

**Best Management Practice  
for  
Removal of Limestone Boulders from Permanente Creek**

**Introduction**

This best management practice (BMP) is designed to remove limestone boulders from Permanente Creek. The BMP is intended to address water quality concerns that limestone boulders in the creek have the potential to leach selenium into surface waters. The BMP, as described below, requires the identification and removal of limestone boulders.

**Objective**

This BMP requires the removal of limestone boulders in Permanente Creek which meet the requirements listed below:

- Have a surface composition of limestone, guided by visual identification and field testing;
- Located within the reclamation plan amendment boundary and upstream of the existing Pond 13;
- Located within the 100-year floodplain or on slopes immediately adjacent to the creek; and
- Presence in Permanente Creek is attributable to mining activities, rather than naturally occurring.

The term “boulder” refers to rocks greater than 10 inches in diameter. This BMP does not affect the operator’s responsibility to remove sediments and smaller-sized material from the creek pursuant to the terms of the reclamation plan amendment.

**Field Inspection and Flagging**

Field inspection and testing will be performed by a qualified geologist to identify limestone boulders for removal. The inspection will occur during the dry season (prior to October 15) after approval of the reclamation plan amendment. The field inspection will identify limestone boulders using visual identification and field testing. Boulders that are identified by these means will be flagged using tape, stakes, non-toxic paint, or other appropriate means to allow subsequent identification. Boulders identified during the field inspection also will be mapped (in GPS format, where possible) for reference.

**Removal Timing and Methods**

Limestone boulders identified for removal during the field inspection will be removed during the first available dry season following field identification. This means, generally, that field inspection occurs during the spring or summer of August 2012, boulders will be removed by October 15, 2012.

Limestone boulders will be removed using the following methods:

- By hand where possible.
- By excavator arm where boulders are sufficiently close to access roads.
- By cable and winch, drawn uphill from access roads, where surface vegetation can be preserved.
- By a suspended cable system suspended above the creek, affixed to a tree or other anchor point on the far side of the creek and to a winch on the uphill side.
- By breaking oversize boulders into manageable sizes using a jackhammer or other splitting methods and transporting them using other methods listed here.
- By other appropriate means that are sufficiently protective of the creek and watershed.

Limestone boulders that are marked for removal may be allowed to remain where removal (a) has the potential to significantly destabilize the creek channel or increase the mobilization of sediment in surface waters, and (b) an evaluation indicates the boulder is not a significant source of selenium.

### **Reporting**

A report will be provided to the County within sixty (60) days of the conclusion of boulder removal. The report will describe the field inspections, the removal process and document the basis for leaving any limestone boulders not removed. The report will include a map showing where limestone boulders were removed and limestone boulders left in place.