System Requirements


R001  A supervisory station console shall monitor all robot activity, receive all robot failure alarms, and provide robot work assignments.

R002  Primary navigation throughout the mine shall be provided by a sensor path beneath the robots.

R003  Bidirectional overhead infrared communication links shall support two [2] one hundred [100] byte messages to and from each robot each second.

R004  Communications shall be supported robot-robot and robot-console from all locations in the mine.

R005  A maximum of thirty-two [32] of maximum ten [10] foot radius infrared networked communication cells shall support all communications.

R006  One or more robots may exist in each communication cell.

R007  Secondary navigation shall be provided by the infrared communication cells.

R008  Robots shall be implemented on a customer-provided robotic chassis comprised of a drive train and mining implements.

R009  A mining mission shift shall be four [4] hours.

R010  A single voltage rechargeable source shall be provided for each robot.

R011  Given the mission criticality and environment, maintenance activities on robots shall be deferred to the end of the shift.

R012  Robots shall safely interact with other robots, non-robots and their environment.

R013  The design of the system shall be manufacturable.