

**HILLGROVE**  
**RESOURCES**



**RADIOCOMMS CONNECT 2011**

**MARK HETZEL**    **MAINTENANCE SUPERINTENDENT**

**STEVE KENNEDY**    **AA RADIO SERVICES PTY LTD**

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This presentation contains information that is based on projected and/or estimated figures that reflect expectations, assumptions and outcomes that may or may not eventuate.

Any forward-looking statements are subject to a range of risk factors, which include:

- interest and currency exchange rate assumptions
- product pricing assumptions
- mine plans and/or resources
- equipment life or capability
- current or new technical challenges
- market conditions
- management decisions

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All currency referred to is Australian Dollars (AUD) unless otherwise indicated.

*The information in this report that relates to Mineral Resource estimates is based on information compiled by Mr Aaron Green, who is a Member of The Australian Institute of Geoscientists. Mr Green is a full-time employee of Runge Limited and has sufficient relevant experience to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Green consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

- Commissioning Now
- First concentrate Late October 2011
- Practical Completion of Plant 1 November 2011
- First revenue November 2011
- Mine life of 6.5/10 years based on current reserves/resources
- Mine life extension through current exploration program
- 3.5Mtpa achievable with AUD 12M CAPEX Target 12-18 months



**HILLGROVE RESOURCES** **KANMANTOO COPPER MINE**  
**PRODUCTION IMMINENT**



- Encryption
- Multiple Channels (5+)
- Must integrate current PMR channels (UHF CB channels)
- Blast Tone/Emergency Alert alarms
- Coverage throughout mine lease
- Ability to expand to new mines in the region

- PMR

- Advantages

- Cheapest Terminals

- Most choice of terminals

- Disadvantages

- Integration with other systems lead to a bespoke system

- Addition of further channels expensive

- Higher power requirements

- More room required for equipment

## ■ IDAS

### ■ Advantages

- Cheaper than TETRA
- Easy to set up as a trunk system (allowing extra channels to be programmed easily)

### ■ Disadvantages

- Only two vendors supporting this technology at the moment
- Applications still lead to bespoke system
- Higher power supply requirements
- Equipment room requirements larger than TETRA

## ■ TETRA

### ■ Advantages

- Easy to up or downgrade available “channels”
- Group or individual calls
- Good range of terminals available
- Integration of other systems is straight forward and repeatable.

- TETRA

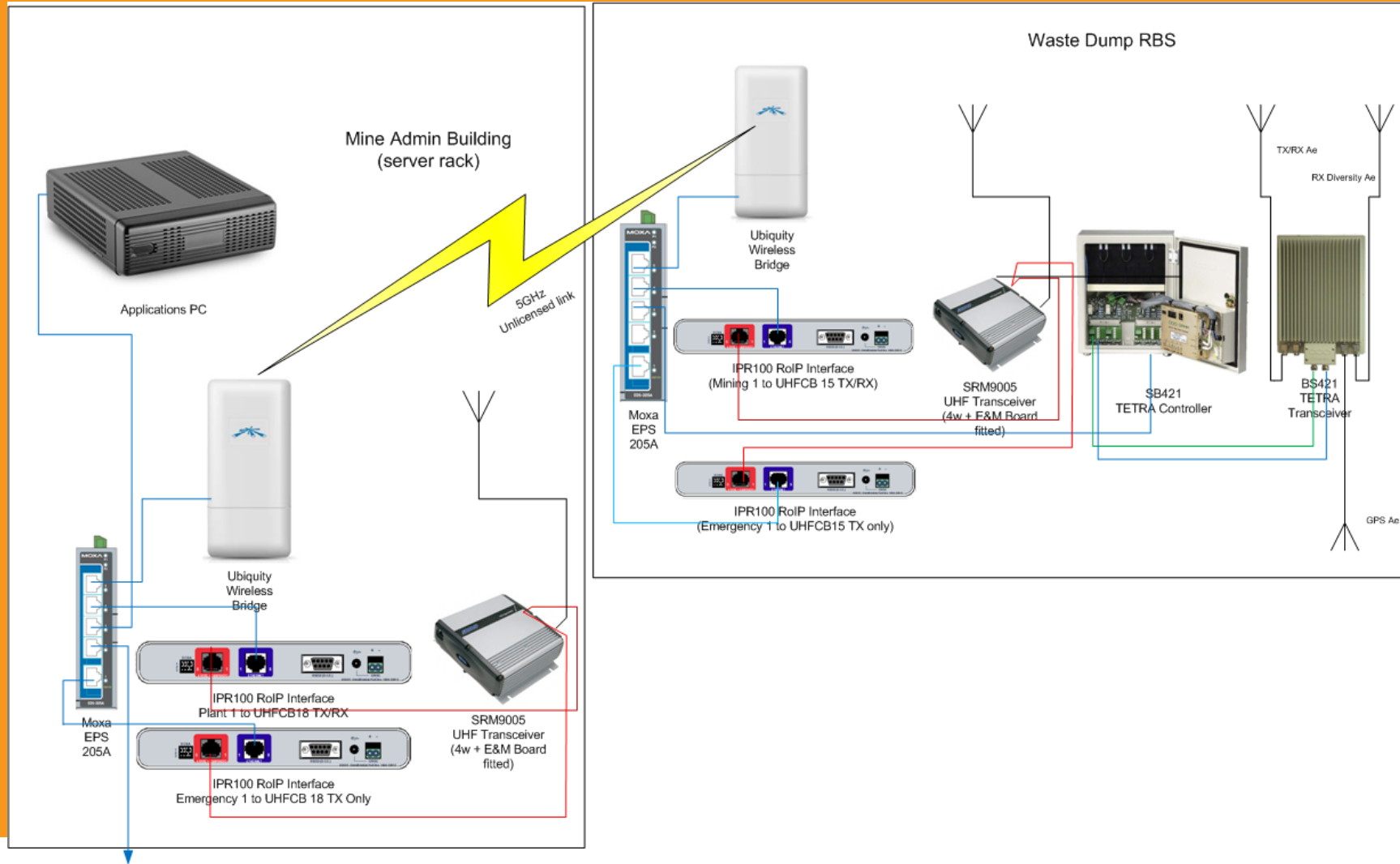
- Disadvantages

- Terminals expensive compared to low tier PMR terminals
    - The use of the radio can be too complex for users if configuration is not managed carefully

- TETRA Technology chosen
  - DAMM 421 Single site, single controller and single carrier (later upgraded to dual controller and dual carrier)
  - 4-channel analogue radio gateway
  - Blast/Emergency Tone Alert System
  - Remotely accessed NMS
  - Sepura STP82040 and SRG3900 transceivers deployed
- Solar Powered



- Why?
  - Ability to add or subtract “channels” as required dynamically
  - Standard applications available – all IP centric
  - Suitable level of encryption inbuilt into the system
  - Ability to restrict certain users to certain talk groups (i.e. giving restricted access to emergency 3 talk group to management and ESOs only)
  - Future integration with VoIP PABX
  - Ability to easily integrate with existing PMR system on site.



- Started with 5 talk groups plus Emergency Talk groups
  - Initially provided 3 talk groups for each business unit
  - Later “dumbed down” the system to just 4 business talk groups and three emergency talk groups
- Initially provided global access to the emergency 1 talk group which was also globally background scanned
  - Changed to global access to Emergency 2 talk group (background scanned by ESO personnel) and only allowed ESO personnel ability to broadcast on Emergency 1 (still globally background scanned).

- 1<sup>ST</sup> line maintenance carried out with on site electrical staff
- 2<sup>nd</sup> and 3<sup>rd</sup> level maintenance carried out by vendor (AA Radio).
  - Majority of support provided remotely with only occasional site visits required
- Remote support provided via;
  - Web based information and trouble ticket system
  - Use of VPN to remotely monitor and access infrastructure, allowing terminal provisioning, alarm monitoring, and network changes to be carried out from Newcastle or Melbourne
  - Use of VPN to create terminal templates and batch files for changes and additions to the terminal fleet

- Duplication used for controller and carrier to enhance traffic capacity and to automate changeover in event of failure
- Solar power supply dimensioned for more than 5 days autonomy and recharge in less than 10 days once power supply restored.
- All other equipment duplicated in store or is easily available locally
- On site staff regularly trained and are involved in maintenance and upgrades. Staff are empowered to maintain by access to good quality system documentation, immediate business hours telephone support and regular training.
- Periodic planned maintenance carried out by technical support organisation (AA Radio).

- **KISS**
  - Just because the system is capable of lots of features does not mean that they all need to be used at once!
- 2<sup>nd</sup> round of terminal programming is invariably required
- User training with onsite instructors (system champions) is imperative to the success of the system in operational use.
- UHF CB used as analogue radios on a mine site near population centres is a bad idea!!
  - If UHF CB must be used, use radios which can be hard programmed with quite transmit and receive (removing operator intervention in the use of CTCSS).



**Questions?**

**Thank You!!**