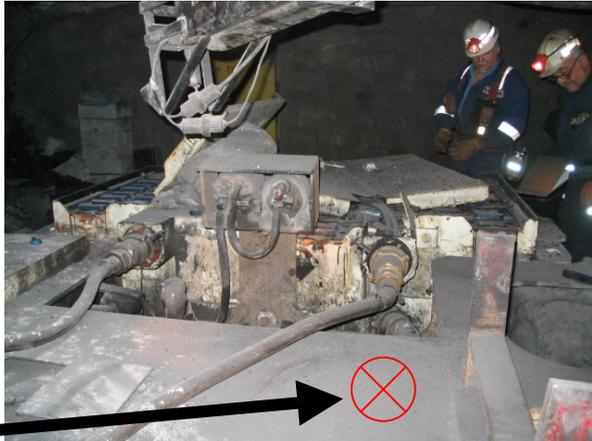




## SAFETY ALERT BULLETIN



Employee's approximate location while disconnecting energized battery charging plug



Off-side battery tray after hydrogen explosion

On May 21, 2004, a near miss incident happened at a large underground mine in Buchanan County, VA. The batteries for a S&S 488 scoop were being charged on the scoop at the charging station located on the development section. At approximately 3:55 p.m., an employee traveled to the location of the scoop and began the process of disconnecting one of the battery charging plugs from the tray of batteries located on the off-operator side of the scoop. The battery charger was not de-energized by the employee before attempting to disconnect the battery-charging plug. As the plug was being disconnected, a red flashing arc was observed followed by the sound of a loud explosion. The force of the explosion knocked the employee off the scoop causing him to land against an adjacent coal rib. The employee did not sustain personal injury, although he experienced ringing in his right ear for several hours following the incident.

**The results could have been a serious personal injury or, even worse, a fatality.**

It was determined that an electrical arc, created when the energized battery charger plug was disconnected from the battery receptacle, ignited an explosive mixture of hydrogen gas that had accumulated underneath the battery covers during the battery charging process. The force of the explosion displaced the battery lid cover and blew all of the cell caps off of the battery cells on the off-side battery tray. The crosscut housing the battery charging station was enclosed with a permanent stopping preventing adequate ventilation through the crosscut and the area of the battery charging station.

### RECOMMENDATIONS:

- Battery charging transformers must be de-energized prior to connecting to or disconnecting from the batteries to prevent the potential for electrical arcs.
- All employees should be trained concerning the hazards associated with battery charging operations and related safe-handling procedures.
- Battery charging stations must be installed and maintained in well-ventilated areas.
- Battery tray covers should be propped open or removed when charging the batteries to prevent accumulation of and facilitate the dilution of explosive gases.
- Battery maintenance should be conducted according to manufacturer recommendations to ensure water levels in battery cells are maintained at appropriate levels.

### ACCIDENT REDUCTION PROGRAM