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| 1. **INTRODUCTION TO HOT WORK** |
| With welding and grinding safety must come first. With this work there is a risk of radiation, electricity, smoke, explosion and fire. Some of these dangers are "invisible" so extra precautions must be taken. |

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| 1. **EXPLANATION & RISKS** | |
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| 1. Definition of "hot work":  * work where an open flame is used 🡪welding, roofing, ... * work where sparks are created 🡪grinding, flame cutters, ... | Examples:  🡪work on pipes  🡪making steel constructions  🡪installation of roof covering |
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| 1. The following risks are related to hot work:  * Risk of **fire/explosion** * **Noise induced hearing loss/arc eye** * **Electrocution / burning** * **Respiratory system**/environmentaffected by the welding by fumes/gases | |

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| 1. **SAFETY REQUIREMENTS** | |
| **ALWAYS: CHECK** | |
| 1. **PERSONAL PROTECTIVE EQUIPMENT** |  |
| 1. protective clothing |  |
| * + - fire retardant     - welding clothes, if required: |  |
| 1. safety glasses, if needed |  |
| * + - grinding glasses or goggles when grinding     - welding glasses; the higher the intensity of the welding flame, the higher the glass number |  |
| 1. safety gloves |  |
| 1. safety shoes or boots |  |
| * + - http://www.safe-products.nl/images/PBM_kleding/pictogram_lasbril.gifwith rubber soles and isolated  steel caps for electric welding |  |
| 1. safety helmet, if necessary (with welding: welding helmet) |  |
| 1. respiratory protection, if necessary |  |
| 1. **WORKPLACE PREVENTATIVE MEASURES** |  |
| 1. Screen the work area completely off - demarcation |  |
| 1. Provide adequate ventilation |  |
| 1. Cube principle = in an imaginary cube around the workplace: |  |
| * + - Remove all combustible materials     - Protect the material that cannot be removed  (e.g. with sheet metal, fire blankets, ...)     - Use shielding to prevent hot particles ending up in openings in the floor or wall (door, window) |  |
| 1. Always have a fire extinguisher in close proximity |  |
| 1. Provide a welding curtain during electric welding (UV light) |  |
| 1. When stopping work, even for a short period: |  |
| * + - Extinguish the flame     - Switch the unit off. |  |
| 1. Additional measures in (the vicinity of) or at: |  |
| * + - Explosion zones : see TSR - Measurements     - Confined Spaces : see TSR – Confined Spaces     - Roof Work: see TSR – Roof Work |  |
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| **ALWAYS:**  **CHECK** | |
| 1. **WELDING** |  |
| 1. Make sure that the work material is in a good condition |  |
| * + - no faults or leaks     - power and welding cables in a good condition     - torches and burner ends must be properly cleaned |  |
| 1. Ensure that the underground is dry and isolated when lying or sitting while welding |  |
| such as a mat (for the work place also see point C.2. above) |  |
| 1. Hose protection |  |
| * + - against sharp angles     - against hard/rough surfaces     - no vehicles must drive over the hoses     - no sparks must land on the hoses |  |
| 1. For welding material/surfaces |  |
| * + - Continuously measure for the presence of flammable products     - Select the correct electrode, wire or burner tip |  |
| 1. Autogenous welding |  |
| * + - Additional safety measures while welding with gas supply:       * Rupture protection at the beginning of the gas pipe       * Flame terminator between the line and pressure regulator     - Acetylene cylinders:       * never place horizontally       * minimum 2 bar cylinder pressure       * protect against low temperatures     - Oxygen cylinders:       * min. 1 meter apart and avoid impacts       * fasten (against wall or on trolley)     - Propane: avoid too rapid withdrawal from the cylinder by using larger cylinder rack     - Storage of gas cylinders       * Ensure the storage area is well ventilated       * Store acetylene and oxygen tanks separate from each other       * Keep empty and full bottles apart from each other       * Avoid direct exposure to the elements  (no sun)       * Do not keep oxygen cylinders in cellars or basements       * Never heat gas cylinders |  |
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| **ALWAYS:**  **CHECK** | |
| 1. Electric welding: |  |
| * + - use the lowest possible voltage     - welding transformer, electrode holder and cables must be insulated     - when inserting or removing electrodes it is compulsory to use isolating gloves     - metal chassis or housing of the welding station must be grounded     - voltage or welding relays mounted in the welding station     - keep the ambient temperature under control  (humid conditions increase the risk of electrocution)     - avoid electric welding in confined spaces with metal walls     - when finished always switch the main switch of the welding station/welding transformer off |  |
| 1. **GRINDING** |  |
| 1. Prepare well |  |
| * + - Do not use wet grinding disks; moisture affects the binder     - Check that the deadman button works properly     - Use the correct disk; do not trim with a cutting disc |  |
| 1. Grind correctly and safely |  |
| * + - Use the correct tools for setting (wrench and pin spanner)     - Take in a safe position relative to the disc cutter     - Hold the disc cutter with both hands; you cannot hold a jumping disc cutter away with only one hand     - Make sure that the cutting disc is stationary before putting it down |  |
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| 1. **STAFF TRAINING** |  |
| * + - Operators of equipment must be properly trained     - Maintenance and replacement of equipment must be done by qualified personnel |  |
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| 1. **TESTING & INSPECTION** |  |
| * + - Welding accessories: valid periodic inspections in accordance with legal requirements     - Grinders: periodic internal control with label - by qualified personnel     - Other equipment 🡪 monitoring, inspection and labelling in accordance with legal requirements |  |
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**KUWAIT PETROLEUM NORTH WEST EUROPE**

DOCUMENT TITLE: TSR - Hot Work

DOCUMENT NUMBER: KPNWE.WI.11.HSCO.079

REVIEW NUMBER: 1

EFFECTIVE DATE: 06 Jul 2020

NEXT REVIEW DATE: 06 Jul 2023

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**Reviews Summary**

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| --- | --- | --- | --- |
| **Review date** | **Review reference** | **Review details** | **Review version** |
| **01 Dec 2017** |  |  | **0** |
| **06 Jul 2020** | **--** | **minor changes** | **1** |