds, contact Safety & Loss Prevention.

Emergency information may also be conveyed by PA speakers as part of the site-wide alarm system or verbally by Site personnel.

Testing of site alarms is preceded by an announcement.

Safe Work Permits

In the event of an emergency, all safe work permits in the affected area are automatically cancelled and contractor personnel must stop work. If work is inside a confined space or excavation, personnel must also immediately exit the space.

Work may be resumed only after the work permit has been updated or re-issued which can be done after an “ALL CLEAR” has been given. If the work initially required an atmospheric test (“sniff check”), another sniff check will be required.

ENERGIZED WORK

Where the work requires exposure to, or handling of, energized conductors or switch gear of 440 volts or more between phases, 2 or more qualified employees shall work together.

See also **PERMITS AND APPROVALS**

ENVIRONMENTAL PROTECTION

HSC is committed to protection of the environment and expects contractors to observe all applicable rules and regulations in this respect. This includes but is not limited to: storage and handling of hazardous materials, storage, handling and disposal of waste materials, recycling, spill control, and reporting.

In particular, all spills, leaks, and vapor/gas releases must be promptly reported to Safety & Emergency Services Department, regardless of size, material(s) involved or consequences.

ESCORTING

Contractor employees may, in limited cases, be allowed to escort truck drivers delivering construction materials to/from a job site or other third parties with legitimate site business. Only authorized contractor employees may act as escorts, and when escorting, the contractor employee shall be responsible for the following:

- Continuous escort of the individual and ensuring the individual does not access unapproved areas
- Ensuring individual follows all safety rules (especially PPE use)
- Ensuring safety of individual at all times, especially in the event of an emergency
- Contractors must work through Construction Work Coordinator Safety & Emergency Services for permission to escort

EVACUATION

In some situations, it may be necessary to evacuate one or more buildings or even the entire site. This will be indicated by alarms or other announcements (see EMERGENCIES for more information on alarms).

NOTE: Mustering is the preferred action in case of most chemical emergencies; therefore, evacuations may be warranted only during other types of emergencies (e.g., fires) or where the chemical emergency is inside a building.

Building Evacuation

In the event of a building evacuation, immediately proceed to the nearest assembly point and remain at this location until the “all clear” or other

instructions are given (do not exit the site). When requested, identify yourself to the site employee performing accountability.

If the nearest assembly point is not safely reachable or at some point becomes unsafe, immediately proceed to another assembly point (or any other safe location). If a location other than a designated assembly point is used, notify Safety & Emergency Services if feasible.

Site Evacuation

In the event of a site evacuation, immediately proceed to the designated assembly area outside one of the main gates and remain at this location until the “all clear” or other instructions are given (do not leave site property). When requested, identify yourself to the site employee performing accountability.

If the assembly point is not safely reachable, immediately proceed to any other safe location. If feasible, notify Safety & Emergency Services.

Evacuation Assembly Points / Routes

Evacuation assembly points are shown on evacuation maps posted in all main buildings and are identified by large signs. The route to follow in the event of an evacuation will vary due to the size and complexity of the site, but in general is the one that is the most direct once a building has been exited and that is safest/poses the least danger.

EXCAVATIONS

An excavation is any man-made cavity or depression in the earth's surface, of any depth formed by removal of earth via any means. Excavations of 6 inches or more in depth shall require both an Excavation Permit and Safe Work Permit. (See **PERMITS AND APPROVALS**)

Excavation work shall comply with all MIOSHA rules. This shall include adequate sloping / benching (“angle of repose”) or shoring according to the soil type. All excavation slopes, shoring, and bracing must be inspected daily and after each rain before entering the excavation.

If personnel will be entering the excavation, additional safeguards will apply. This may include trench boxes, atmospheric checks, ladders or other suitable means of egress, and an observer.

Adequate barrier protection shall be provided for all excavations

FALL PROTECTION

See ELEVATED WORK (FALL PROTECTION)

FIRE EXTINGUISHERS

When performing hot work (i.e., welding, cutting, grinding, etc.), contractors must furnish their own HSC trained fire watch personnel. HSC uses a Fire Watch Pre-Task Analysis card, check with your Work Coordinator for details and the location to pick up your Fire Watch extinguisher.

Contractor companies must supply all contractor facilities and large equipment (e.g., cranes, earth movers, etc.) with an approved fire extinguisher.

Fire extinguishers must be properly rated for the hazard and be periodically inspected per NFPA or Site standards.

FIRE PREVENTION

It is essential that contractor personnel exercise extreme diligence to control ignition sources and to properly store and handle flammable/combustible materials, especially flammable liquids and gases.

Specific safeguards to follow will normally be indicated by the safe work permits. Other rules and regulations may also apply as well. Below are key fire prevention requirements:

- (1) Electrical equipment and internal combustion engines (such as welders, compressors, trucks, cranes, lift platforms, etc.) must not be operated inside tank farms, process areas, and other electrically classified areas without a safe work permit.
- (2) The area around welding, cutting, and grinding operations must be kept free of combustible and flammable materials within a 35 foot radius, extending downwards vertically to the next lowest solid floor/ground.
- (3) A fire watch with a fire extinguisher shall be provided for all high energy hot work. (See Fire Watch)
- (4) Mixing of flammable liquids, such as paints and coatings, shall be done with an air driven or explosion proof electric motor.
- (5) When transferring flammable liquids, the dispensing container

and receiver must be adequately bonded together and one or the other must be adequately connected to the ground.

- (6) Flammable liquids shall be properly stored either in their original containers or in approved storage containers (e.g., safety cans). A large volume of flammable liquids may also require an approved safety cabinet.
- (7) Proper ventilation must be provided whenever mixing, dispensing or using flammable materials, such as paint, solvents, coatings and cleaners.
- (8) Keep oily, greasy, or solvent soaked rags and waste materials in approved metal containers with tight lids.
- (9) Electric welders must be shut down when left unattended.
- (10) Compressed gases of any kind should not be used for cleaning work areas or work clothing.
- (11) Maintain proper housekeeping and minimize the accumulation of combustible materials such as paper, wood, cardboard, rags, etc. Properly and promptly dispose of all waste materials.

All fires must be promptly reported to Safety & Emergency Services. See ACCIDENTS and EMERGENCIES for specific details.

FIRE PROTECTION EQUIPMENT

Contractors shall not operate, modify, move, interfere with, or impede access to any site owned fire protection equipment unless specifically authorized. Specifically:

- Contractors shall keep materials and equipment away from fire hydrants, extinguishers, hose racks, and other emergency equipment.
- Exits, stairways, fire doors, elevator approaches, and walkways shall be kept clear of tools, equipment, and materials.
- Sprinkler piping and other fire protection equipment shall not be used as a means for supporting any object.
- Connections shall not be made to fire hydrants or sprinkler systems without the permission of Safety & Emergency Services.

FIRE WATCH

- First priority is to PREVENT fire
- Must have completed the HSC fire watch training program provided by HSC
- Must be indicated/named on the work permit
- Must stay in the area for at least 30 minutes after completion of hot work. More time may be added by the SWP writer
- Must remain in the area of the hot work at all times. If the Fire Watch needs to leave the area for any reason, then a qualified replacement who is listed on the Safe Work Permit must replace the original the Fire Watch
- Must be in possession of the proper HSC provided fire extinguisher for the job.
- If a fire does occur, the fire watch shall
 - 1st - Notify the workers in the area,
 - 2nd - Get help on the way by activating a fire pull station, a safety shower / eye wash, or contacting Safety & Emergency Services by radio, or by calling the site emergency phone number,
 - 3rd - Attempt to put out the fire, but only if it is safe to do so and only if the fire can be extinguished by using one extinguisher.

GAMBLING

Gambling and similar activities are strictly prohibited on all HSC property.

GROUND FAULT CIRCUIT INTERRUPTERS (GFCI)

All electrical equipment and tools must be protected by a ground fault circuit interrupter (GFCI).

All extension cords must be protected by a GFCI. The GFCI must be located so it protects the entire run of the extension cord.

HEAVY EQUIPMENT

Operators of heavy equipment must be trained and qualified to operate the type of equipment being used, and all equipment shall be operated in a safe manner in accordance with the manufacturer's recommendations and

applicable MIOSHA rules. At no time shall the safe design capacity of the equipment be exceeded.

All heavy equipment must be inspected by the contractor prior to its use and periodically thereafter to ensure that it is in proper working order. Defective equipment shall be removed from service immediately. Records of annual inspections and equipment manuals must be readily available.

All heavy equipment shall be provided with the appropriate safeguards and safety equipment (e.g., fire extinguishers) as required by applicable safety rules. This includes seatbelts and rollover protection if necessary.

HOT TAPS

Hot taps on piping or equipment containing hazardous materials shall be performed only by qualified personnel.

Hot taps require a Safe Work Permit and may require a Site-specific permit, and/or an approved MOC (Management OF Change). Contact your Site Rep before starting a Hot Tap.

HOUSEKEEPING

It is the contractor's responsibility to maintain a high standard of housekeeping on the job site at all times. Maintain clear walkways and roadways, remove trash, control slip/ trip hazards, and properly store and stack materials.

Contractors must keep mud, slush, or other slippery materials off plant roadways. In cases where this cannot be avoided, contractor roads must be promptly cleaned.

Each work site must be thoroughly cleaned at the completion of each job. Failure to do so could impact future opportunities for jobs at HSC.

INFORMATION CONTROL

It is strictly prohibited to duplicate, destroy or copy any HSC business records (e.g., documents, drawings, photographs, electronic files, etc.) or to remove such information from HSC property without prior approval from site personnel.

All business records must be secured in designated areas when not in use.

LADDERS (PORTABLE)

The following apply to the use of ladders:

- All ladders shall meet MIOSHA standards.
- Check with your HSC Construction Work Coordinator for rules regarding use of ladders at that Site.
- **Personnel shall not overreach while working on a ladder (follow “shoulder” rule of thumb).**
- **Personnel shall NOT work while bridged from ladder to any other object or platform.**
- A personal fall arrest device must be used when working immediately adjacent to the edge of a roof, open sided floor, guardrail, handrail, or open stairway where there is a greater than normal potential for a fall.
- Contractor employees must visually inspect a ladder for defects before use. Any ladder found defective must be tagged and immediately removed from service.
- Ladders shall not be painted. However, stenciling with contractor identification is acceptable.
- Ladders shall have a solid, level footing. Ladders shall not be placed on boxes, scaffolds, elevated work platforms, or any unstable objects.
- Personnel shall not stand on the top two steps of a stepladder and personnel shall not stand on the top three steps of an extension ladder or steps above the ladder resting point, whichever is lower.
- Extension ladders over 10 feet shall be tied off at the top or held by another worker.
- A ladder shall not be used to gain access to a roof or other elevated working surface unless the top of the ladder extends at least three feet above the point of support.
- When ascending/descending a ladder, it must be done in a safe manner to prevent slipping, tripping, or falling. An employee shall face the ladder when ascending or descending. Workers shall use at least 1 hand to grasp the ladder when progressing up or down the ladder. A person shall not carry any object or load that could cause him/her to

lose balance and fall.

- A ladder shall not be placed in a passageway, doorway, driveway, or any location where it may be displaced, unless it is protected by barricades or guards or is secured to prevent displacement.

Additional MIOSHA requirements applying to ladder use shall also be followed.

LEAD

Activities on lead containing materials must follow MiOSHA Standard Part 310.

The responsibility for taking lead tests of materials will be shared between the contractor and HSC Industrial Hygiene (IH) personnel. The lead plan must be clearly defined by the Owner's Rep in conjunction with HSC IH and the contractors IH rep.

Contractor will be responsible for furnishing results to Owner's Rep.

Activities involving grinding, welding, burning, cutting, or abrasive blasting of materials that contain potential lead will require:

- Workers to have required training procedures documented with work practices, engineering controls
- Monitoring may be required to validate that exposures are below the permissible exposure Level (PEL) of 50 micrograms lead
- Site EHSS SME and contractor safety rep will determine if this is necessary.

Contact your Owner's Representative for additional information on lead related issues.

LINE AND EQUIPMENT OPENING

A Safe Work Permit is required for all work involving opening of lines (pipes) and equipment that contain or previously contained hazardous materials.

Contractors are required to follow the Site Safety Standard. Contact your Safe Work Permit writer for details.



Additional PPE will normally be required for all line and equipment openings. In addition to chemical splash goggles, a face

shield, acid suit, chemical protective gloves, chemical protective boot covering, and respiratory protection may be required. Proper chemical resistant clothing options, decontamination of this clothing, and/or disposal of said clothing must be discussed with your Safe Work Permit writer.

LOCKOUT/TAGOUT



Lockout/Tagout procedures must be followed whenever work is conducted where there is the potential for the unexpected release of hazardous energy or unexpected start-up/energizing of equipment. A safe work permit is required.

This includes but is not limited to: work on electrical circuits, electrical components, moving parts and machinery, mechanical equipment, pumps, compressors, pipelines, chemical process equipment, hydraulically driven equipment, pneumatic equipment, or devices with residual/stored energy.

Lockout/Tagout procedures must also be followed whenever any safety device (e.g., guard, interlock, etc.) is bypassed or removed.

All hazardous energy must be isolated, locked out, and tagged before any contractor personnel work on the equipment.

No contractor shall remove any lock other than their personal lock, or work on locked out equipment without following the proper procedures as noted below.

Locks

- Each contractor employee who will be working on locked out equipment shall install a personal lock on the group lock box.
- Crew or shared locks are not permitted
- Personal locks shall be independently keyed.
- Keys shall not be shared with other individuals.
- Locks shall be identified with full name and/or Company name. (Check with your Site Rep for details)

Procedures

Specific lockout procedures will vary depending on the work involved and the equipment to be locked out. In general, however, the procedures shall be as follows:

- (1) Site personnel will shut down affected equipment and place isolation devices (e.g., valves and electrical disconnects) in a safe isolation position.
- (2) The Primary Responsible Person (PRP) will place red equipment locks on all isolation devices. The key for the locks will be placed inside the appropriate group lock box, and the location of the locks will be indicated on the Master Lockout Tag.
- (3) The PRP will complete the remainder of the Master Lockout Tag and then attach their blue personal lock, along with the tag, to the latch of the lock box.
- (4) The PRP will conduct a start test to ensure that the equipment is properly isolated and will not energize (may not be applicable for certain types of equipment). Some Sites require at least one employee and representative from each contractor company participating in lockout must witness this test. Contractor employees may request additional start tests at any time. Check with your Site Rep for details.
- (5) After verifying that the equipment is properly isolated and safe to work on, contractor employees will install personal locks on the lock box (see above comments regarding locks).
- (6) A Safe Work Permit will be issued prior to beginning work.
- (7) At the end of day, contractor employees should remove their personal locks and report the status of their work to the PRP.
- (8) When work is complete, the PRP will verify if it is safe to start up the equipment, in which case the PRP will remove their lock from the lock box and remove all red equipment locks from the isolation devices.

A written lockout procedure shall be developed, documented and utilized when

contractors are performing work that could potentially expose workers to hazardous energy.

If a contractor employee inadvertently leaves their lock on the lock box and it is necessary to start up the equipment, their lock will be removed without prior notice. The contractor employee (or their employer) will then be notified.

MUSIC PLAYERS

The use of personal music players is permitted only in designated break areas. They are strictly prohibited in all other areas in the plant, including while driving or operating other equipment.

Music devices may be used in active construction areas, but only when approved by a Site Representative, when there are no flammable materials being used in the area and provided volume does not interfere with normal communications and alarm sounds. HSC however, reserves the right to disable and/or remove such devices without prior notice if deemed to be unsafe, offensive or otherwise impede operations.

MUSTER PROCEDURES

Muster procedures (i.e., sheltering inside a building or vehicle) are the *default* procedures to be followed during chemical emergencies and should be the first choice of action.

If the muster alarm (high-low alternating tone) is sounded, and/or if green “Muster” lights are flashing, or if a chemical release is noted, contractor employees should immediately proceed to the nearest muster location as indicated by green and white signs. Once at the muster location, individuals should:

- (1) Badge in at the badge reader (or sign-in on the sign-in sheet) located either near the entry door or inside the muster room.
- (2) Activate the muster alarm if not already sounding (green mushroom button located in control rooms, or

- contact Safety & Emergency Services).
- (3) Activate air handler shutoff if not already shut down (red mushroom button near muster alarm button or as indicated by signs)
 - (4) Ensure all doors to the muster location are tightly closed
 - (5) Stay in the muster location until “all clear” or other instructions are given (**DO NOT** attempt to leave the muster location or evacuate unless instructed to do so)

If the designated muster location cannot be safely reached, proceed to any other location nearby and close the doors. If possible, notify Safety & Emergency Services of your whereabouts. Alternately, go inside a vehicle, roll up the windows, and turn off the ignition.

See also EMERGENCIES and EVACUATION

ORIENTATIONS

See SITE ACCESS / IDENTIFICATION BADGES for information on required safety orientations.

OVERTIME AND ODD HOURS

Contractor work is based on HSC normal work schedule. When overtime or odd hours are necessary, specific approval is required through HSC Construction Work Coordinator.

Gate hours vary depending on the Site. Contact your Site Rep for details

PERMITS AND APPROVALS



A safe work permit is required for **all work** performed on site by contractor employees. This includes measuring, estimating, inspecting, surveying, and similar activities where such requires the use of elevated work platforms, scaffolding, electrical equipment or internal combustion engines in electrically classified areas, hazardous materials, special PPE (such as fall protection), or other special tools, equipment, or procedures.

Additional permits, in addition to a safe work permit, may also be required

depending on the activity and location.

Safe Work Permit

All work on HSC property requires a Safe Work Permit except in properly arranged fabrication areas approved by a site representative. Safe work permits will be issued by designated site personnel.

Safe Work Permits will only be issued to personnel who will be at the work location and participating in the actual work. At least one worker needs to be present when the Safe Work Permit is issued. **The contractor employee accepting the permit is responsible for ensuring that all members of the crew involved with the work, including any subcontractors, understand all aspects of the job and safeguards specified by the permit.**

Contractor employees shall follow all safeguards specified by the permit and shall work only within the scope and limitations as indicated on the permit. Should the type or scope of work change (for example, movement of work to a different area, work on different equipment, use of different tools or equipment, etc.), work shall not continue until the permit has been updated by the permit issuer to reflect the work change. Informing permit writer of changes in the scope of work is the responsibility of the contractor employee.

Permits can be authorized for up to a maximum of twelve (12) hours, check with your Site Rep for details. Exceptions to this provision may be granted by Safety & Emergency Services Team Leader in special situations.

All safe work permits shall be terminated when an emergency alarm is sounded, an emergency occurs in the area, when all contractor workers leave the jobsite for 30 minutes or more, when terminated by site personnel, or any other condition occurs that might alter the safety of the work being performed. Work shall not resume until a new Safe Work Permit has been issued or the current permit is updated.

Confined Space Entry Permit

A Confined Space Entry Permit must be obtained when entering permit-required confined spaces.



NEVER enter a confined space without the required permit, especially to rescue other personnel.

See also CONFINED SPACES

Electrical Hazard Analysis



NEVER perform Energized Work without first obtaining an Electrical hazard Analysis. See Construction Services Electrical Owners Rep for details

Excavation Permit

An excavation permit is required for any excavation of 6 inches or more in depth.



NEVER enter an excavation unless the excavation permit allows entry into the excavation and the required safeguards have been put in place.

Lift Permit

Lift permits are required when using portable cranes and other portable equipment to lift objects (except for fork lifts, skyjacks, and similar equipment where objects are resting on forks and special rigging is not necessary). Under certain conditions, a “critical” lift permit may also be required.

See CRANES AND LIFTING EQUIPMENT

Critical Lift Permit

If any of the following conditions exist, a critical lift permit shall be required in addition to a safe work permit:

- Work platform (“man basket”) is used to lift personnel
- Total load exceeds 80% of the net lifting capacity for the equipment
- Total load exceeds 50% of the net lifting capacity for the equipment AND the load will be lifted over critical equipment or facilities
- Equipment will travel while the load is suspended
- Two booms are used to lift the load
- Load, rigging, wire rope, or any part of the lifting equipment is within 20 feet of an energized power line

PERSONAL CONDUCT

Contractor employees shall conduct themselves in a professional manner and follow applicable Site and Company safety rules at all times. Failure to do so could result in immediate and/or permanent expulsion from site property.

See also THREATENING / DISORDERLY BEHAVIOR

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Following are basic PPE requirements. Other or additional PPE may be required by a Safe Work Permit or specific MIOSHA rules.

Unrestrained long hair or beards, neckties, loose clothing, dangling sleeves, neck chains, rings, bracelets or other jewelry are not permitted in work areas where they may present a hazard, such as working around machinery with exposed moving parts.

Eye Protection

Approved safety glasses, **with side shields**, are required to be donned immediately upon entering the plant and worn in all areas of the plant unless indicated otherwise. Safety glasses must meet ANSI standards Z87.1.

Exempted areas include lunchrooms, control rooms, conference rooms, offices, restrooms, locker rooms, hallways between these areas (unless performing work in these areas), inside a vehicle (i.e. cars, pickups, and other routine vehicles), inside construction equipment equipped with an enclosed cab and windows/doors are closed.

Safety glasses with tinted lenses are permitted for outdoor use only.

Individuals wearing contact lenses are required to have a Red dot on the side of their safety glasses or goggles.

Some areas of the plant require chemical splash goggles. These include the following: reactor rooms, process towers, tank farms, loading stations, poly breaking rooms, etch bench operations, some lab areas, and other areas as posted. Goggles must be worn at all times when in these areas.

When welding and cutting, eye protection with the appropriate shade number shall be worn.

A face shield must be worn over safety glasses or chemical goggles when grinding or buffing.

All contractors must know the location of the nearest safety shower / eye wash.

Head Protection

Hard hats are required when specified in the Safe Work Permit or by postings in work areas.

Approved hard hats are those marked as meeting ANSI Standard Z89.1 and at a minimum, must be Type I, Class G with Type II, Class E being recommended. Skull caps, scalp guards and bump caps are not permitted

Foot Protection

Contractor employees must wear approved Safety-toe footwear meeting ANSI Standard Z41.1 or ASTM F2413-05 certified while in construction or process areas. Open toed shoes or sandals are not permitted in any work areas. 6" or 8" high work boots are recommended.

Other than standard safety footwear may be required for some tasks. (ie. metatarsal protective shields, chemical resistant footwear, etc.)

Clothing

Clothing must be safe and proper for the job the individual will be performing.

- Full-length pants are required.
- Long-sleeves are required. (gauntlets may be worn in place of long-sleeves)
- Sleeves must extend beyond elbows and effectively cover forearms to the wrist.
- Tank-tops, shorts, or going shirtless is prohibited.
- Flame resistant (FR) clothing may be required to work in some areas of the plant.

Fall Protection

See ELEVATED WORK (FALL PROTECTION)

Hand Protection

Work gloves should be worn whenever performing general work, unless the gloves could create a greater safety hazard, such as when working on or near rotating/moving equipment where the gloves could become caught in the

equipment.

Acceptable gloves include leather, cotton, and “mechanics” style gloves.

Chemical protective gloves shall be worn when there is potential contact with hazardous chemicals. The material of construction must provide adequate protection against the chemicals in question.

Other types of gloves may be required for specific applications, such as cut resistant gloves, thermal protective gloves, welding gloves, and voltage insulating (electrically protective) gloves.

Chemical Protective Clothing

In some situations, such as line and equipment openings, chemical protective clothing may be required. Clothing shall provide full-body liquid splash protection and include splash goggles, chemical protective gloves, and chemical protective boot covering (with all seams taped). Respiratory protection may also be required depending on the operation.

In most cases, chemical protective clothing capable of resisting penetration from Hydrochloric Acid will be adequate, though protection against Hydrofluoric Acid, Nitric Acid, and/or Sodium Hydroxide may also be necessary.

Proper chemical resistant clothing options, decontamination of this clothing, and / or disposal of said clothing must be discussed with your Safe Work Permit writer.

Hearing Protection

Hearing protection shall be worn in posted areas. Hearing protection is required for construction activities when the sound level is above 85 dB.

Ear plugs or ear muffs are suitable in most situations.

Respiratory Protection

Respiratory protection may be required in some situations as dictated by a safe work permit. In most cases, this will consist of an air purifying (cartridge type) respirator with acid gas/organic vapor cartridges. Particulate (P100) filters may also be necessary.

Where respiratory protection is required, the contractor shall be responsible for supplying their employees with the appropriate equipment.

Contractor companies are required by law to ensure that all employees who wear respiratory protection shall be:

- (1) Trained in the use and maintenance of the respirator equipment
- (2) Medically approved and fit tested to wear a respirator
- (3) Clean shaven in all areas of contact between the respirator sealing surface and facial skin

HSC may request confirmation of the above and contractor employees may be prohibited from performing the work in question if the documentation is not satisfactory or if the personnel do not appear to be clean shaven.

PHOTOGRAPHY

See CAMERAS and also CELL PHONES

PORTABLE LIGHTS

Unless a safe work permit is obtained specifically for hot work, all portable lights, including battery operated flashlights used in electrically classified areas (e.g., reactor rooms, process towers, tank farms, etc.) must be intrinsically safe or rated for use in Class I, Division 2, Groups B, C & D areas.

Hand lamps must meet MIOSHA standards and be equipped with a globe and guard.

RADIATION

Radiation sources are present on some HSC Properties. Through the site radiation safety program, exposure to non-radiation trained workers is minimal. HSC works with the Nuclear Regulatory

Commission (NRC) and the State of Michigan to follow all regulations and minimize exposure. Most individuals on site fall under the category Members of the Public (MOP), which means you are an individual on site who is not a radiation worker. Actual exposure to a Member of the Public on site will be far below NRC requirements.



Locations where a radiation source is stored shall be posted with signs such as “Caution-Radioactive Materials” or “Radiation Area”.

The radiation symbol is what indicates a Radiation Hazard. Wording will be included to give additional information. When you see these signs, unless you need to be in the area, it is best to avoid them.

Working within 5 feet of a radiation source is a regulated activity and needs to be discussed with your Safe Work Permit writer.

If there are any questions or concerns in regard to radiation or the radiation program, please contact site Radiation Safety Officers (RSO).

Personnel are not allowed to move signs or enter the barricaded area without prior approval.

RADIOS (TWO--WAY)

Two-way radios used in electrically classified areas (e.g., process areas, reactor rooms, and tank farms) must be intrinsically safe.

READING MATERIAL

Reading of non-Company or non-business-related material while at work is allowed only on a limited basis. Team Leaders have the authority to prohibit and/or further limit reading of such material in their respective areas or responsibility. It should be noted that reading, possession, storage, or transporting of such reading material must not interfere with normal business activities in the Plant. Any offensive materials such as pornographic or sexually suggestive items are strictly forbidden.

RESPIRABLE CRYSTALLINE SILICA

Examples of this include: cutting, drilling, sawing, crushing of concrete. Blasting media containing silica.

Perform work in accordance with MIOSHA rules.

- (1) Contractor performing work must provide a competent person to supervise work.
- (2) All work shall follow MIOSHA Table 1: Specified Exposure control methods when working with materials containing Crystalline Silica.
 - i. Upon request, provide HSC with objective data used to

support proposed exposure control package, when such controls differ from item (2) above.

ROOF WORK

Approved fall protection as specified by MIOSHA rules must be provided whenever performing “roof work.” See also ELEVATED WORK (FALL PROTECTION)

SAFETY DEVICES, TAMPERING WITH

Contractor employees shall not tamper with, bypass, impede, or make inoperative any safety device, safety system, or safeguard such as relief valves, sprinkler control valves, electrical, or mechanical interlocks, mechanical guards, emergency shutdown systems, alarm systems, security systems, safety showers, fire protection equipment, etc., unless part of the work is authorized through a safe work permit.

SAFETY TRAINING

In addition to minimum safety training required for site access (see SITE ACCESS / IDENTIFICATION BADGES), contractors are responsible for training their employees on specific safety subjects applicable to their particular jobs as required by various MIOSHA rules. HSC may at any time ask for verification that such training has been provided and that contractor employees have demonstrated understanding/competence.

Also, all contractor employees may need to attend an area specific training (when applicable) for each area in which they will be working. Upon completion of these trainings, each employee is responsible for carrying applicable training cards and placing related stickers on hardhats.

SAFETY STANDARDS

HSC has developed a set of safety standards and procedures that define specific safety requirements for a variety of subjects. The key requirements from these standards/procedures have been summarized herein, but for additional details, contact a site Representative.

SANDBLASTING

Sandblasting operations shall follow all applicable laws and be barricaded, and

the area shall be posted with signs indicating sandblasting is in progress.

All personnel entering the posted area shall be required to wear respiratory protection, hearing protection, and protective clothing in accordance with the hazards of the work.

See also LEAD PAINT

SCAFFOLDS

Erection

Scaffolds shall be erected, modified, and dismantled under the supervision of a competent person as defined by MIOSHA.

All scaffolds shall be erected and maintained in accordance with MIOSHA rules. Specifically:

- Base support must be sound and firm. Concrete blocks, bricks, barrels, crates, or other similar items shall not be used for supports.
- Guard rails, mid-rails, and toe boards shall be installed on all sides of elevated platforms over 4 feet high.
 - Where hand rails are not practical, appropriate fall protection equipment shall be worn.
 - Where the use of toe boards is not practical, the area beneath and surrounding the platform shall be barricaded.
- All wood planking shall be Scaffold Grade.
- All horizontal and vertical sections, cross-braces, hand rails, planking, and other components shall be tightly secured.
- A properly designed and secured access ladder or other safe access shall be provided.

Rolling scaffolds shall have their wheels locked or chocked and diagonal bracing installed. No scaffold shall be moved while occupied and until all equipment and tools have been removed.

Employees erecting scaffolds must wear a full body harness and be securely anchored while erecting the scaffold unless it is not feasible or if doing so would create an additional hazard.

Scaffold Inspections



Scaffold inspections vary on different Site's. Check with your Site rep for details. Scaffolding shall be inspected by a competent person prior to initial use and tagged. A competent person shall inspect scaffolding. If the scaffold has not been inspected, a safe work permit will not be issued.

When the tag holder itself is attached to a scaffold, the scaffold is effectively tagged as "Do Not Use". When the holder does not have a **Green** or **Yellow** tag in it, the scaffold or scaffold platform can only be accessed by the team of scaffold erectors.

Green tags indicate the scaffolding system has been built to MiOSHA requirements and no additional safety measures are needed. Employees can work on the scaffold without restriction.

Yellow tags indicate that scaffolding has a component missing and there are special requirements for the use of the scaffold. The missing components or special requirements are to be documented on the Scaffold tag to communicate to all workers that caution is needed.

If a scaffold becomes damaged, is involved in an accident, is in the process of being modified, or is otherwise deemed unsafe, simply pull the tag from the

holder to expose the “Danger” and “Do not use Scaffold” labels on the tag holder. Then communicate with the permit writer that you have done so. The scaffold shall not be used until repaired as needed and re-inspected.

It is the responsibility of the contractor to provide competent individuals to perform initial and routine inspections of scaffolds. HSC will inspect only under certain conditions.

It is also the responsibility of every contractor employee working from scaffolds or scaffold platforms to ensure his/her own safety and the safety of others by removing a tag and returning to the permit writer when it is deemed that a scaffold is unsafe.

SEAT BELTS

Seat belt use is required by the driver and all passengers while inside the plant. See DRIVING AND PARKING

SECURITY

Contractor employees shall follow all HSC security procedures and not tamper with, bypass, disable, modify, or override any security equipment/systems. This includes, but is not limited to: fencing & gates, card access systems, security cameras, locks, etc. Any violations in this respect could result in immediate and permanent expulsion.

See also BACKGROUND CHECKS, CAMERAS, ESCORTING, SECURITY INSPECTIONS, SITE ACCESS / IDENTIFICATION BADGES, and THEFT / VANDALISM

SECURITY INSPECTIONS

Random and unannounced security inspections may be conducted for personnel and vehicles entering or exiting the site. Visual security inspections of vehicles parked outside the fence line may also be conducted.

Safety & Emergency Services may conduct inspections of contractor owned facilities on site. Prior notification will be given to the contractor unless an imminent danger situation or serious regulatory violation is reasonably believed to exist.

SIGN--IN PROCEDURES

Upon entering a production building or area, all contractor employees must sign or badge in (if badge readers are provided), and when leaving, sign or badge out. This requirement applies regardless of duration and is extremely important for emergency accountability purposes.

SITE ACCESS / IDENTIFICATION BADGES

Access Requirements

Unless waived by Safety & Emergency Services, all of the following criteria must be met for contractor employees to gain access to the HSC site:

- (3) The contractor must be currently approved for performing work on site.
- (4) Contractor employees must successfully pass a criminal background check performed by a third party designated by HSC
- (5) Contractor employees must be U.S. citizens or permanent resident aliens
- (6) Contractor employees must satisfactorily complete a safety training program at HSC. (initial and annual refresher)
- (7) Successfully complete a site safety orientation annually
 - i. Contractor company employees may be required to attend this class if they are away from HSC for more than 90 consecutive days.

Access to HSC shall be permitted only during normal working hours. If entry to the site is required outside of normal working hours or if employees are working overtime, special arrangements must be made in advance through their site representative.

Contractor employees shall access the site only through approved access points using issued identification badges.

HSC reserves the right to revoke access rights for any contractor or contractor employee without prior notice.

Identification Badges

Once access is granted, contractor employees will be issued identification badges. These badges must be used to access the site each time. The following rules apply to these badges:

- (1) Badges must be prominently displayed by contractor employees while on site at all times
- (2) Badges may not be shared or transferred to other individuals
- (3) Badges may not be used to permit site access by individuals other than those to which they are assigned, either by passing the badge to other individuals or by “piggy backing” through access points
- (4) Badges shall not be left unsecured in vehicles outside the plant or in other public places
- (5) Badges may not be altered or defaced in any way
- (6) If badges are lost or misplaced, they must be promptly reported to Safety & Emergency Service

SLEEPING

Sleeping, or the appearance of sleeping, on HSC property, including inside vehicles in parking lots, is strictly prohibited.

SMOKING



Smoking is strictly prohibited on HSC property except in designated areas.

SOLICITATION AND DISTRIBUTION

Collecting contributions, vending, soliciting, distributing notices, handbills, posters, or any other printed material for any purpose not directly related to work activities while on HSC property is prohibited unless prior approval is obtained from the site

STEEL ERECTION

All applicable Safety Standards and MIOSHA Rules shall be followed for steel erection. Key provisions include the following:

- Safety glasses, hard hats and safety toe footwear shall be worn at all times. No exceptions shall be permitted.
- Goggles shall be worn when erecting steel in designated goggle areas. This requirement may be waived in special cases by Safety & Emergency Services.
 - Personnel are not permitted to ride the “headache” ball or any loads while they are being lifted. To access upper steel levels, elevated lift platforms, ladders, scaffolds, personnel-baskets, or other approved means must be used (note: use of crane supported personnel baskets require a critical lift permit).
- Personnel must use approved fall protection **at all times** above an elevation of four feet, except when making initial connections. This includes while “cooning” steel. See ELEVATED WORK (FALL PROTECTION)
- Sliding down steel is not permitted

TEMPORARY ENCLOSURES

Temporary enclosures or structures used for storage, fabrication, insulation work, welding, painting, sandblasting, or any other type of work must be approved by Safety & Emergency Services and have a Temporary Enclosure Permit. This includes, but is not limited to: sheds, lean-to's, converted truck trailers/box trucks, plastic wrapped scaffolding, weather enclosures, wind breaks, tarps draped over piping/equipment, etc. Any unapproved enclosures may be removed or secured without notice.

The following guidelines apply to all temporary enclosures:

- Enclosures shall not be erected within tank farms or process areas without prior approval from the area leader.
- Flame Retardant Materials are required.
- Enclosures containing or constructed of combustible materials shall not be located directly beneath or within 15 ft. of highline and cable trays.
- Exterior enclosures must be properly anchored against wind exposure.
- Adequate ventilation should be provided for the type of work that will be performed.

- The quantity of flammable and combustible liquids within the enclosure shall be limited to that necessary for one shift's work. Containers should be kept closed when not in actual use.
- Authorization must be obtained from electrical engineering personnel for temporary wiring (excluding extension cords).
- At least one 10 lb. ABC fire extinguisher shall be provided inside the enclosure.

Other requirements may also apply depending on the type of work and hazards present.

THEFT / VANDALISM

Contractors shall report any incidents of theft or vandalism to Safety & Emergency Services.

Any person caught stealing, vandalizing, defacing, or maliciously altering site or other property will be immediately removed from the site and/or reported to local law enforcement agencies.

THREATENING / DISORDERLY BEHAVIOR

Threatening and disorderly behavior will not be tolerated and may result in immediate and permanent expulsion from the site. This includes but is not limited to: verbal/written threats, fighting, intimidation, harassment of any type, coercion, insubordination, willful disregard for safety rules, and horseplay.

TOOLS

Contractors and/or their employees are responsible for furnishing all tools and equipment necessary to complete the contracted work. Tools and equipment should be clearly identified with the owner's name.

The use of HSC owned tools and equipment by contractor employees is prohibited unless pre-approved by an authorized representative.

All tools and equipment should be inspected prior to each use as appropriate. Defective tools and equipment must be tagged and removed from service immediately.

VARIANCES

Variances for unusual situations may be approved by Safety & Emergency

Services. Requests for variances shall be in writing and shall not preclude compliance with any applicable local, state, and federal regulations.

WEAPONS

Weapons, including but not limited to: guns, knives, explosives, martial arts weapons, etc. are strictly prohibited on any site property. Contractor employees caught possessing a weapon will be immediately removed from the site and/or reported to local law enforcement agencies.

WELDING AND CUTTING

Whenever cutting and welding (or performing similar operations such as brazing, soldering, and open torch work), appropriate safeguards must be followed to prevent ignition of flammable/combustible materials and possible injury. This includes the following:

- Removal of flammable and combustible materials from the immediate area (see FIRE WATCH)
- Providing a fire watch (see FIRE WATCH)
- Complete a Fire Watch Pre-Task Analysis Card. (see FIRE WATCH)
- Have appropriate portable fire extinguishers on hand. (see FIRE WATCH)
- Wearing appropriate PPE, especially eye protection with the proper shade number
- Provision of adequate ventilation to remove welding fumes and other air contaminants
- Proper inspection and maintenance of cutting and welding equipment
- Proper storage of any welding gases, including adequate securement of cylinders
- Following all other applicable MIOSHA requirements
- Atmospheric testing (sniff check) may be required

A safe work permit is required for all welding and cutting except in designated and properly arranged welding areas.

REFERENCES

- Michigan Occupational Safety & Health Administration (MIOSHA)
- Occupational Safety and Health Administration (OSHA)
- American Society of Mechanical Engineers (ASME)
- National Fire Protection Association (NFPA)
- National Safety Council
- Mechanical Contractors Association of America
- Hemlock Semiconductor Corporation Operations EHSS Safety Standards and Policies
- HSC Site Rules