



Air Systems Provide Life Support to Miners

Johnson Space Center

*Paragon Space Development Corporation
Tucson, Arizona*

NASA Technology

- ◆ To support private sector transport of astronauts to the International Space Station, NASA funded development of life support systems
- ◆ Johnson Space Center awarded funding to Paragon to develop the Commercial Crew Transport-Air Revitalization System (CCT-ARS)



Technology Transfer

- ◆ Refuge alternatives, which are metal-encased chambers used by miners in the event of an emergency, also have air purification systems
- ◆ Refuge alternative manufacturer Mineshield LLC negotiated a 10-year license with Paragon to install CCT-ARS technology into its chambers

Benefits

- ◆ The system removes carbon dioxide and trace contaminants, circulates the air, and provides temperature control
- ◆ Battery-operated, it can run for 4 days and needs very little upkeep in an emergency
- ◆ Mining companies can save \$30,000 long-term maintenance costs per chamber