



## **MINING**

### **THE CANARY MINE MESSENGER SYSTEM & THE EMERGENCY BROADCAST NETWORK - EBN**

**Vital Alert Communication Inc.**  
P.O. Box 183, Rosseau, Ontario  
P0C 1J0, Canada

Joe Miller, President / CEO  
Direct: (705) 644 0908  
jmillier@vitalalert.com

[www.vitalalert.com](http://www.vitalalert.com)

© Vital Alert Communication Inc. February 5, 2006

## 1-MINUTE THUMBNAIL SUMMARY

**THE COMPANY:** VITAL ALERT COMMUNICATION INC. is a technology and IP licensing company in the mining, safety-rescue and wireless communications industry. We develop VLF low frequency communications technology into innovative products for the mining industry. The Company's extensive research and development activities have resulted in the market readiness of its revolutionary "Through-The-Earth", digital, wireless Emergency Broadcast Network (EBN) and "Canary" Mine Messenger System.

**THE MINING 'RADIO' COMMUNICATIONS PROBLEM:** Disasters such as those at the Consol #9 Mine (1968), in Sunshine Mine (1972) and the Sago Mine (2006) has brought to light the glaring failures of current mine communications systems. Radio signals fail to penetrate rock, ore bodies and debris. They fail to penetrate shielded or complex environments such as mines. These incidents have highlighted the lack of robustness of telephones in emergency situations; unprotected telephone communication cables have been destroyed. They are susceptible to power blackouts causing dangerous downtime, putting the lives of miners and emergency rescue teams at risk

**THE SOLUTION:** Vital Alert's Canary Mine Messenger System and EBN (Emergency Broadcast Network) are breakthroughs in digital and wireless communications technology. As a pre and post, emergency warning, evacuation and rescue system for mines, the Canary offers the first 100% fail-safe text and two-way voice communications for mine workers and emergency responders, 100% of the time. Our technology enables communication signals to penetrate the deepest mines and tunnels. High-density ore bodies, concrete, metal, rock, earth, debris and dust cannot stop the Canary signal. Breaks and ruptures that occur with existing hardwired RF systems do not affect it.

**THE TECHNOLOGY:** Our technologies are proprietary, patented, licensed and R&D 100 Award winners. Our products have been tested and proven by Los Alamos National Laboratory, the mining industry and the US Department of the Interior (Mining).

**THE COMMITMENT:** Vital Alert believes the Canary Mine Messenger System will provide the dual benefits of knowing you have the best emergency warning system available in the world - a system that is designed to achieve substantial productivity gains on a day-to-day basis. We are committed to working closely with our customers to establish new standards of mine safety and productivity.



## VITAL ALERT COMMUNICATION INC

### Canary Mine Messenger System Setting a New Standard in Mine Safety and Communication Systems

Underground mining has made a major contribution to the economic development of the U.S.A. and Canada as well as other countries in which mining has taken place. However, there has been a significant associated cost in terms of mining accidents. In the critical minutes following an incident, the safety of underground workers is largely influenced by emergency warning and rescue communications systems.



#### THE COMPANY

**VITAL ALERT COMMUNICATION INC.** is a technology and IP licensing company in the safety-rescue and wireless communications industry. The Company provides pre and post disaster, early warning, emergency evacuation, safety and rescue technology to the mining sector, as well as to urban commercial, government, industrial, military and defense sectors where 100% fail-safe wireless communications is paramount.

The Company develops and licenses VLF low frequency communications technology into innovative products for the mining industry. The Company's extensive research and development activities have resulted in the market readiness of the world's first "**Through-The-Earth**" Emergency Broadcast Network (EBN) and the "Canary" Mine Messenger System. – digital, wireless technology where 100% fail-safe communications in extreme environments have previously been unavailable.



## THE MINE RADIO PROBLEM:

Disasters such as those at the Consol #9 Mine (1968), in Sunshine Mine (1972) and the Sago Mine (2006) has brought to light the glaring failures of current RF radio communications technologies. Radio signals fail to penetrate rock, ore bodies and debris. They fail to penetrate shielded or complex environments such as mines and tunnels.

A number of past incidents have highlighted the lack of robustness of telephones in emergency situations; unprotected telephone communication cables have been destroyed. They are susceptible to power blackouts causing dangerous downtime, putting the lives of miners and emergency rescue teams at risk.

## THE SOLUTION:



Vital Alert's Canary Mine Messenger System is a breakthrough in digital and wireless communications technology. As a pre and post, emergency warning, evacuation and rescue system for mines, it offers the first 100% fail-safe text and two-way voice communications for mine workers and emergency responders 100% of the time. Downtime and propagation failures have been solved once and for all.

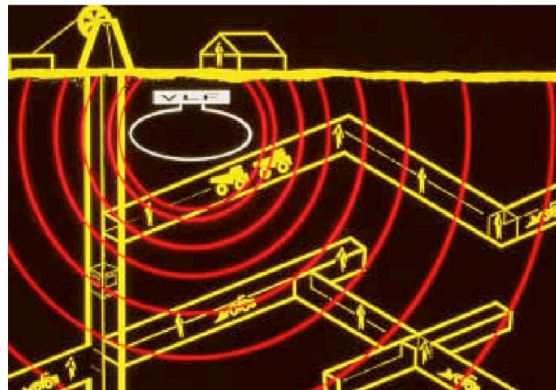
Our patented and proprietary technology enables communication signals to penetrate the deepest mines and tunnels. High-density ore bodies, concrete, metal, rock, earth, debris and dust cannot stop the Canary signal. Breaks and ruptures that can occur with existing hardwired RF systems do not affect it. The Canary is cost effective and able to deliver a level of performance superior to other emergency communications technologies.





The “Canary I” Text Mine Messenger System (commercially available) is the product of a unique international collaboration that included the United States Bureau of Mines (USBM). Early prototype testing by our engineers showed great promise for the Canary. This led to an installation in a hard rock setting at the Doe Run Casteel Mine in Missouri, involving approximately 30 receiver units. Another 60-unit system was installed in a soft- rock mining setting at the Central Canada Potash mine in Saskatchewan.

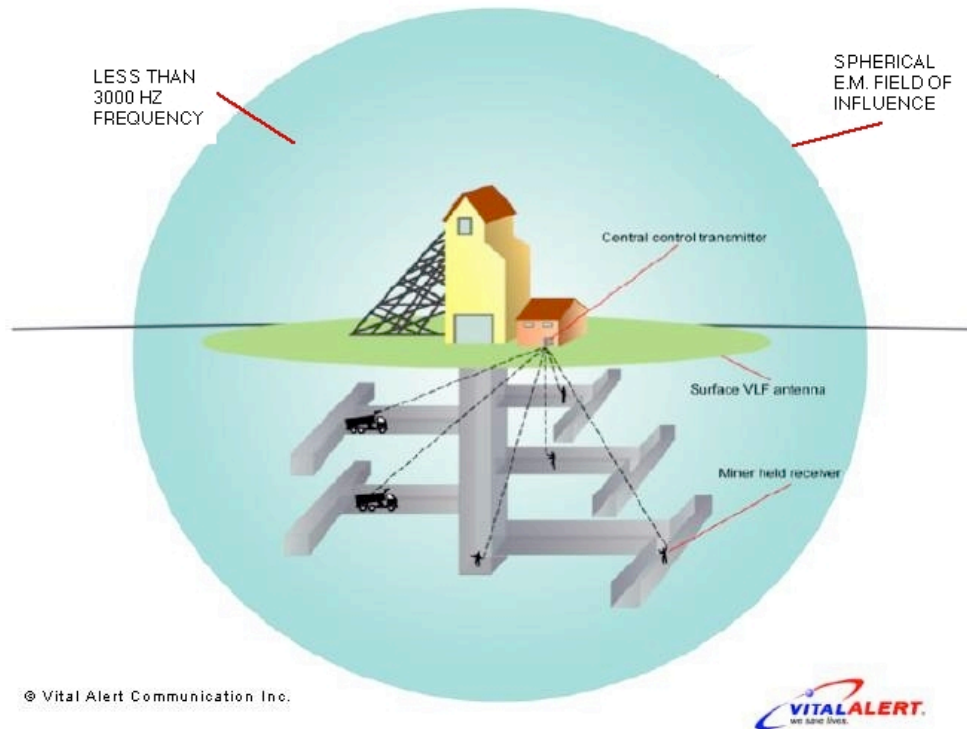
VITAL ALERT’S Canary Mine Messenger System enables a signal to be instantly transmitted to designated miners and equipment underground. The Canary product is a Through-the-Earth pager, which can display emergency evacuation instructions or productivity-enhancing operational messages on a 32-character LCD screen. Vital Alert’s Canary can transmit a 32 character message in under 30 seconds or send previously stored "canned" messages, which can be activated with short data bursts within seconds, further improving message throughput and allowing emergency messages to be repeated more frequently, thereby improving reliability.



Essentially, the Canary System consists of one or more transmitters, a wire loop antenna, and a computer with custom operating software, vehicle mount receivers, a lightweight battery pack/receivers and associated charging racks. A loud buzzer in the integrated battery/receiver units and the flashing of cap lamps powered by them, alert miners to incoming messages.

Application engineering permits the customizing of standard components to further meet the specific site requirements of individual miners. In this manner, VITAL ALERT addresses its customers need to maximize both productivity and safety benefits.

### VITAL ALERT EBN CANARY MINE MESSENGER SYSTEM



The Canary Mine Messenger System represents a breakthrough in mine Through-The-Earth communications. It provides mine management and workers the comfort of knowing they have the best emergency warning system available while quickly paying for itself through substantial productivity improvements.



## AWARD WINNING THROUGH-THE-EARTH TECHNOLOGY

In 1993, the “Canary I”, was awarded the prestigious “R & D 100” Award - considered the “Nobel Prize” of applied research. Past winners include the Fax Machine and Anti-Lock Breaks. In 1994, the Canary Mine Messenger System was further honored with an Occupational Safety and Health Award in the OSH 1994 National Awards of Excellence. The U.S. Bureau of Mines touted the Canary as “The most significant advancement in mine safety of the century”.

*(Technical specs are available upon request.)*



The “Canary 2” 2-Way Voice Mine Messenger System (tested & proven prototype) is the product of a licensing agreement with **Los Alamos National Laboratory** of New Mexico.

It is the first digital, wireless, Through-The-Earth, under ground radio, early warning, emergency evacuation and rescue system with fail-safe two-way voice communications. Downtime and propagation failures have been solved once and for all.

The “Canary 2” patented and proprietary technology enables communication signals to penetrate the earth and underground mines. High-density ore bodies, concrete, metal, rock, earth, debris and dust cannot stop the “Canary 2” signal. Breaks and ruptures that can occur with existing hardwired RF systems do not affect it. The Canary is cost effective and able to deliver a level of performance superior to other emergency communications technologies. The “Canary 2”, 2-Way Voice Mine Messenger System is an R&D 100 Award winning technology.

*(Technical specs are available upon request.)*





## **THROUGH THE EARTH WIRELESS EMERGENCY COMMUNICATIONS**

In 2004, Vital Alert Communication Inc. entered into an exclusive field-of-use license with Los Alamos National Laboratory for the new and unique capabilities to the Vital Alert Emergency Broadcast Network (EBN), opening the door to several urban applications such as subway systems, skyscrapers, airports, refineries, power plants, marine and port security, tunnels, bridges and commercial and industrial buildings, to name a few.

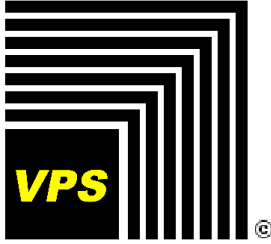
Los Alamos National Laboratory is operated by the University of California for the Department of Energy's National Nuclear Security Administration. The laboratory's mission is national security. Since 1943, Los Alamos has created and applied advance science (High Performance Computing, Advanced Material, Biotechnology and Physics) and technology to solve critical challenges in national defense and civilian research.

Los Alamos has more than 300 industrial partnerships with a combined value in excess of \$650 million in the past decade, with an aggressive continuing program. Laboratory industrial partnerships bolster the economy and increase America's global competitiveness.



**The World's Greatest Science  
Protecting America**





## **THE UNDER GROUND 'VPS' VITAL POSITIONING SYSTEM (LINKED TO 'GPS')**

With our alliance partners, development is underway to provide solutions for the tracking, location and movement of miners and equipment, during day-to-day operations and during disaster situations. VPS has the ability to link to any GPS system. (Please see EBN below.)

## **CANARY MINE MESSENGER SYSTEM BENEFITS**

- Provides instantaneous 2-Way Voice and Text messaging, early warning communications and regular situation updates to all personnel connected to the system.
- Provides communication to individuals, groups or simultaneous broadcasts
- Wireless systems are not susceptible to breaks and ruptures of traditional systems.
- Minimal installation expense.
- Enhances labor productivity through a flexible paging service.
- Minimizes repair-breakdown time of critical production equipment
- Reduces lost production time for evacuation and safety testing.
- Extensive range of communication.
- Has the ability to store messages.
- Operates in hard rock, soft rock, concrete, water and air.
- Emergency communication technology for a wide range of disasters.
- R&D by Los Alamos National Laboratory (Two-Way Voice) and United States Bureau of Mines (Text).
- Integrates with and enhances existing communication/warning systems.



## **APPLICATION ENGINEERING = CUSTOMER SATISFACTION**

VA conducts a thorough engineering evaluation of each mine. This investigation is based on maps, other information provided to VA, and on-site testing. It accounts for unique physical characteristics of the mine and an evaluation of existing work procedures. The end result is the co-development of a comprehensive, customized installation plan based on proven and standardized technology.

## **SYSTEM INSTALLATION AND COMMISSIONING**

Although Canary components (i.e. Receiver, battery units, charging system, transmitter) are produced in a standard manner, Vital Alert does not view the installation of our Canary System as an “off the shelf” or a “do it yourself” product purchase.

The on-site application engineering process is designed to custom configure a system that maximizes customer benefits and permits the early identification of potential challenges that inevitably arise with any technical installation of this nature and magnitude.

Of course, Vital Alert’s commitment extends beyond technical matters. For example, our comprehensive product introduction plan typically involves the training of multiple computer system operators and the phasing in of receiver/battery units after small group product orientation meetings. In its entirety, this approach is designed to satisfy the needs of both workers and management.

The bottom line for Vital Alert is that the Canary’s function as an emergency warning system makes it imperative that a complete application engineering process be undertaken. It is only then that we can expect our customers to share our confidence in the systems operational integrity.

There are three primary advantages to taking this approach:

1. The optimal performing location of the antenna loop and type of antenna wire is determined and specified.
2. Transmission coverage of mining operations is maximized on the first installation and interference to mine operations is minimized.
3. The systems software parameters are established before delivery to work in a manner consistent with normal operating procedures (e.g. allowing specified groups of miners to be paged at the same time.)



## TECHNICAL EXCELLENCE

Vital Alert uses digital, wireless technology in the Canary system. We extensively tested analogue-based and RF systems technology and concluded that the performance standards did not meet or exceed those of Vital Alert technologies. This precipitated the development of a state of the art Digital Signal Processing System that provides our customers with numerous benefits such as:

- Faster transmission of voice, text and data.
- The ability to operate with VLF signal levels, extending transmission range
- Better filtering to increase immunity to man made noise.
- The ability to store messages in the receiver/battery units and trigger them with time saving character codes.
- Inherent flexibility for the receiver unit to be adapted into new products quickly (e.g. on-off ventilation controls).

The Canary Mine Messenger System has been engineered specifically for use in underground mines. The Canary has been developed by Vital Alert to achieve superior transmission and receiving performance in all mining environments.



## VITAL ALERT'S EMERGENCY BROADCAST NETWORK (EBN)

**Vital Alert's Emergency Broadcast Network (EBN)**, now under development, is a customizable mission-critical communications and information network that deploys the Canary Mine Messenger System (Canary 1 and Canary 2) – a digital, 2-Way Voice and text / data communications over wireless systems to a wide range of mines and other underground environments. The company's EBN platform provides the high level of reliability, coverage, flexibility and cost-effectiveness that mines require. The network can be integrated with existing systems as a 100% fail-safe back up to existing RF radio systems. In addition, the network can cover large-scale mine sights.



EBN's platform is not RF radio and does not have the shortfalls of RF radio in extreme environments such as mine disasters. EBN has the ability to penetrate high-density masses such as ore bodies, earth, rock, concrete, metal, dust and debris. Its signal can propagate mines and tunnels utilizing proprietary and patented technology (electromagnetic low-frequency technology).

The system is fail-safe, secure, robust, reliable and cost effective, so you can be assured all parties will confidently "Get the Message". EBN can be deployed in both fixed and mobile environments.

In addition to technology and cost, other factors weigh positively for EBN such as lower environmental impact of Vital Alert solutions, implementation, testing and integration to existing structures, such as low profile antennas, transmitters and receivers that are also significantly less expensive than traditional RF radio systems.

Vital Alert's initial focus has been on applications within the mining industry, where the Company has been engaged in extensive research and development activities that have resulted in the market readiness of the revolutionary Canary Mine Messenger System.

## **CONTACTS**

### **VITAL ALERT COMMUNICATION INC.**

P.O. Box 183,  
Rosseau, Ontario, P0C 1J0, Canada  
Ph: (705) 644-0908

**JOE MILLER**, President / CEO  
Rosseau Office  
P.O. Box 183, Rosseau, ON, P0C 1J0, Canada  
TEL: Direct: (705) 644-0908  
jmillervitalalert.com

**MIKE FROMOWITZ**, VP Marketing  
Toronto Office  
TEL: Direct: (416) 305-8810  
mfromowitzvitalalert.com

**[www.vitalalert.com](http://www.vitalalert.com)**



CORPORATE I.D.



**www.vitalalert.com** ©

**we save lives.** ©



TM The VITAL ALERT name, symbol and design are registered Trademarks of Vital Alert Communication Inc. © Represent Copyrights of Vital Alert Communication Inc. ® Registered Trademark of Vital Alert Communication Inc.

## **UNAUTHORIZED DISCLOSURE NOTICE**

CONFIDENTIALITY NOTE: The information contained in this document is private, legally privileged and confidential information intended only for the use of the person to whom this document was intended or given permission to view it. If the reader of this document is not the intended recipient, you are hereby notified that the reading, dissemination, distribution, forwarding or copying of this document is strictly prohibited. Vital Alert Communication Inc. reserves the right to monitor the use of this document, by whichever means it deems appropriate. If you have received this document in error, please immediately notify us by e-mail at [jmiller@vitalalert.com](mailto:jmiller@vitalalert.com), to arrange for return of this document to us. It is the intention of the sender of this document to preserve all protections and privileges attendant to the enclosed information.

WARNING: Reproduction of any of the material contained in the Vital Alert Communication Inc. document, forwarding of any portion thereof, by e-mail, telecopy, fax, or any other means, substantial quotation of any portion of the Vital Alert Communication Inc. document, or any other use of the document by any person other than the intended recipient, without the written permission of Vital Alert Communication Inc, may violate the copyright laws of the United States and Canada, and subject the violator to legal prosecution.

## **TRADE-MARKS**

VITAL ALERT COMMUNICATION INC<sup>TM</sup>, VITAL ALERT COMMUNICATION INC and the wave-orbit with ball design, EMERGENCY BROADCAST NETWORK EBN<sup>TM</sup> and EBN<sup>TM</sup>, CANARY<sup>TM</sup>, CANARY 1<sup>TM</sup>, CANARY 2<sup>TM</sup>, VEEPER<sup>TM</sup>, VPS and 'We Save Lives'<sup>TM</sup>, are trademarks of the Company. This Business Plan also makes factual reference to trade names and trademarks of third parties, none of whom have endorsed or are in any way connected with this document.



