Public Forum on Underground Mine Rescue Equipment & Technology

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Introduction

- Next generation technology for communications, tracking & more
- Commercially available & operating in European coal operations
- MSHA approvals pending
Areas of Business

• Northern Light® Cap Lamp Systems
  – Radio, PED, Canary
• Northern Light Digital™ safety & productivity applications
  – VoIP
  – Two-way Messaging
  – Tracking
  – Ventilation Management
    • Gas Detection & Airflow
Northern Light Digital Network

- Industrial-standard Ethernet with WLAN overlay
- Open standard
- Commercially available
- Mine-Proven
Northern Light Digital Network

• Redundancy
  – Ring topology
  – Fibre switch-over
  – Wireless bridging

• Portable
  Repeaters heal network in emergencies

• Interoperability
Northern Light Digital Network

- Access Node Standard
  - Programmable PC
  - Power Supply
  - Back-up Battery
  - Access Point
- Optional
  - RFID Reader
  - Controller
Northern Light Digital Network

- AP01 Access Point
- 802.11 b/g Compatible
- EU ATEX type approved
- 4-port fiber switch
Northern Light Digital Mine

- Voice over IP (VoIP)
  - Industrial wireless telephone
  - Intrinsically Safe PDA
    - Voice, data, video
Northern Light Digital Mine

- Digital Messenger
  - Two-way messaging
  - Dual acknowledge
  - 2-Line display on lamp
  - Emergency message feature
Northern Light Digital Mine

- RFID Tracking
  - Location visibility for personnel & equipment
  - Entry control
Northern Light Digital Mine

• WiFi Tracking
  – Leverage WLAN investment
  – Surface or underground
  – Visibility for personnel, equipment & assets
Northern Light Digital Mine

- Environmental monitoring
  - Gas & airflow detection
  - Temp, pressure
  - Alarming
- Information for early warning & preventive measures
Northern Light Digital Mine

- Visibility in emergencies
- Real-time reporting
- Compliance reports
- Wireless access to business applications
- Coordinate maintenance personnel
- Automate?
Conclusions

- Modern communication technology based on standards is available
- International certificates are available to fast track MSHA approvals
- A unified network provides day-to-day operational benefits with visibility in the event of emergencies
- Redundancy & network healing repeaters provide maximum up-time