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Section 60.0
ENVIRONMENTAL AWARENESS

A. Purpose

The purpose of this procedure is to provide an overview of environmental awareness issues, and establish an environmental protection program for **JAGUAR ENERGY SERVICES, LLC** personnel at work and home.

B. Scope

This procedure applies to all **JAGUAR ENERGY SERVICES, LLC** jobs and work activities.

1. The local environment can be negatively impacted if safe work practices or procedures are not followed.

C. Responsibilities

1. The Safety Coordinator or his/her designee is responsible for ensuring that employees have completed the training required by this procedure.
 - (a) Additional responsibilities include:
 - (i) Ensuring that employees have been properly trained.
 - (ii) The implementation of this Policy.
 - (iii) Take corrective actions on all violations or suspected violations of this procedure.
 - (iv) Documentation of completion by each employee.

2. The Safety Director is responsible for aiding in the implementation of this Procedure.
 - (a) Additional responsibilities include:
 - (i) Keeping the Safety Coordinator informed of any incidents related to this Procedure.
 - (ii) Conducting inspections to identify any violation of this Policy.

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3. The supervisor in charge of each crew is responsible for taking reasonable care to protect the environment, while conducting their work activities according to the requirements in this procedure.
 - (a) Additional responsibilities include:
 - (i) Pre-job and daily inspections of the work area and written confirmation that conditions are safe.
 - (ii) Ensure that all affected **JAGUAR ENERGY SERVICES, LLC** personnel have been made aware of the company's environmental procedures.
 - (iii) Ensure that all employees follow the procedures in this policy.
 - (iv) Report any environmental incidents to the Safety Coordinator.

4. **JAGUAR ENERGY SERVICES, LLC** personnel are responsible for understanding the contents of this procedure.
 - (a) Additional responsibilities include:
 - (i) Completing the required training on this Policy.
 - (ii) Implementing the training on this Policy.
 - (iii) Recognizing hazards that could impact **JAGUAR ENERGY SERVICES, LLC's** Environmental Policy.

D. Procedure

1. **Hazardous Materials**
A hazardous material is any material that because of its quantity, concentration, and physical or chemical characteristics, poses a present or potential hazard to human health and safety if released into the environment. (x-ref Hazardous Waste and Emergency Response First Responder)
 - (a) To ensure that materials or chemicals are handled properly, it is important to review the Material Safety Data Sheet (MSDS) of each chemical or material.
 - (b) An MSDS (x-ref Hazard Communication) provides the following critical information:
 - (i) Chemical Composition
 - (ii) Fire and Explosive Data
 - (iii) Health Hazard Data
 - (iv) Spill and Leak Procedure
 - (v) Special Precaution Information
 - (vi) Special Protection Information

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- (vii) Reactivity Data
- (viii) Manufacturer's Name and Address
- (c) A packet of MSDS is shipped with all equipment.
- (d) MSDS can also be accessed the following ways:
 - (i) Contacting the main office.

2. Household Hazardous Materials

Today hazardous materials can be found in almost every home and come in many forms including cleaners, automotive products, paints, solvents, and pesticides.

- (a) Any household product labeled WARNING, CAUTION, POISONOUS, TOXIC FLAMMABLE, CORROSIVE, REACTIVE, or EXPLOSIVE is considered hazardous waste.
- (b) Every day people unknowingly threaten the environment by disposing tons of household hazardous waste through regular trash or garbage collection or sewer/storm drains.
- (c) When improperly disposed, these products can do environmental harm by polluting the air, water, and/or soil.
- (d) Leftover and unused portions of household hazardous materials should never be thrown in the trash or poured down the drain.
- (e) Instead, use as much of the material as possible, carefully following label directions, or ask others if they could use the remaining portions.
- (f) Household hazardous wastes can also be taken to a community collection center.
- (g) When shopping for, using, or storing household products, keep the following in mind:
 - (i) Buy only what you need.
 - (ii) Choose the least toxic product.
 - (iii) Select water based products over solvent based products.
 - (iv) Avoid aerosol sprays.
 - (v) Do not mix cleaning products containing chlorine with ammonia or acid-based cleaners.
 - (vi) Make sure containers are tightly sealed and upright.
 - (vii) Keep toxic materials in their original containers and out of reach of children.

3. Hazardous Waste

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Hazardous waste is material that is either no longer wanted or fit for its intended purpose.

- (a) A waste is defined as hazardous if it has one or more of the following characteristics:
 - (i) Ignitable
 - (ii) Corrosive
 - (iii) Reactive
 - (iv) Toxic
- (b) The results of hazardous waste mismanagement can be significant. Hazardous waste can cause harm by:
 - (i) Leaching into ground water from improperly designed sites.
 - (ii) Contaminating drinking water of public and private wells and springs.
 - (iii) Running off into surface water, contaminating lakes and affecting aquatic life, drinking water, and recreation.
 - (iv) Causing human, animal, and plant poisoning by direct contact.
 - (v) Contaminating the soil, making it unfit for farming or habitation.
 - (vi) Polluting the air, making it unfit to breathe.
- (c) There are laws that collectively deal with various types of wastes, that are hazardous to human health and the environment.
- (d) **JAGUAR ENERGY SERVICES, LLC** hazardous waste is accumulated in properly labeled containers which are kept closed, except when adding waste.
- (e) **JAGUAR ENERGY SERVICES, LLC** follows applicable standards for hazardous waste regarding:
 - (i) Testing
 - (ii) Labeling
 - (iii) Storage
 - (iv) Packaging
- (f) When hazardous waste is shipped off-site, an approved facility is identified, a transporter is contracted to transport the waste, and a manifest system is initiated to accompany the waste to ensure it reaches its destination.
- (g) In this way, **JAGUAR ENERGY SERVICES, LLC** utilizes “cradle-to-grave” management of hazardous waste and ensures that wastes are properly handled from the point of generation to the final recycle, treatment, or disposal facility.
- (h) Whenever possible, recycling and reuse of hazardous waste is implemented.

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4. **Hazardous Waste Minimization**

Newer regulations limiting land disposal of hazardous waste has made it more essential and economically prudent than ever, to reduce the amount of hazardous waste generated.

- (a) There are three basic approaches that can be taken to reduce hazardous waste:
 - (i) Improved Operating Practices.
 - (i) This is also known as good housekeeping practice.
 - (ii) It is the least costly and easiest method in hazardous waste reduction.
 - (iii) When hazardous materials are spilled, mixed with other hazardous materials, or become too old to use, they are considered hazardous waste.
 - (iv) These wastes can be avoided by good inventory control to avoid overstocking, by using the “first-in”, “first-out” rule and segregating different wastes by types to avoid mixing with non-hazardous waste with hazardous waste.
 - (v) Preventing spills and leaks by keeping containers covered, performing regular inspections of containers, and using pumps or spigots to dispense materials.
 - (vi) Containing spills that may occur installing sloped floors and curbs or beams in storage areas.
 - (ii) Material Substitution.
 - (i) This includes evaluation of materials to determine if a non-hazardous substitute is possible.
 - (iii) Process Modification
 - (i) Hazardous waste reduction can be accomplished by making changes in production processes.
 - (ii) Inefficient or outdated production processes, which could be the source of hazardous waste generation, can be upgraded or replaced by a more efficient process.
 - (iii) This can include:

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- Process modifications such as changes in equipment placement or ordering
- Equipment modifications
- Changes in operation settings and schedules
- Process automation

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5. Industrial Waste Water

Industrial waste water is any waste water generated as a result of manufacturing or other industrial operations.

- (a) Examples of waste water include:
 - (i) Rinse water from turbine cleaning operations.
 - (ii) Rinse water from metal cleaning and finishing operations.
 - (iii) Oily water from dye penetrants, mop water, and coolants.
 - (iv) Rinse water from steam cleaning operations.
 - (v) Air Compressor blow down.
 - (vi) Rinse water from test cell wash down.
 - (vii) Deburring machines.
- (b) Many facilities typically have waste water treatment units that are designed to remove oil, metals, and/or suspended matter from waste water.
- (c) Most of our customers have similar treatment systems.
- (d) Field Service Personnel should consult with a customer representative in advance to determine the proper disposal or discharge of any runoff, that may be generated as a result of our work activities at their location.

6. Storm Water

- (a) Recent studies have identified storm water runoff as a significant source of water pollution.
- (b) Regulatory emphasis is on reducing the pollutants contained in storm water discharges to waterways.
- (c) Best Management Practices are used to help prevent storm water pollution.
- (d) Best Management Practices include:
 - (i) Good housekeeping practices that are designed to maintain a clean and orderly work environment.
 - (ii) Preventative maintenance practices that ensure timely inspection and maintenance of facility equipment and systems.
 - (iii) Visual inspections of areas and equipment at facilities that could contribute to storm water runoff pollutants.
 - (iv) Spill prevention and response procedures.
 - (v) Sediment and erosion control measures used to limit soil erosion.

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- (vi) Employee training program on storm water pollution prevention.
- (vii) Installing secondary containment for drums or tanks.
- (viii) Using drip pans during material transfer activities.
- (ix) Installing diversion dikes to prevent storm water from flowing onto certain areas.
- (x) Utilizing dust control measures to suppress dust generated during excavations.
- (e) **JAGUAR ENERGY SERVICES, LLC** employees can help to reduce storm water runoff at work and at home by:
 - (i) Using good housekeeping practices while handling or using chemicals or hazardous materials.
 - (ii) Participating in recycle programs, such as auto engine oil recycling.
 - (iii) Reporting dumping of inappropriate materials into storm water drains to local municipal officials

7. Spill Prevention and Response

- (a) The operation and maintenance of any industrial facility requires a minimal level of preparedness and commonsense prevention measures, to minimize the possibility of fire, explosion, or release of hazardous substances to the four environmental compartments:
 - (i) Air
 - (ii) Water
 - (iii) Soil/sediment and biological life
- (b) The purpose of such preparedness is to minimize threats to human health and the environment.
- (c) The customer may have emergency response procedures that must be followed in the event of a spill or chemical release.
- (d) Local government agencies may have reporting requirements if an accidental spill or release occurs.
 - (i) For example, in the United States, the Environmental Protection Agency requires facilities operating near navigable waters to have a written Spill Prevention, Control and Countermeasures Plan (SPCC).
 - (ii) Field Service Personnel should be familiar with the customer's emergency procedures.

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- (e) A spill prevention plan is designed to anticipate a spill and identify strategies to control or mitigate the spill.
 - (i) Proper storage of chemicals will be utilized to minimize the potential of a spill.
- (f) A well-designed facility, maintained by effectively trained personnel with efficient transfer handling equipment, proper alarms and adequate designs, is the best defense against serious spills.
- (g) Spill response materials and/or spill kits adequate for any anticipated spills will be readily available.
- (h) It is important to be prepared.
- (i) Proper housekeeping practices will be utilized to help reduce and prevent spills.
- (j) Field Service Personnel should know a customer's emergency communication system and ensure that emergency response equipment is readily available. Communication measures will be in place and initiated upon a spill or release of material.
- (k) Physical Methods of controlling spills include:
 - (i) **Absorption** is the process by which materials hold liquids through the process of wetting.
 - (i) This will result in an increase in the volume of the sorbent system.
 - (ii) Contaminated absorbent materials retain the properties of the absorbed hazardous liquid and therefore must be considered hazardous.
 - (iii) Typical absorbent materials include:
 - Sawdust
 - Clays
 - Vermiculite
 - Charcoal
 - Polyolefin fibers.
 - (ii) **Adsorption** is the process by which a hazardous liquid interacts with a solid surface sorbent.
 - (i) This differs from absorption in that no volume increase occurs.
 - (ii) There may be heat released as a result of the adsorption process.
 - (iii) **Dilution** refers to the application of water to water soluble hazardous materials.
 - (i) The goal is to reduce the hazard; however, flooding, reaction, and the

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creation of a larger volume of waste must be considered.

- (iv) **Dikes, Dams, Diversions and Retention** refers to the use of physical barriers to prevent or reduce the quantity of liquid flowing into the environment.

 - (i) This method is frequently used.
 - (ii) Commercially available sorbent materials are frequently packaged to allow for improvised construction of dams or dikes.
- (v) **Overpacking** refers to the placement of a leaking container into a similar, yet larger container, such as the use of recovery drums.

 - (i) The overpack container material must be compatible with the hazardous material.
 - (ii) For example, some products must be stored in plastic rather than metal containers, and vice versa.
- (vi) **Plug and Patch** refers to the use of compatible plugs and patches to reduce, or temporarily stop, the flow of material from small holes or tears.

 - (i) Patches are available in an assortment including magnetic steel, fabrics, adhesives, and epoxies.
 - (ii) Piping may be patched with devices similar to hose clamps.
- (l) When spills occur on land, the spill can move in two directions, both horizontally and vertically.

 - (i) Frequently, the method of containment involves use of the earth itself to build dikes or dams.
 - (ii) If the spill occurs in an urban area, storm sewers, manholes, drainage ditches, and other water entry points must be protected from the spill.
- (m) **Air Pollution** is perhaps the greatest concern to the health and welfare of our community.

 - (i) Studies have shown that exposures to air pollution may reduce lung capacity, lower stamina, and leave people more vulnerable to long-term respiratory problems.
 - (ii) Sources of air pollution include:
 - (i) Trucks and automobiles

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- (ii) Industrial operations such as surface coating or painting operations which emit gaseous chemicals known as volatile organic compounds.
- (iii) (VOC) Abrasive blasting operations
- (iv) Combustion sources such as turbine test cells and electrical generators emit by-products that include carbon monoxide, nitrogen dioxide, and sulfur dioxide.
- (n) Laws governing air emissions from industrial facilities are implemented by government agencies.
- (o) Many industrial facilities have special air permits that specify operating conditions, process materials, and recordkeeping requirements, and have developed procedures to help ensure equipment is operated in accordance with permit requirements, as well as any other applicable requirements.
- (p) **JAGUAR ENERGY SERVICES, LLC** has committed substantial resources to minimizing its impact on air quality.
 - (i) Any new source of pollution must be evaluated by **JAGUAR ENERGY SERVICES, LLC** Environmental Staff prior to installation.
 - (ii) Many of our plant operations have devices that capture air contaminants before they are released.
- (q) **JAGUAR ENERGY SERVICES, LLC** employees can help to reduce air pollution at work and at home by:
 - (i) Being aware of, and familiar with, applicable procedures related to air permit requirements.
 - (ii) Be aware of how your work activities may contribute to the air pollution problem.
 - (iii) Keeping your car or **JAGUAR ENERGY SERVICES, LLC** owned vehicles in good running condition.
 - (iv) Avoid using aerosol spray cans.
 - (v) Not topping off your gas tank.
 - (vi) Gasoline spillage evaporates, contributes to smog, and contains toxic pollutants such as benzene.

E. Training Requirements

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1. **JAGUAR ENERGY SERVICES, LLC** personnel will be trained on the following topics:
 - (a) Hazardous materials.
 - (b) Industrial waste.
 - (c) Spill prevention methods
 - (d) Response procedures
 - (e) Types of pollution.
 - (f) Minimizing negative environmental impact.
 - (g) Contents of this procedure.

F. Training Frequency

1. **JAGUAR ENERGY SERVICES, LLC** personnel will be trained on the following schedule:
 - (a) Initially upon hire.
 - (b) Every twelve months.

G. Definitions

1. **Hazardous Waste** is material that is either no longer wanted, or fit for its intended purpose.
 - (a) A waste is defined as hazardous if it has one or more of the following characteristics: ignitable, corrosive, reactive, and toxic.
2. **Industrial Waste Water** is any waste water generated as a result of manufacturing or other industrial operations; for example, rinse water from turbine cleaning operations.