**Safe Work Requirement**

Fire Precautions work instruction

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| PURPOSE The intent of this procedure is to inform all personnel of the hazardous nature of fire, the safety concerns during drilling and workover operations and the precautionary measures, which are in place for process operations.  The purpose of this procedure is to ensure that risks to people from fire as a result of ECDC operations are controlled and reduced so that the risk to people is as low as reasonably practicable. SCOPE The contents of this procedure are applicable to all ECDC managed sites. Subcontractors working on ECDC managed sites are also responsible for alignment with this procedure.  This document does not replace the procedures prepared and adopted by specialist subcontractors. Neither does it supersede any national regulatory requirements. All guidelines contained shall be regarded as the minimum requirements for all ECDC managed sites.  The scope covers defined activities of all personnel and contractors at any ECDC worksite or workshop.  Where applicable, any variance from this procedure should be authorized by the line Manager. Rig Manager shall be responsible to ensure that rig personnel under their responsibility adhere to all provisions outlined in this procedure. RESPONSIBILITY      Rig Manager The Rig Manager has overall responsibility for the safety and health of personnel. This includes overall responsibility for ensuring a system is in place to provide the means of visually and audibly warning all personnel working in site to evacuate the area, when fire is founded on the location.  The Rig Manager is responsible for implementing the approved fire procedure at rig site where work is carried out under their control. Additionally, they shall ensure that any subcontractor working under their direction has attended a site induction and are fully trained in the fire emergency escape and mustering procedures.  The Rig Manager is responsible and accountable for the application of this procedure in his area of responsibility. He shall ensure:   1. That adequate number of competent responsible persons are appointed to manage and maintain the requirements of this procedure 2. The assessment and management of health risks on the site 3. Review of hazard identification and task risk assessment findings and recommendations 4. Systems are in place to implement and track the actions resulting from the risk assessment 5. Sufficient monitoring systems and equipment is in place and there is adequate equipment available on site, for example, fire extinguisher, fire detectors and anti-fire suit. 6. Those mechanisms are in place to communicate the findings, recommendations and requirements of the fire risk assessment to all relevant personnel, including contractors and visitors 7. Ensuring that hazard identification and task risk assessment are carried out before any related tasks are undertaken or begun where fire may be present 8. Ensuring that they and their fire teams understand the emergency response and mustering procedures to be followed in the event of an emergency 9. Ensuring that their team fully participate in all exercises, drills and safety training 10. Routinely discussing the correct response to an emergency at safety meetings and toolbox talks  All personnel at sites All ECDC employees, subcontract personnel and visitors shall be responsible for understanding fully and applying correctly this procedure in the course of their work at rig site.  ECDC employees, contractors and visitors to the site shall:   1. Complete fire awareness training. In addition to the initial training ECDC personnel will have periodic refresher training 2. Immediately leave the vicinity by moving upwind and informing the relevant supervisor/Safety Engineer when the alarm sounds 3. Wear appropriate PPE as described in the PPE procedure and site-specific procedures; the job risk assessment/job hazard analysis to be conducted on-site prior to the task 4. Demonstrate competency in the selection, use and care of PPE 5. Be responsible for appropriate use, inspection and maintenance of their PPE  HSE Supervisor The HSE Supervisor shall assist the Rig Manager in ensuring all personnel working are trained in the use of fire extinguisher.  The HSE Supervisor shall periodically verify that ECDC employees and contractor personnel are trained for fires.  The HSE Supervisor is responsible for:   1. Providing advice on the use of all types of protective clothing and equipment 2. Ensuring that safe working practices are being enforced at all times 3. Receiving faulty and expired fire extinguisher and issue of replacements 4. Providing initial training to individuals on the use of the equipment and the actions to be taken in the event of an alarm, prior to the distribution of the units 5. Maintenance, issue, and the management of alarm devices to short term contractors and visitors that are required to enter the plant and well site areas. 6. Ensuring that defective equipment is withdrawn from service and repaired  Classification of Fires Fires are classified in four groups according to the type of fuel involved. All crew members should be able to recognize these fire types and know how to fight them properly.   1. **Class 'A'** fires are those that occur in ordinary materials such as wood, paper, rags and rubbish. Water is the primary means for extinguishing Class ‘A’ fires. 2. **Class 'B'** fires are those which occur in the vapor air mixture over the surface of flammable liquids such as gasoline, oil, grease, paints and thinners. Limiting air (oxygen) available to the fire is of primary importance. Dry chemical is most effective with this type of fire. 3. **Class 'C'** fires occur in or near electrical equipment and require non-conductive extinguishing agents, such as Halon or Carbon Dioxide. Water, soda acid, or foam should never be used. Dry Powder may also be used. 4. **Class 'D'** fires occur in combustible metals such as magnesium, titanium, zirconium, lithium and sodium. These fires require specialized extinguishing equipment. It is very rare for a class D fire to occur on a drilling rig.  Equipment Throughout all work locations there will be equipment for raising the alarm and for fighting small fires. It is your responsibility to familiarize yourself with the types of equipment in your area and to know where the nearest escape route is located.  All personnel will be informed of and should familiarize themselves with muster stations/points and alarm signals.  Rig & Camp Fire and Safety layout drawings are to be posted where all employees can become familiar with them.       **Fire Extinguishers**   1. **Water** Extinguishes the fire by cooling. It is used on class ‘A’ type fires such as burning wood, paper, coals, and other organic materials. Water is usually supplied via hoses, not extinguishers on most drilling rigs.   **Do not use water on electrical fires or fires involving flammable liquids**   1. **Foam** Extinguishes by blanketing the surface of burning liquids, thus cutting off the air supply to the fire. Foam is good for liquid fires but only in the hands of a trained person who knows exactly how to use it. It also lowers the temperature of the liquid, thereby reducing the formation of flammable vapors. 2. **Dry Powder** Extinguishes by breaking the chemical chain reaction that produces the flame. It is effective on class A fires involving solids and class ‘B’ fires involving liquids. It is safe to use on class ‘C’ electrical fires although not recommended for use with equipment such as computers. Whilst it would effectively extinguish the fire, the computer would be ruined as it would be impossible to extract the powder from it. There is also no cooling effect and there is a risk of re-ignition. Always ensure a safe line of retreat and do not be tempted to enter areas of recently extinguished fuel spillages. 3. **CO2** Extinguishes by removing oxygen from the fire triangle, and is very effective in confined spaces, especially on electrical type fires. Care should be taken when using CO2 as it is an asphyxiant.  Fire Prevention, Protection, Control and Drills    Alarms  1. If you hear an alarm, go immediately to your designated muster station/point. 2. All alarms must be reacted to unless a prior announcement has been made indicating that it is an alarm test. 3. If you discover a fire raise the alarm immediately and depending on location, you must inform the location supervisor or follow local instructions. 4. If it is safe to do so, and you feel confident in your abilities, tackle the fire with equipment available. If there is any doubt in your mind do not attempt to tackle the fire, leave it to trained personnel.   When working in hazardous areas always ensure all necessary precautions have been taken before performing any task. Fire Prevention  1. Smoking and non-smoking areas should be designated to the drilling unit. Signs printed in English and the predominant local language should be present in these areas. 2. Welding or burning is not permitted on the drilling location without prior hot work permits. Welding operations should be ceased in the event of hazardous conditions developing. 3. Posted safety instructions should be observed and obeyed. 4. A fire watcher should be present with a fire extinguisher during welding and cutting operations. He should have available approved welding safety glasses, and should remain in the area several minutes after completion of the work to ensure that there is no fire danger. 5. In so far as practical, oil, diesel, or petro-chemicals that can ignite should be prevented from collecting beneath engine skids, on decks, or other areas. 6. Explosion-proof covers should not be removed from energized electrical equipment in a potentially explosive area. 7. Sacks and rags should be burnt in the incinerator or be discarded in fire retardant or well-ventilated containers in order that spontaneous combustion will not occur. 8. During refueling operations or the transfer of fuel on the rig unit, all piping and connections should be checked to ensure against leakage that could lead to ignition. Fuel trucks are to be grounded while transferring fuel. 9. Care should be taken not to overfill tanks during refueling as fuel can overflow through the vents, pouring all over the location. 10. Explosives, with the exception of those intended for downhole purposes, should not be permitted on the drilling unit. 11. Do not overload electrical circuits. 12. Check rig heaters to be sure they are functioning properly. 13. Keep supply and changing rooms in order. They should not contain greasy clothing, rags, paper, or any other combustible material. 14. Investigate any unusual odor, especially smoke or gas. 15. Store paint, thinners, varnish, oils in approved containers and keep them in their proper place, in their storage area. 16. Be sure all storage tanks are located so they will not add to a fire on the rig. All tanks should be labeled as to contents. 17. Never use flammable liquids as cleaning agents. 18. All fires, regardless of size, must be reported immediately and recorded on the daily drilling report.  Fire Protection In addition to keeping good fire prevention practices, which help safeguard against fire in a passive manner, the following fire protection procedures should be implemented to actively prepare for the event of fire:   1. The Rig Manager should ensure that his rig has emergency procedures displayed in prominent locations and see that all employees familiarize themselves with their emergency duties and assignments. 2. All fire extinguishers should be checked on a monthly basis, repairs or alterations made where necessary and the condition of the equipment recorded in the Monthly Fire Extinguisher Inspection. 3. All personnel should know their fire and emergency stations. 4. Firefighting equipment should not be played with, nor activated unless immediate use of the equipment is necessary. 5. Access to firefighting equipment should be available at all times and objects should not be placed on or around the units. 6. Fire blankets will be located in the kitchen/galley and at the welders work area, or any other area deemed necessary. 7. All fire extinguishers should have unique Nabors numbers on the extinguisher and also above the hanging bracket. This will ensure the proper size/ type of extinguisher will be placed in the correct spot after a rig move.  Fire Control For fire to exist, there must be a combustible mixture of three elements - heat, fuel and oxygen. Once a fire has started, fire control consists of eliminating one or more of these elements. If possible, the fuel should be eliminated by closing fuel valves or otherwise removing fuel from the fire. If this is not possible, the air supply should be smothered by use of a cover or lid or with chemical agents which separates air from the fuel. If the fire is a Class 'A' type, water can be used to quench or cool the fire below the ignition point.  When fighting a fire with water, the fire-fighter must use his hose and nozzle properly for the best effect. With large open air fires he should approach with a solid stream of water, giving him the greatest reach. He should aim high into the hottest area of the fire, sweep the hose back and forth to create a fog effect. As the fire and heat allow, approach closer and shift to a fog pattern with the nozzle. Fog gives maximum cooling and smothers the fire. The fog pattern can be used on Class 'B' (vapor/air mix) fires as it does not splatter or gouge the fire as does a solid high-pressure stream.  With interior fires, minimize the use of water. Use short bursts of fog. Be extremely careful, as steam generation from enclosed fires can create powerful back draughts blowing smoke and flame out at the fire-fighter. The steam can also scald the fire-fighter in these cases.  The following procedure applies when fighting fires with portable extinguishers (both dry chemicals and CO2):   1. Remove the extinguisher from its holder. 2. Use the handle provided to carry the extinguisher to the fire. Walk at a rapid pace DO NOT RUN. 3. Proceed to the upwind side of the fire. Stay well clear of the flames. When you are approximately ten (10) feet upwind of the near edge, stop, and remove the nozzle from its holder. Prepare the extinguisher for operation by either puncturing the cartridge, cartridge type, or removing the locking pin from the discharge lever on the stored pressure type. 4. Position yourself within eight (8) feet of the near edge upwind of the fire. From this position, the air currents help carry the agent into the fire, ensuring maximum visibility and protection from the heat. 5. Activate the discharge lever, aiming the stream just short of the near edge and immediately start a side to side sweeping action across the full width of the fire. Make sure each sweep of the dry chemical stream is slightly wider than the hazard. 6. Advance forward only as fast as the extinguishing action of your jet will permit. Do not outrun your protection. 7. Advance cautiously - do not raise your stream to chase the flame. Keep it down in front of the flame edge. 8. Stop short of the already extinguished fuel spill area. Do not become involved in the fire. Above all, maintain your side to side sweeping action until the fire is extinguished. Once the fire is out, stand by for a few minutes. Make sure there is no danger of reflash. Do not ever turn your back on an apparently extinguished fire. 9. Normally you should have yourself covered by one other man with another extinguisher or fire hose, ready to go in case you need help. 10. If at all possible, never use a dry chemical extinguisher in an electrical fire or in an SCR room. They do extinguish electrical fires effectively, but they cause great damage to electrical equipment. CO2 is best used in this case.  Fire Drills The first line of defense in a fire prevention program is a well-trained crew. It is the supervisor's responsibility to see that his crew is properly trained in all areas of fire safety. This can be done as part of weekly safety meetings and fire drills. Each crew member should familiarize himself with the types of fires and the proper firefighting equipment for use with each type. He should also know the operation and location of all firefighting equipment on his rig.  Fire drills shall be conducted on a monthly basis in accordance with the HSE schedule. Fire drills are to be recorded on an Emergency Training Drill Report.  Training in the use and care of available fire-fighting equipment should be conducted frequently. As a minimum, one different item of fire-fighting equipment should be reviewed during each fire drill. Emergency Fire fighting Crew All rigs should designate an emergency fire-fighting and rescue crew of about four reliable personnel. These personnel would actually be used in the event of fire or emergency. This crew would be under the supervision of the Rig Manager. During all drills, they should train together, developing and rehearsing a set plan for fighting a fire anywhere on the rig. They should be thoroughly trained in the use of all fire-fighting gear and breathing apparatus. They should also receive training on the handling and transportation of injured personnel, using stretchers and other available apparatus. Additional requirements may be necessary as designated by the Rig Manager. Record 7.1 BSA-ECDC-HS-CL-S008-01-Fire Extinguisher Monthly Check v1.0  7.2BSA- ECDC -HS-CL-S008-02-Smoke Detector Weekly Check v1.0  7.3 BSA- ECDC -HS-CL-S008-03-Wind Sock Weekly Check v1.0  7.4 BSA- ECDC -HS-CL-S008-04-Diesel Driven Fire Pump Weekly Checklist v1.0  7.5 BSA- ECDC -HS-CL-S008-05-Welding Equipment Check v1.0 |