

<b>HSSEQ Form</b> RA-046 Borehole drilling	Revision <b>0</b>
<b>RISK ASSESSMENT &amp; ENVIRONMENTAL IMPACT</b>	



<b>TASK / ACTIVITY</b>	Drilling of boreholes		<b>ASSESSMENT DATE</b>		<b>NEXT REVIEW</b>	25/02/2018	<b>RECORD No</b>	RA-046
		<b>TYPE OF RA</b>	MAIN OPERATIONS <input checked="" type="checkbox"/>		TASK SPECIFIC <input type="checkbox"/>		LOCATION SPECIFIC <input type="checkbox"/>	
<b>LOCATION</b>	All locations	<b>ASSESSOR</b>	Bojana Ivanic	<b>REVIEWER</b>	P. Manolopoulos	<b>MAIN OPER RA AVAILABLE</b>		N/A
<b>PERSONS AT RISK</b>	Contractor, Subcontractor, Authorized Visitors			<b>PTW REQUIRED</b>	YES <input type="checkbox"/> / NO <input checked="" type="checkbox"/>	<b>SPECIFY</b>	N/A	
<b>ASSOCIATED RAs / SOPs</b>	SOP-046 Borehole drilling							

*\* To be used with the HSE Impact Matrix (A01-01) & HSE Risk Assessment Impact Flowchart(A01-02)*

No	POTENTIAL HAZARD / ENVIRON. ASPECT	RISK / ENVIRONMENTAL IMPACT	INITIAL RISK	CONTROL MEASURES	RESIDUAL RISK	ACTION BY
01	Movement of machines/ operation of drilling machine	<ul style="list-style-type: none"> <li>Hit by moving machinery/ entrapment</li> <li>Entrapment/ hit by mobile plant</li> <li>Fall of object from height</li> <li>Hazardous manual tasks - musculoskeletal disorder (MSD)</li> </ul>	<b>H6</b>	<ul style="list-style-type: none"> <li>Before moving / operating allow engine to run for sufficient time to reach operational temperature</li> <li>Ensure no persons are in machinery's vicinity before and during operation. Maintain exclusion zone and cease work if approached</li> <li>Follow manufacturer's instructions, specific safe work method statement/site rules</li> <li>Ensure no persons or obstructions in vicinity before start-up</li> <li>Connecting attachments/augers: <ul style="list-style-type: none"> <li>Attach as per manufacturer's</li> </ul> </li> </ul>	<b>M4</b>	<b>Safety Engineer</b>  <b>On site manager/ Foreman</b>

				<p>instructions</p> <ul style="list-style-type: none"> <li>○ Attachment must only be used as specified by manufacturer</li> <li>○ Ensure attachment is on a flat, level surface</li> <li>○ Connect hydraulic hoses as required. Tighten bolts/cap to proper torque</li> <li>○ Ensure all locking pins are secured in place</li> <li>• Use of standard helmets (EN 397, EN50365)</li> <li>• Following Standard Operating Procedures</li> <li>• Ensure all rig components are regularly inspected and maintained.</li> <li>• Secure high-risk components with a restraint (e.g. chains, wire slings)</li> <li>• Plan tasks to minimize the requirement for working at height.</li> <li>• Identify drop zones and restrict access to them</li> </ul>		
02	Skin exposure	<ul style="list-style-type: none"> <li>• Temporary or permanent damages</li> <li>• Skin irritation, burns, redness, dry skin, other</li> </ul>	M3	<ul style="list-style-type: none"> <li>• Wear all appropriate PPE including face shield or full face mask to avoid skin exposure due to splash.</li> <li>• For the accurate selection of the correct PPE, use the appendix “A01-03 EN for PPE” along with “SOP-102-Selection of Personal Protective Equipment”.</li> <li>• Check the integrity of gloves and coverall, replace immediately if damaged</li> <li>• First aid kit on site including eye wash</li> <li>• Check connections, hoses of pump before</li> </ul>	L1	On site manager/ Foreman

				<p>commencement of pumping.</p> <ul style="list-style-type: none"> <li>Secure all pumping equipment</li> <li>Check if pump is operating properly before commencement of works, using water for instance.</li> </ul>		
03	Inhalation of vapors	<ul style="list-style-type: none"> <li>Fatigue, headache, nausea, irritating to nose, throat and lungs</li> <li>Retching and shortness of breath</li> <li>Lung damage</li> </ul>	M3	<ul style="list-style-type: none"> <li>Check for possible smell and conduct gas measurements in order to check whether hazardous vapors are present.</li> <li>Ventilate working area prior to entry.</li> <li>For the accurate selection of the correct PPE that is, mask and filters, use the appendix "A01-03 EN for PPE" along with "SOP-102-Selection of Personal Protective Equipment".</li> </ul>	L1	On site manager/ Foreman
04	Ingestion of waste	<ul style="list-style-type: none"> <li>Toxicity</li> <li>May cause nausea, coughing, perforation of esophagus or stomach in case of corrosive substances, choking and/or shortness of breath</li> </ul>	M3	<ul style="list-style-type: none"> <li>Wear all appropriate PPE including face shield or full face mask to avoid possible ingestion due to splash.</li> <li>No eating or drinking at working site</li> <li>Check the integrity of gloves and coverall, replace immediately if damaged</li> <li>Do NOT induce vomiting if waste is swallowed</li> <li>Cleaning/washing facilities on site</li> </ul>	L1	On site manager/ Foreman
05	Injury from fallen objects	<ul style="list-style-type: none"> <li>Injury/death</li> </ul>	M4	<ul style="list-style-type: none"> <li>Always stay 3 meters away from the suspended load</li> <li>Wear Helmet</li> <li>Wear Safety boots</li> </ul>	L2	On site manager/ Foreman

06	Noise High levels of noise caused by breaking, and drilling works	Exposure to noise Occupational hearing loss / Hearing disorders (e.g. headaches, blood pressure)	M4	<ul style="list-style-type: none"> <li>Noise level measurements where deemed necessary</li> <li>Hearing conservation examinations</li> <li>Obligatory use of hearing protection PPE at high noise areas</li> </ul>	L2	On site manager/ Foreman
07	Vibrations Use of impact and/or rotating power tools	Exposure to high frequency vibrations Neural / blood vessel disorders / joint disorders	M4	<ul style="list-style-type: none"> <li>Use of anti-vibrating tools and gloves</li> <li>Keep safe distance from excavation machinery</li> <li>Breaks according to work load</li> </ul>	L2	On site manager/ Foreman
08	Services above or underground (utilities, public lines, etc.)	Electrocution Injury / possible death from pressure lines	H6	<ul style="list-style-type: none"> <li>SOP-010 Lock Out and Tag Out</li> <li>Identify, label and protect/support or remove/bypass all existing underground utilities / public lines accordingly.</li> </ul>	M4	On site manager/ Foreman
09	Vehicle movements, e.g. fork lifts, trucks etc.	Accidental move Crash or struck between Physical injury to all parts of body, possible death Damage to vehicles and structures	H6	<ul style="list-style-type: none"> <li>Licensed drivers only. Vehicles not to enter the work area without prior arrangements by the Supervisor.</li> <li>Banksman to be used when reversing in tight spaces. Erect cones, light, signs, and barriers around work area. Vehicle engines to be switched off when vehicle is not in use.</li> <li>Abide by traffic rules</li> <li>Forklifts. Don't travel with forks up in air or overloaded, consider passers-by. Drive on even ground only.</li> <li>Pedestrians to use footpaths where possible, wear high visibility clothing. Always be aware of moving plant and</li> </ul>	M4	On site manager/ Foreman

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