

Manual Section 3	Issue Date 12/1/09	Revision Date 01/15//26	Policy Number LLCP-026
	HAZWOPER		

REGULATORY STANDARD: OSHA - 29 CFR 1910.120

Purpose

Hazardous Waste is a serious safety and health problem that continues to endanger human and animal life and environmental quality. Unless hazardous waste is properly treated, stored, or disposed of properly, it will continue to do great harm to our environment. There are an estimated 575,000 existing chemical products, and hundreds of new ones being introduced annually. This poses a serious problem for exposed workers and their employer. The OSHA HAZWOPER Standard covers workers employed in cleanup operations at uncontrolled hazardous waste sites and at EPA-licensed waste treatment, storage, and disposal (TSD) facilities; as well as workers responding to emergencies involving hazardous materials.

Scope

All GIS Holdings, LLC Companies and affiliates including, Blanchard Industrial, LLC, GIS Engineering, LLC, Grand Isle Shipyard, LLC., GWIS, Mack Steel, NuWave, Valvemax, Discovery Industries, Inc., Global Inspections, LLC, and EIS, hereafter identified as “Company”.

GENERAL: The Company will ensure that the hazards of all wastes used within our facility are evaluated, and that operational procedures are developed and information concerning their hazards is transmitted to all employees. This standard practice instruction is intended to address comprehensively the issues of; evaluating the potential hazards of wastes, communicating information concerning these hazards, and establishing appropriate operating procedures and protective measures for employees.

RESPONSIBILITY: The Corporate HSE Director is solely responsible for all facets of this program and has full authority to make necessary decisions to ensure success of the program. The HSE Director will develop written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions. The HSE Director has authority to halt any operation where there is danger of serious personal injury. This policy includes respiratory hazards. The HSE Director shall be notified through the Corporate Office immediately in the event of a spill or when in need of any emergency response effort. Direction will be given upon contact.

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The HAZWOPER Program

1. Written program. The Company will review and evaluate this standard practice instruction on an annual basis, or when changes occur to 29 CFR 1910.120 that prompt revision of this document, or when facility or site operational changes occur that require a revision of this document. Effective implementation of this program requires support from all levels of management within this company. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives.

2. Purpose. This company will maintain a HAZWOPER program because it has been determined that there is a reasonable possibility for employee exposure to safety or health hazards associated with hazardous waste. This standard practice instruction will provide an operational framework for

- Clean-up operations required by a governmental body, whether Federal, state, local or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the EPA's National Priority Site List (NPL), state priority site lists, sites recommended for the EPA NPL, and initial investigations of government identified sites which are conducted before the presence or absence of hazardous substances has been ascertained).
- Corrective actions involving clean-up operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 U.S.C. 6901 et seq.).
- Voluntary clean-up operations at sites recognized by Federal, state, local or other governmental bodies as uncontrolled hazardous waste sites.
- Operations involving hazardous wastes that are conducted at treatment, storage, and disposal (TSD) facilities regulated by 40 CFR parts 264 and 265 pursuant to RCRA; or by agencies under agreement with U.S.E.P.A. to implement RCRA regulations.
- Emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.

3. Safety and health program. This employer shall develop and implement a written safety and health program for employees involved in hazardous waste operations. The program shall be designed to identify, evaluate, and control safety and health hazards, and provide for emergency response for hazardous waste operations. The written safety and health program shall incorporate as a minimum the following:

- An organizational structure.
- A comprehensive work plan.
- A site-specific safety and health plan, which need not repeat standard practice instructions developed elsewhere.
- A safety and health training program.
- A medical surveillance program.
- This employer's standard practice instructions for safety and health.
- Any necessary interface between general program and site specific activities.

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4. Site excavation. Site excavations created during initial site preparation or during hazardous waste operations shall be shored or sloped as appropriate to prevent accidental collapse in accordance with subpart P of 29 CFR part 1926.

5. Contractors and sub-contractors. Should this employer retain contractor or sub-contractor services for work in hazardous waste operations this company shall inform those contractors, sub-contractors, or their representatives of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the hazardous waste operation that have been identified by this employer, including those identified in this employer's information program.

6. Program availability. The company written safety and health program shall be made available to:

- Contractor or subcontractor or their representative who will be involved with the hazardous waste operation.
- All associated employees and their designated representatives.
- OSHA personnel.
- Authorized personnel of other Federal, state, or local agencies with regulatory authority over the site.

7. Organizational structure part of a site program.

- The organizational structure part of the program shall establish the specific chain of command and specify the overall responsibilities of supervisors and employees. It shall include, at a minimum, the following elements
 - The On-site supervisor will have responsibility and authority to direct all hazardous waste operations.
 - The Corporate HSE Director will have the responsibility and authority to develop and implement the site safety and health plan and verify compliance.
 - All other personnel needed for hazardous waste site operations and emergency response and their general functions and responsibilities.
 - The lines of authority, responsibility, and communication.
 - The organizational structure shall be reviewed and updated as necessary to reflect the current status of waste site operations.

8. Comprehensive work plan part of a site program. This employer will develop a comprehensive work plan that shall address the tasks and objectives of the site operations and the logistics and resources required to reach those tasks and objectives. The work plan shall:

- Address anticipated clean-up activities as well as normal operating procedures which need not repeat this employer's procedures available elsewhere.
- Define work tasks and objectives and identify the methods for accomplishing those tasks and objectives.
- Establish personnel requirements for implementing the plan.
- The work plan shall provide for the implementation of the training required by worker involved in site activities.
- The work plan shall provide for the implementation of the required informational programs required workers involved in site activities.
- The work plan shall provide for the implementation of a medical surveillance program required workers involved in site activities.

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9. Site-specific safety and health plan. This employer will develop a site safety and health plan, which will be kept on site. The plan will address the safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. The site safety and health plan, as a minimum, shall address the following:

- A safety and health risk or hazard analysis for each site task and operation found in the work plan.
- Employee training assignments to assure compliance with the training section of this instruction.
- Personal protective equipment to be used by employees for each of the site tasks and operations being conducted as required by the personal protective equipment program.
- Medical surveillance requirements.
- Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used.
- Site control measures.
- Decontamination procedures - A decontamination procedure shall be developed, communicated to employees and implemented before any employees or equipment may enter areas on site where the potential for exposure to hazardous substances exists.
- Emergency response plan meeting the requirements for safe and effective responses to emergencies, including the necessary PPE and other equipment.
- Confined space entry procedures.
- Spill containment requirements.
- Pre-entry briefing. The site specific safety and health plan will provide for pre-entry briefings to be held prior to initiating any site activity, and at such other times as necessary to ensure that employees are apprised of the site safety and health plan and that this plan is being followed. The information and data obtained from site characterization and analysis will be used to prepare and update the site safety and health plan.
- Effectiveness of site safety and health plan. Inspections shall be conducted by Operations Quality or, in their absence, the Supervisor who is knowledgeable in occupational safety and health, acting on behalf of this employer as necessary to determine the effectiveness of the site safety and health plan. Any deficiencies in the effectiveness of the site safety and health plan shall be corrected by this employer.

10. Site characterization and analysis. The site shall be evaluated in accordance with this standard practice instruction to identify specific site hazards and to determine the appropriate safety and health control procedures needed to protect employees from the identified hazards. The following requirements apply:

- Preliminary evaluation. A preliminary evaluation of a site's characteristics shall be performed prior to site entry in order to aid in the selection of appropriate employee protection methods prior to site entry. Immediately after initial site entry, a more detailed evaluation of the site's specific characteristics shall be performed in order to further identify existing site hazards and to further aid in the selection of the appropriate engineering controls and personal protective equipment for the tasks to be performed.
- Hazard identification. All suspected conditions that may pose inhalation or skin absorption hazards that are immediately dangerous to life or health (IDLH), or other conditions that may cause death or serious harm, shall be identified during the preliminary survey and evaluated during the detailed survey. Examples of such hazards include, but are not limited to:

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- Confined space entry.
- Explosive or flammable situations
- Visible vapor clouds.
- Areas where biological or environmental indicators such as dead animals or vegetation are located.
- Required information. The following information to the extent available shall be obtained by this employer prior to allowing employees to enter a site:
 - Location and approximate size of the site.
 - Description of the response activity and/or the job task to be performed.
 - Duration of the planned employee activity.
 - Site topography and how accessible.
 - Safety/health hazards expected at the site.
 - Pathways for hazardous substance dispersion.
 - Present status and capabilities of emergency response teams that would provide assistance to hazardous waste clean-up site employees at the time of an emergency.
 - Hazardous substances and health hazards involved or expected at the site, and their chemical and physical properties.
- Personal protective equipment. Personal protective equipment (PPE) shall be provided and used during initial site entry in accordance with the following requirements:
 - Based upon the results of the preliminary site evaluation, an ensemble of PPE shall be selected and used during initial site entry which will provide protection to a level of exposure below permissible exposure limits and published exposure levels for known or suspected hazardous substances and health hazards, and which will provide protection against other known and suspected hazards identified during the preliminary site evaluation. If there is no permissible exposure limit or published exposure level, this employer may use other published studies and information as a guide to appropriate personal protective equipment.
 - If positive-pressure self-contained breathing apparatus is not used as part of the entry ensemble, and if respiratory protection is warranted by the potential hazards identified during the preliminary site evaluation, an escape self-contained breathing apparatus of at least five minute's duration shall be carried by employees during initial site entry.
 - If the preliminary site evaluation does not produce sufficient information to identify the hazards or suspected hazards of the site, an ensemble providing protection equivalent to Level B PPE shall be provided as minimum protection, and direct reading instruments shall be used as appropriate for identifying IDLH conditions.
 - Once the hazards of the site have been identified, the appropriate PPE shall be selected and used in accordance with the engineering controls, work practices, and PPE for employee protection section of this instruction.
- Monitoring. The following monitoring shall be conducted during initial site entry when the site evaluation produces information that shows the potential for ionizing radiation or IDLH conditions, or when the site information is not sufficient reasonably to eliminate these possible conditions:
 - Monitoring with direct reading instruments for hazardous levels of ionizing radiation.
 - Monitoring the air with appropriate direct reading test equipment (i.e., combustible gas meters, detector tubes) for IDLH and other conditions that may cause death or serious harm (combustible or explosive atmospheres, oxygen deficiency, toxic substances).
 - Visually observing for signs of actual or potential IDLH or other dangerous conditions.

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- Air monitoring program. An ongoing air monitoring program will be implemented after site characterization has determined the site is safe for the start-up of operations.
- Risk identification. Once the presence and concentrations of specific hazardous substances and health hazards have been established, the risks associated with these substances shall be identified. Employees who will be working on the site shall be informed of any risks that have been identified. In situations covered by the Hazard Communication Standard, 29 CFR 1910.1200, training required by that standard will not be duplicated. Risks to be considered include, but are not limited to:
 - Exposures exceeding the permissible exposure limits and published exposure levels.
 - IDLH concentrations.
 - Potential skin absorption and irritation sources.
 - Potential eye irritation sources.
 - Explosion sensitivity and flammability ranges.
 - Oxygen deficiency.
- Employee notification. Any information concerning the chemical, physical, and toxicologic properties of each substance known or expected to be present on site that is available to this employer and relevant to the duties an employee is expected to perform shall be made available to the affected employees prior to the commencement of their work activities. This employer may elect to utilize information developed for the hazard communication standard for this purpose.
- Site control. Appropriate site control procedures will be implemented to control employee exposure to hazardous substances before clean-up work begins.
- Site control program. A site control program for protecting employees which is part of this employer's site safety and health program will be developed during the planning stages of a hazardous waste clean-up operation and modified as necessary as new information becomes available.
- Elements of the site control program. Where these requirements are covered elsewhere they will not be repeated with just cause. The site control program will, as a minimum, include:
 - A site map.
 - Site work zones.
 - The use of a "buddy system".
 - Site communications including alerting means for emergencies.
 - The standard practice instructions or safe work practices.
 - Identification of the nearest medical assistance.

11. Training. All employees working on site (such as but not limited to equipment operators, general laborers and others) exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site shall receive training before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety, or health hazards, and they shall receive review training as specified in this paragraph. Employees shall not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility.

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- Initial training requirements for treatment, storage, and disposal sites.

Staff

General site employees	24 hours initial or equiv. 8 hours annual refresher
Emergency Response personnel	Trained to a level of competency Annual refresher

- Initial training requirements for emergency response staff.

Level 1 - First responder (awareness level)	Sufficient training or proven experience in specific competencies, annual refresher
Level 2 - First responder (operations level)	Level 1 competency and 8 hours initial or proven experience in specific competencies annual refresher
Level 3 - HAZMAT technician	24 hours of level 2 and proven experience in specific competencies, annual refresher
Level 4 - HAZMAT specialist	24 hours of level 3 and proven experience in specific competencies, annual refresher
Level 5 - On scene commander	24 hours of level 2 and additional competencies, annual refresher

Definitions

Level 1 - First responder. Witnesses or discovers a release of hazardous materials and who are trained to notify the proper authorities.

Level 2 - First responder. Responds to releases of hazardous substances in a defensive manner, without trying to stop the releases.

Level 3 - HAZMAT Technician. Responds aggressively to stop releases of hazardous substances.

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Level 4 - HAZMAT Specialist. Responds with and in support of HAZMAT technicians, but who have specific knowledge of various hazardous substances.

Level 5 - On-scene Commander. Assumes control of the incident scene beyond the first-responder awareness level.

- Qualifications for trainers. Trainers used by this company shall be qualified to instruct employees about the subject matter that is being presented in training. Such trainers shall have satisfactorily completed a training program for teaching the subjects they are expected to teach, or they shall have the academic credentials and instructional experience necessary for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the applicable subject matter.
- Training certification. Employees and supervisors that have received and successfully completed the training and field experience shall be certified by their instructor or the head instructor and trained supervisor as having successfully completed the necessary training. A written certificate shall be given to each person so certified. Any person who has not been so certified or who does not meet the requirements for entering the site shall be prohibited from engaging in hazardous waste operations.
- Emergency response. Employees who are engaged in responding to hazardous emergency situations at hazardous waste clean-up sites that may expose them to hazardous substances shall be trained in how to respond to such expected emergencies.
- Refresher training. Employees, managers and supervisors will receive eight hours of refresher training annually (any critique of incidents that have occurred in the past year that can serve as training examples of related work, and other relevant topics).
- Equivalent training. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site work experience. Employees who can show by documentation or certification that their work experience and/or training has resulted in training equivalent to that training required for a 40 hour course will not be required attend formal training. However, certified employees or employees with equivalent training new to a site shall receive appropriate, site specific training before site entry and have appropriate supervised field experience at the new site.

12. Procedures for handling emergency response. The senior emergency response official responding to an emergency shall become the individual in charge of a site-specific Incident Command System (ICS). All emergency responders and their communications shall be coordinated and controlled through the individual in charge of the ICS assisted by the senior official present for each employer.

The "senior official" at an emergency response is the most senior official on the site who has the responsibility for controlling the operations at the site. Initially it is the senior officer on the first-due piece of responding emergency apparatus to arrive on the incident scene. As more senior officers arrive (i.e. battalion chief, fire chief, state law enforcement official, site coordinator, etc.) the position is passed up the line of authority which has been previously established.

The individual in charge of the ICS shall identify, to the extent possible, all hazardous substances or conditions present and shall address as appropriate site analysis, use of engineering controls, maximum exposure limits, hazardous substance handling procedures, and use of any new technologies.

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Based on the hazardous substances and/or conditions present, the individual in charge of the ICS shall implement appropriate emergency operations, and assure that the personal protective equipment worn is appropriate for the hazards to be encountered. However, personal protective equipment shall meet, at a minimum; the criteria contained in 29 CFR 1910.156(e) when worn while performing fire fighting operations beyond the incipient stage for any incident.

Employees engaged in emergency response and exposed to hazardous substances presenting an inhalation hazard or potential inhalation hazard shall wear positive pressure self-contained breathing apparatus while engaged in emergency response, until such time that the individual in charge of the ICS determines through the use of air monitoring that a decreased level of respiratory protection will not result in hazardous exposures to employees.

The individual in charge of the ICS shall limit the number of emergency response personnel at the emergency site, in those areas of potential or actual exposure to incident or site hazards, to those who are actively performing emergency operations. However, operations in hazardous areas shall be performed using the buddy system in groups of two or more.

Back-up personnel shall be standing by with equipment ready to provide assistance or rescue. Qualified basic life support personnel, as a minimum, shall also be standing by with medical equipment and transportation capability.

The individual in charge of the ICS shall designate a safety officer, who is knowledgeable in the operations being implemented at the emergency response site, with specific responsibility to identify and evaluate hazards and to provide direction with respect to the safety of operations for the emergency at hand.

When activities are judged by the safety officer to be an IDLH and/or to involve an imminent danger condition, the safety officer shall have the authority to alter, suspend, or terminate those activities. The safety official shall immediately inform the individual in charge of the ICS of any actions needed to be taken to correct these hazards at the emergency scene.

After emergency operations have terminated, the individual in charge of the ICS shall implement appropriate decontamination procedures.

When deemed necessary for meeting the tasks at hand, approved self-contained compressed air breathing apparatus may be used with approved cylinders from other approved self-contained compressed air breathing apparatus provided that such cylinders are of the same capacity and pressure rating. All compressed air cylinders used with self-contained breathing apparatus shall meet U.S. Department of Transportation and National Institute for Occupational Safety and Health criteria.

- Medical surveillance and consultation. Members of an organized and designated HAZMAT team and hazardous materials specialist shall receive a baseline physical examination and be provided with medical surveillance as required in paragraph 1910.120(f).

Any emergency response employees who exhibit signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency incident either immediately or subsequently, shall be provided with medical consultation as required in paragraph 1910.120(f)(3)(ii).

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- Chemical protective clothing. Chemical protective clothing and equipment to be used by organized and designated HAZMAT team members, or to be used by hazardous materials specialists, shall meet the requirements of paragraphs (g)(3) through (5) of section 1910.120.
- Post-emergency response operations. Upon completion of the emergency response, if it is determined that it is necessary to remove hazardous substances, health hazards and materials contaminated with them (such as contaminated soil or other elements of the natural environment) from the site of the incident, the employer conducting the clean-up shall comply with one of the following: (1) Meet all the requirements of paragraphs (b) through (o) of section 1910.120; or (2) Where the clean-up is done on plant property using plant or workplace employees, such employees shall have completed the training requirements of the following: 29 CFR 1910.38, 1910.134, 1910.1200, and other appropriate safety and health training made necessary by the tasks they are expected to perform such as personal protective equipment and decontamination procedures.
- HAZWOPER/RCRA All employees working on site (such as but not limited to equipment operators, general laborers and others) exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site shall receive training meeting the requirements of this paragraph before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety, or health hazards, and they shall receive review training as specified in this paragraph.

Employers shall develop and implement a written safety and health program for their employees involved in hazardous waste operations. The program shall be designed to identify, evaluate, and control safety and health hazards, and provide for emergency response for hazardous waste operations. The written safety and health program shall incorporate the following:

- An organizational structure
 - A comprehensive work plan
 - A site-specific safety and health plan which need not repeat the employer's standard operating procedures required in paragraph (b)(1)(ii)(F) of section 1910.120
 - The safety and health training program;
 - The medical surveillance program;
 - The employer's standard operating procedures for safety and health
 - Any necessary interface between general program and site specific activities.
- Medical surveillance
 - General. Employees engaged in operations specified in paragraphs (a)(1)(i) through (a)(1)(iv) of section 1910.120 and not covered by (a)(2)(iii) exceptions and employers of employees specified in paragraph (q)(9) shall institute a medical surveillance program in accordance with this paragraph.
 - Employees covered. The medical surveillance program shall be instituted by the employer for the following employees:

All employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year;

(2)All employees who wear a respirator for 30 days or more a year or as required by 1910.134;

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- (3) All employees who are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation; and (4) Members of HAZMAT teams.
- Frequency of medical examinations and consultations. Medical examinations and consultations shall be made available by the employer to each employee covered under paragraph (f)(2) of section 1910.120 on the following schedules:
 - For employees covered under paragraphs 1910.120 (f)(2)(i), (f)(2)(ii), and (f)(2)(iv);
 - Prior to assignment;
 - At least once every twelve months for each employee covered unless the attending physician believes a longer interval (not greater than biennially) is appropriate;
 - At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last six months.
 - As soon as possible upon notification by an employee that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limits or published exposure levels in an emergency situation;
 - At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary.
 - For employees covered under paragraph (f)(2)(iii) and for all employees including of employers covered by paragraph (a)(1)(iv) who may have been injured, received a health impairment, developed signs or symptoms which may have resulted from exposure to hazardous substances resulting from an emergency incident, or exposed during an emergency incident to hazardous substances at concentrations above the permissible exposure limits or the published exposure levels without the necessary personal protective equipment being used;
 - As soon as possible following the emergency incident or development of signs or symptoms; and (9) At additional times, if the examining physician determines that follow-up examinations or consultations are medically necessary.
 - Content of medical examinations and consultations Medical examinations required by paragraph (f)(3) of this section shall include a medical and work history (or updated history if one is in the employee's file) with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the work site.

The content of medical examinations or consultations made available to employees pursuant to paragraph (f) shall be determined by the attending physician. The guidelines in the **Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities** should be consulted.

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- Examination by a physician and costs
All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine, and shall be provided without cost to the employee, without loss of pay, and at a reasonable time and place.
- Information provided to the physician
The employer shall provide one copy of this standard and its appendices to the attending physician and in addition the following for each employee:
 - A description of the employee's duties as they relate to the employee's exposures,
 - The employee's exposure levels or anticipated exposure levels,
 - A description of any personal protective equipment used or to be used,
 - Information from previous medical examinations of the employee which is not readily available to the examining physician,
 - Information required by §1910.134.
- Physician's written opinion
The employer shall obtain and furnish the employee with a copy of a written opinion from the examining physician containing the following:
 - The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use,
 - The physician's recommended limitations upon the employees assigned work,
 - The results of the medical examination and tests if requested by the employee,
 - A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment,
 - The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposure.
- Recordkeeping. An accurate record of the medical surveillance required by paragraph (f) of this section shall be retained. This record shall be retained for the period specified and meet the criteria of 29 CFR 1910.1020.
The record required in paragraph (f)(8)(i) of section 1910.120 shall include at least the following information: (1)The name and social security number of the employee; (2)Physicians' written opinions, recommended limitations and results of examinations and tests; (3)Any employee medical complaints related to exposure to hazardous substances; and (4)A copy of the information provided to the examining physician by the employer, with the exception of the standard and its appendices.

13. Engineering controls, work practices and PPE for substances regulated in Subparts G and Z

Engineering controls and work practices shall be instituted to reduce and maintain employee exposure to or below the permissible exposure limits for substances regulated by 29 CFR Part 1910, to the extent required by Subpart Z, except to the extent that such controls and practices are not feasible.

Engineering controls which may be feasible include the use of pressurized cabs or control booths on equipment, and/or the use of remotely operated material handling equipment. Work practices which may be feasible are removing all non-essential employees from potential exposure during opening of drums, wetting down dusty operations and locating employees upwind of possible hazards.

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Whenever engineering controls and work practices are not feasible, or not required, any reasonable combination of engineering controls, work practices and PPE shall be used to reduce and maintain to or below the permissible exposure limits or dose limits for substances regulated by 29 CFR Part 1910, Subpart Z.

The employer shall not implement a schedule of employee rotation as a means of compliance with permissible exposure limits or dose limits except when there is no other feasible way of complying with the airborne or dermal dose limits for ionizing radiation.

- Engineering controls, work practices, and PPE for substances not regulated in Subparts G and Z. An appropriate combination of engineering controls, work practices, and personal protective equipment shall be used to reduce and maintain employee exposure to or below published exposure levels for hazardous substances and health hazards not regulated by 29 CFR Part 1910, Subparts G and Z.

The employer may use the published literature and SDS as a guide in making the employer's determination as to what level of protection the employer believes is appropriate for hazardous substances and health hazards for which there is no permissible exposure limit or published exposure limit.

- Personal protective equipment selection

Personal protective equipment (PPE) shall be selected and used which will protect employees from the hazards and potential hazards they are likely to encounter as identified during the site characterization and analysis. Personal protective equipment selection shall be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the site, the task-specific conditions and duration, and the hazards and potential hazards identified at the site.

 - Positive pressure self-contained breathing apparatus or positive pressure air-line respirators equipped with an escape air supply shall be used when chemical exposure levels present will create a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.
 - Totally-encapsulating chemical protective suits (protection equivalent to Level A protection as recommended in Appendix B) shall be used in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.
 - The level of protection provided by PPE selection shall be increased when additional information or site conditions show that increased protection is necessary to reduce employee exposures below permissible exposure limits and published exposure levels for hazardous substances and health hazards. The level of employee protection provided may be decreased when additional information or site conditions show that decreased protection will not result in hazardous exposures to employee
 - Personal protective equipment shall be selected and used to meet the requirements of 29 CFR Part 1910, Subpart I, and additional requirements specified in this section.
 - Totally-encapsulating chemical protective suits

Totally-encapsulating suits shall protect employees from the particular hazards which are identified during site characterization and analysis. Totally-encapsulating suits shall be capable of maintaining positive air pressure. Totally-encapsulating suits shall be capable of preventing inward test gas leakage of more than 0.5 percent.

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- Personal protective equipment (PPE) program

A personal protective equipment program, which is part of the employer's safety and health program required in paragraph (b) of this section or required in paragraph (p)(1) of this section and which is also a part of the site-specific safety and health plan shall be established. The PPE program shall address the elements listed below.

When elements, such as donning and doffing procedures, are provided by the manufacturer of a piece of equipment and are attached to the plan, they need not be rewritten into the plan as long as they adequately address the procedure or element.

PPE selection based upon site hazards, PPE use and limitations of the equipment, Work mission duration, PPE maintenance and storage, PPE decontamination and disposal, PPE training and proper fitting, PPE donning and doffing procedures, PPE inspection procedures prior to, during, and after use, Evaluation of the effectiveness of the PPE program, and Limitations during temperature extremes, heat stress, and other appropriate medical considerations.

- Monitoring

- General

Monitoring shall be performed in accordance with this paragraph where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or published exposure levels if there are no permissible exposure limits, for hazardous substances.

Air monitoring shall be used to identify and quantify airborne levels of hazardous substances and safety and health hazards in order to determine the appropriate level of employee protection needed on site.

- Initial entry

Upon initial entry, representative air monitoring shall be conducted to identify any IDLH condition, exposure over permissible exposure limits or published exposure levels, exposure over a radioactive material's dose limits or other dangerous condition such as the presence of flammable atmospheres, oxygen-deficient environments.

- Periodic monitoring

Periodic monitoring shall be conducted when the possibility of an IDLH condition or flammable atmosphere has developed or when there is indication that exposures may have risen over permissible exposure limits or published exposure levels since prior monitoring. Situations where it shall be considered whether the possibility that exposures have risen are as follows:

- When work begins on a different portion of the site
- When contaminants other than those previously identified are being handled
- When a different type of operation is initiated (e.g., drum opening as opposed to exploratory well drilling)
- When employees are handling leaking drums or containers or working in areas with obvious liquid contamination (e.g., a spill or lagoon.)

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- Monitoring of high-risk employees
After the actual clean-up phase of any hazardous waste operation commences; for example, when soil, surface water or containers are moved or disturbed; the employer shall monitor those employees likely to have the highest exposures to those hazardous substances and health hazards likely to be present above permissible exposure limits or published exposure levels by using personal sampling frequently enough to characterize employee exposures. The employer may utilize a representative sampling approach by documenting that the employees and chemicals chosen for monitoring are based on the criteria stated in the first sentence of this paragraph. If the employees likely to have the highest exposure are over permissible exposure limits or published exposure limits, then monitoring shall continue to determine all employees likely to be above those limits. The employer may utilize a representative sampling approach by documenting that the employees and chemicals chosen for monitoring are based on the criteria stated above.
- Decontamination
 - General
Procedures for all phases of decontamination shall be developed and implemented in accordance with this paragraph.
 - Decontamination procedures
A decontamination procedure shall be developed, communicated to employees and implemented before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists.

Standard operating procedures shall be developed to minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances.

All employees leaving a contaminated area shall be appropriately decontaminated; all contaminated clothing and equipment leaving a contaminated area shall be appropriately disposed of or decontaminated

Decontamination procedures shall be monitored by the site safety and health supervisor to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps shall be taken to correct any deficiencies.

- Location
Decontamination shall be performed in geographical areas that will minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment.
 - Equipment and solvent
All equipment and solvents used for decontamination shall be decontaminated or disposed of properly.
 - Personal protective clothing and equipment
Protective clothing and equipment shall be decontaminated, cleaned, laundered, maintained or replaced as needed to maintain their effectiveness.

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- Employees whose non-impermeable clothing becomes wetted with hazardous substances shall immediately remove that clothing and proceed to shower. The clothing shall be disposed of or decontaminated before it is removed from the work zone.
- Unauthorized employees
Unauthorized employees shall not remove protective clothing or equipment from change rooms.
- Showers and change rooms
- Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, they shall be provided and meet the requirements of 29 CFR 1910.141. If temperature conditions prevent the effective use of water, then other effective means for cleansing shall be provided and used.