STANDARD OPERATING PROCEDURE 49

CHIP TRAY PREPARATION

REVISION LOG		
Revision Number	Description	Date
49.0	Original SOP	3/25/04
49.1	Revisions by PJP	5/19/2004
49v1	Finalized by LMK to post to Molycorp project website and to send to George Robinson for lab audit; LMK did not edit this SOP	4/3/07
49v2	Editorial by SKA	10/24/08

1.0 PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) provides technical guidance and methods that will be used to prepare chip trays during field activities performed at the Molycorp Mine Site. A chip tray is a small representative sample of drill cuttings obtained in increments, generally 5 ft, and stored in sections within a plastic tray and is available for additional study.

2.0 RESPONSIBILITIES AND QUALIFICATIONS

The Principal Investigator (PI) or Bureau Field Geologist have the overall responsibility for implementing this SOP. They will be responsible for assigning appropriate technical staff to implement this SOP and for ensuring that the procedures are followed by all personnel.

All personnel performing these procedures are required to have the appropriate health and safety training. In addition, all personnel are required to have a complete understanding of the procedures described within this SOP and receive specific training regarding these procedures, if necessary.

All project staff are responsible for reporting deviations from this SOP to the PI or Bureau Field Geologist.

3.0 DATA QUALITY OBJECTIVES

The characterization portion of this research project has identified nine DQOs, described in the QAPP that must be addressed in order to solve this problem. The chip tray preparation specifically addresses two of the DQOs:

- Determine how mineralogy, stratigraphy, and internal structure of the rock piles contribute to weathering and stability.
- Determine how much and where the pyrite is in the waste rock piles and how does the pyrite concentration affect the weathering process.

4.0 RELATED STANDARD OPERATING PROCEDURES

The procedure for chip tray preparation set forth in this SOP is intended for use with the following SOPs:

- SOP 2 Sample Management
- SOP 3 Surveying (GPS)
- SOP 4 Taking Photographs
- SOP 5 Sampling Outcrops, Rock Piles, and Drill Core
- SOP 6 Drilling, Logging, and Sampling of Subsurface Materials
- SOP 7 Decontamination of Sampling Equipment

4.0 EQUIPMENT LIST

The following materials and equipment listed will be needed for chip tray preparation:

- Molycorp Access Data Base Forms (Appendix 1)
- Waterproof pens
- Hand lens (10X magnification or stronger)
- Spoon or scoop
- Decontamination equipment and supplies (see SOP No. 7.0 Decontamination of Sampling Equipment)
- Chip trays

5.0 PROCEDURES

5.1 Drill cuttings are homogenized for a certain interval, typically every 5 ft, as the hole is drilled or after drilling. The cuttings are mixed with a spoon or stirrer in a plastic bucket or stainless steel bowl to ensure homogenization.

5.2 A small amount of cuttings are placed in the chip trays using a stainless steel spoon, maintaining representativeness of the interval. Each section in the chip tray (approximately 1 inch by 1.5 inch by 1.5 inch) represents the sampled interval.

5.3 The interval sampled is labeled on the side and top of the corresponding section of the chip tray.

5.4 Each chip tray is labeled with a unique tray number, the hole identification number, total depth sampled in the tray, and date sampled.

5.5 Database forms are completed (Appendix 1).

6.0 DOCUMENTATION

The chip tray provides a portable sample of drill cuttings for given intervals for additional reference and examination. Documentation of observations and data acquired in the field will provide information on the activities concluded and also provide a permanent record of field activities. The observations and data will be transferred from the hardcopy database forms to electronic format daily. The chain of custody form for chip trays is part of the database form (Appendix 1).

6.0 REFERENCES

APPENDIX 1 Forms

Chip_tray_no: 1 **Hole_id:** S-1 **From:** 0 **To:** 69

Interval: **Person collected:** GMG **Analyses_Requested:** mineralogy

SOP_number: 48 **Deviation_SOP:** none

Deviation_chain_of_custody: none **Corrective_action:**

Date_collected: 12/8/2003 **Comments:**

chip_tray_custody_subform

Date_transferred	intials	signature	Transferred to	signature
12/8/2003	GMG		VTM	
1/28/2004	JSR		PJP	
1/27/2004	VTM		JSR	
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Record: 1 of 3