



JOB SAFETY ANALYSIS FOR THE PREPARATION & APPLICATION OF GROUTING TO PUMP SKIDS

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|--|---------------------------|---|-------------|
| COMPANY/ PROJECT NAME or ID/ LOCATION (City, State) | DATE February 20, 2014 | <input checked="" type="checkbox"/> NEW <input type="checkbox"/> REVISED | PAGE 1 of 2 |
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WORK ACTIVITY (Description):

Concrete is scored to provide a friction surface for other applications such as epoxy and grout. The surface is chipped by a pneumatic gun called a chipping- hammer. An enclosure will be erected to create a temperature controlled environment conducive to storing grouting material so that an acceptable temperature can be achieved to mix and apply the grout material. Material will then be mixed using a concrete mixer which will be ventilated outside of the enclosure. The grouting material will then be poured and applied to create a bond to the pump skids.

| DEVELOPMENT TEAM | POSITION / TITLE | REVIEWED BY: | POSITION / TITLE |
|------------------|--------------------|---------------|------------------|
| Wayne Popelka | Safety Coordinator | Mike Adermann | V.P. Operations |
| Dave Ruzich | Safety Coordinator | | |
| Pat Robinson | Supervisor | | |

| MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS) | | | |
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| <input checked="" type="checkbox"/> REFLECTIVE VEST <input checked="" type="checkbox"/> HARD HAT <input type="checkbox"/> LIFELINE / HARNESS <input checked="" type="checkbox"/> SAFETY GLASSES | <input type="checkbox"/> GOGGLES <input type="checkbox"/> FACE SHIELD <input checked="" type="checkbox"/> HEARING PROTECTION-Ear Plugs <input checked="" type="checkbox"/> SAFETY TOED BOOTS w/Defined Heels | <input type="checkbox"/> AIR PURIFYING RESPIRATOR <input type="checkbox"/> N-95 Voluntary Use Respirator <input checked="" type="checkbox"/> PPE CLOTHING-Required on-site | <input checked="" type="checkbox"/> GLOVES Leather- Material Handling <input type="checkbox"/> Optional - |

| ¹ JOB STEPS | ² POTENTIAL HAZARDS | ³ CRITICAL ACTIONS TO MITIGATE HAZARDS |
|---|--|---|
| 1. <i>Set-up job</i> a. Position compressor downwind from work area b. Chock wheels c. String hoses d. Pin hose connections e. Install whip checks at compressor & chipping hammer f. Install and climb ladders | Line of fire, Struck by vehicle or air hose under pressure, muscle strains, sprains, trip hazards, falls from ladder | Be aware of surroundings Use safe on-site driving practices Use spotter(s) for backing and positioning of compressor and all vehicles delivering tools, equipment and material to work location Perform safe lifting techniques Use buddy system to lift and carry items >53 lbs. Inspect hose connections and whip checks at start of each shift Ensure safe ladder installation and usage Practice good housekeeping habits Be aware of surroundings at all times |
| 2. <i>Chip concrete</i> using chipping gun to approximately 1" depth | Flying concrete debris, foreign objects in eyes, inhalation, compressed air (lacerations), | Wear proper PPE for task including faceshield Use "wet control" methods to keep airborne silica dust to minimum When engineering controls cannot be implemented an N-95 dust mask or NIOSH approved respirator is recommended to be worn Perform proper body positioning to eliminate static postures Practice good housekeeping habits |
| 3. <i>Erect enclosures</i> using scaffold materials a. Attach tarp/visqueen to scaffold b. Climb ladders, c. Operate and work from aerial & scissors lift d. Use hand and power tools | Falls, pinchpoints, lacerations, strains, sprains, struck by, electric shock | Inspect and perform safe fall protection techniques Practice safe lifting techniques & use the buddy system to lift and carry items >53 lbs. Wear proper PPE when handling tools and materials Ensure safe ladder installation and usage Perform safe aerial & scissors lift techniques Use spotters Use safe hand & power tool practices including inspection of tools, chords and GFCI's Use right tool for job Practice good housekeeping habits |



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| <p>4. <i>Install forms</i> around area to be grouted</p> <p>a. Use hand & power tools, drill holes into concrete & attach wire nails, prep grout work area</p> | <p>Strains, sprains, pinch-points, electric shock, puncture wounds, lacerations</p> | <p>Ensure proper lifting techniques Use buddy system to lift & carry items >53 lbs. Use safe hand & power tool practices including inspection of tools, chords and GFCI's Use right tool for job Wear proper PPE when handling tools and materials Practice good housekeeping habits</p> |
| <p>5. <i>Mixing grout</i></p> <p>a. Lift & position bags & pales to pour materials into mixer</p> <p>b. Pour finished grout into wheel barrow to transport</p> <p>c. Shovel grout into pales</p> | <p>Strains, sprains, pinch-points, inhalation, ingestion, skin irritation, eye injuries</p> | <p>Ventilate mixer exhaust directly outside of enclosure Continuously use a four gas monitor to ensure carbon monoxide level remains below the action level Practice safe lifting techniques Use buddy system to lift and carry items >53 lbs. Use "wet control" methods to keep airborne silica dust from resin to a minimum When mixing hardener and resin, area must be well ventilated using local exhaust ventilation When engineering controls cannot be implemented an AK-P NIOSH approved respirator is recommended to be worn Wear proper PPE when handling tools and materials Wear nitrile-leather gauntlet gloves Wear safety glasses & face-shield when mixing & pouring Practice good housekeeping habits</p> |
| <p>6. <i>Applying grout,</i></p> | <p>Strains, skin irritation, static postures</p> | <p>Wear proper PPE Use good body mechanics & change body position often</p> |
| <p>7. <i>De-mobe from work area</i></p> <p>a. Remove tarps/visqueen and scaffolding materials</p> <p>b. Remove any unused materials</p> <p>c. Remove tools</p> <p>d. Remove equipment</p> | <p>Strains, sprains, pinch-points, struck by</p> | <p>Wear proper PPE when handling tools and materials Practice safe lifting techniques Use buddy system to lift and carry items >53 lbs. Use spotter(s) for backing all vehicles, removing tools, equipment and material from work location Practice good housekeeping skills</p> |
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¹ Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

² A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

³ Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".