

## System Requirements Review

### General Change

Change the word cell(s) to the word zone(s).

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### R000

General Clarification:

- We will be keeping the wording “A maximum of four [4] robots “ because as Professor Gum stated, if we design it that way then we will meet the customer's expectations.
- Cooperatively means that robots cannot be on the same path or in the same mine at the same time but they do know where everyone else is.

**No word changes in this requirement.**

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### R001

General Clarification:

- We will not clearly define alarms and assignments at this point at time because we are keeping this document at a high level.
- The location of the central terminal is not determined at this point as well as where it will be accessible from.

**No word changes in this requirement.**

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### R002

**No word changes or clarification necessary.**

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### R003

General Clarification:

- General reason for this requirement was to be able to access the robot two [2] times per second.
- Using the word minimum helps remind us that we can expand later and it acts as a factor of safety which means we don't design the exact minimum but we go beyond. Plus, if we state a minimum number now, we know the minimum number that we are working toward.

Requirement should read: **Bidirectional overhead infrared communication links shall support the user to be able to access each robot at a minimum of two [2] times per second.**

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#### **R004**

General Clarification:

- Does not matter what each sensor does as long as a robot can talk to another robot or a robot can talk to the console.
- The console can know where the robots are but the general job of the console is to give the work assignment and alarm if there is failure.
- To find out if the road is free, this information would be communicated from robot to robot.

**No word changes in this requirement.**

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#### **R005**

General Clarification:

- Network zones means that zones will be able to talk to each other and there is the possibility for wires to be connected between the zones.
- Infrared communication does not need to be used to talk to a neighboring zone.
- The minimum will not be stated because the requirement contains a natural physical limitation.

Requirement should be changed to include the word **zones** instead of the word **cells**.

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#### **R006**

Requirement should be changed to include the word **zone** instead of the word **cell**.

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#### **R007**

General Clarification:

- Second navigation refers to determining the position on the sensor path (primary navigation). The zones will be able to help determining this position.
- Each zone has to know what zone they are.

Requirement should be changed to include the word **zones** instead of the word **cells**.

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#### **R008**

General Clarification:

- Mining implements (loading and unloading) will be provided.

**No word changes necessary.**

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**R009**

General Clarification:

- Batteries must run for four [4] hours.
- This is a *reliability* and *availability* requirement.

**No word changes necessary.**

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**R010**

General Clarification:

- All power has to be supplied by one rechargeable source.

**No word changes necessary.**

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**R011**

General Clarification:

- This is a *maintainability* requirement.
- The mission is considered active until no robots can continue mining.

**No word changes necessary.**

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**R012**

General Clarification:

- At this point in time, it is not determined how the robot will sense that it needs to stop to interact safely.

**No word changes necessary.**

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**R013**

**No word changes or clarification necessary.**

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