Standard Operating Procedure

Rock Saws

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| **Department:** | Earth and Environmental Sciences |
| **Date SOP was written:** | 9/10/2014 |
| **Date SOP was approved by PI/lab supervisor:** | 9/10/2014 |
| **Principal Investigator:** | Calvin Miller |
| **Internal Lab Safety Coordinator/Lab Manager:** | Richard Bradshaw |
| **Lab Phone:** | Located in 1108 (615) |
| **Office Phone:** | C Miller (615) 322-2232 (campus phone: 2-2232)  R Bradshaw (615) 343-0839 (campus phone: 3-0839) |
| **Emergency Contact:** | C Miller (615) 480-1077  R Bradshaw (208) 260-2792 |
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| **Location(s) covered by this SOP:** | *SC1108A* |
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**Type of SOP:** ☒ Process ☐Hazardous Chemical ☐ Hazardous Class

**Personal Protective Equipment (PPE)**

**Eye/Hearing Protection:**

ANSI approved, tight-fitting safety glasses/goggles,  
and/or face shield,  
Hearing protection.

# **Other Protection:**

Pull long hair back and tuck into back of shirt.  
Remove any loose jewelry.  
Pull up sleeves to remove chance of getting them tangled.

# **Medical Emergency Dial (615) 322-2222 for Vanderbilt Police**

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **(615) 322-2222 for Vanderbilt Police** or go to the nearest emergency room. *Note: All serious injuries must be reported to EH&S within 8 hours.*

**Non-Life Threatening Emergency** – Go to the Occupational Health Facility (OHF). After hours go to the nearest emergency room. *Note: All serious injuries must be reported to EH&S within 8 hours.*

**Protocol/Procedure**

1) **Please leave both doors slightly open for your safety!!**

2) **Sign in on the Saw Use Log – print name and date**

3) **Notify faculty/staff/fellow student of when you are using the saw and expect to be complete – call/email when you are done.**

4) With the saw unplugged, spin the blade by hand and look for wobble, which indicates a bent blade, or obvious nicks, dings, missing segments of the circumference, and other evidence of abuse. Check the cutting edge to see that there are diamonds left and that the blade is not worn out. (If there are signs the blade has been damaged and needs to be replaced – **Contact Lab Manager**).

5) Using the black rubber cork, seal the hole in the bottom of the basin. Fill the basin with water to completely cover the pump screen using a hose from the sink in the outer room.

6) Turn on the saw to assure an appropriate amount of water is spraying onto the saw blade (there should be a mist coming off the blade all around). There is a brass nozzle on top of the saw that controls the amount of water – typically does not need to be adjusted but is there if you feel it needs more or less water. **CAUTION** – Floor may become slippery during operation.

7) Irregularly shaped samples can be difficult to stabilize on the sample platform. It is best to rotate the sample in a means that allows the most stability (use other small chips to shim your sample if necessary). If possible, use your first cut to create a flat surface which will provide a stable base for cutting. Movement of the sample during cutting can result in the blade binding or getting jammed, damaging the blade. **SAFETY NOTICE!!! Heavier samples placed on either end of the sample platform may cause the platform to become unstable.** Test pushing the sample before turning the saw on to assure this does not occur.

8) If the sample sparks or you smell something burning, you are either pushing too hard, the blade is dulled or there is not enough water lubricating the blade.

9) If the blade appears to be cutting slower than usual, use either a dressing stone or piece of concrete to dress the blade, exposing more diamonds on the blade – more comments in Note section below.

10) **CUTTING YOUR SAMPLE:**As the cut progresses, it is likely that drag from the blade will cause the sample to feed more rapidly than the saw can cut, and the blade will stall. To prevent this from happening, pay attention to the sound the blade makes as it cuts and reduce the feed rate as the saw begins to labor excessively. You will probably have to hold the sample back, rather than push it into the blade, towards the end of the cut. If the saw blade comes to a complete stop, and if the sample is stable on the platform, sometimes pulling it back slightly is all the remedy that is necessary. **SAFETY NOTICE!!! If the blade is jammed tightly, or has been bent, then you must turn the saw off to clear it safely – Contact the Lab Manager.** Whatever the situation, do not delay in applying the remedy, because the motor is still turning and the belt is slipping: As belt and pulleys heat up, slippage becomes more of a problem, and the blade will jam ever more easily.  Eventually, you could burn out the motor.

11) **cleaning up:**

**- unplug the saw  
- make sure that the hoses are draining into the floor drain and pull the black plug out slowly  
- wash off the sample stand of all debris  
- remove all rock chips/debris from the basin and flush the basin clean of all debris with the hose from the sink – THIS NEEDS TO BE AFTER EVERY USE TO DECREASE THE CHANCE OF RUSTING  
- bEFORE THE WATER THAT SPLASHED ON THE UPPER PART OF THE SAW has a chance to dry, WIPE DOWN AS MUCH AS POSSIBLE TO KEEP THE AIR INTAKE OF THE MOTOR CLEAR OF DEBRIS/DUST.**

12) Once completed, record the condition of the saw and hours used in the Saw Use Log

13) Contact faculty/staff/fellow student that you are complete and leaving the lab.

**NOTE**

Any deviation from this SOP requires approval from PI/Lab Manager.

Saw Blades: Thousands of tiny industrial diamonds are embedded on the surface of the blade. Your skin is too soft for a properly maintained blade (i.e. no metal spears or gouges) to cut it; however your finger nails are sufficiently hard enough to slowly be cut. Blades are rather expensive so take care not to force your sample when cutting.

Blade Dressing: Blades which are slow-cutting (dull) but which otherwise appear serviceable can be dressed by making several cuts in one of the pieces of brick kept in the drawers under the saw stand for that purpose. Such treatment will wear away some of the metal carrier and expose new diamonds, thus "sharpening" the blade. Don't overdo it, though; two or three passes are all that are necessary. **If the blade still cuts slowly, you may simply have a very hard sample and needs more time to cut.**

Mechanical Problems: Excessive wobble, vibration, or noise, is an indication that the blade has been damaged in some way that was not apparent in your initial inspection – **Contact the Lab Manager**.

Electrical Problems: Consider your safety first. Shut off the saw immediately and unplug from the wall if safe to do so – **Contact the Lab Manager**.

**Documentation of Training** (signature of all users is required)

* Prior to conducting any work with the rock saws, PI or LM must provide training to his/her laboratory personnel specific to the hazards involved in working with this equipment, work area, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP.
* The Principal Investigator must ensure that their laboratory personnel have attended appropriate laboratory safety training and are current with any refresher training required.

**I have read and understand the content of this SOP:**

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| **Name** | **Signature** | **Date** |
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