bhpbilliton	MINERALS EXPLORATION

Standard Operating Procedure for Communications

Issued by: Global Operations Manager	Variations, which may have regional or locational significance, are contained in SOP Documents as specific appendices.		
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Standard Operating Procedure for Communications

1. DEFINITION AND INTRODUCTION

Regular communications play an extremely important role in safe and effective exploration work. Good communication builds morale, encourages efficient use of time, equipment and personnel, and provides the means for any necessary emergency assistance. The term "communication" includes all aspects of communications. It covers all communication between offices, base camps; fly camps, parties on traverse or in vehicles. It also may include communications when travelling on domestic or international business, or field trips. Being able to contact help and have staff contact you in an emergency situation should be an essential part of our business.

Because no single system of communication or timetable will suffice for all areas where BHP Billiton personnel work, it is the responsibility of each region to develop and maintain standard operating procedures for routine communications and emergencies. Each project manager or camp manager should assess the requirements of each location or operation and take into account such factors as isolation, terrain, means of transportation and other pertinent risks. In many regions, effective communication systems include using satellites. Some regions already own or regularly rent satellite or iridium telephones. Some countries restrict the importing of communication equipment so take this into account when you select equipment.

Project:	
Location:	
Date:	
Reviewer:	

Comments

2. EQUIPMENT SELECTION	Comments
Proper selection, preparation and maintenance of equipment are essential. Take into account such factors as isolation, terrain, means of transportation and other relevant risks. All staff and contractors must ensure they choose the correct communication device or system to fits the needs of the project. All equipment must be in good working order and have been tested prior to being used. Select communication equipment to meet the requirements of the terrain, transmission distance and atmospheric conditions under which you expect to operate. Local knowledge may be the best source of information to help select the most appropriate type of equipment to use, especially if you are setting up camp in a new area. Other sources of information include equipment suppliers, government agencies, private communication companies and charter aircraft and expediting companies. Make certain you have sufficient numbers of walkie-talkies (including batteries) and other portable equipment to last through the field season. Allow for loss and breakage. In very remote areas, be sure to take enough equipment to include supplies for emergency caches.	
2.1 Types of Equipment	**Comments**
For most field camps, the radio is an effective and relatively inexpensive method of communication. Satellite telephone systems may be more appropriate for remote sites as they may provide more reliable communication. Cellular telephones may be of use in camps near civilization or when travelling. E- mail is a very effective tool for communicating when travelling on business.	☐
2.1.1 Radios	**Comments**
VHF (Very High Frequency) and HF (High Frequency) including SSB (Single Sideband) are the most commonly used radio systems for exploration work. No one system works best because of varied field conditions and transmission distance requirements.	☐

VHF/UHF Radio Systems	
• Transmission is "line-of-sight" so terrain may severely compromise transmission distance, especially in mountainous areas. Natural and man-made interference affects the transmission capability of VHF systems. UHF is less susceptible to interference but the communication range is less than VHF systems. UHF is hampered by obstructions – even foliage.	☐
• Hand-held units (walkie-talkies) that are able to accommodate several types of antennas are more versatile.	☐
• VHF radios with appropriately matched frequencies are useful for communicating with helicopters.	☐
• Repeater stations can be installed to increase the range.	☐
HF Systems (including SSB)	☐
• HF systems will transmit over much longer distances but your communication may be adversely affected by interference. Transmission and reception quality may vary greatly depending on diurnal or seasonal atmospheric conditions.	☐
• HF systems require a large antenna. Place antennas where they will not interfere with aircraft flight paths. Flag antennas and make sure they are visible from the air.	☐
• The length of HF and SSB dipole antennas should match the frequencies the radio uses. Antennas should be set up at the appropriate height and face the proper direction. The higher the antenna, the better the transmission and reception.	☐

2.1.2 Cellular Telephones	Comments
• Cellular phones only function near civilization or where there are repeaters, and may not be compatible to systems operating in differing regions. Therefore, they have limited usefulness in many field areas. If you consider using them, test them to ensure adequate coverage of the field area. Reception is generally better on a hilltop.	☐
• Cellular phones are expensive to operate so use them judiciously. Unnecessary or excessive use of a company-owned cell phone will not be permitted.	☐
Follow these rules for safe use of mobile phones in hazardous locations.	☐
• Radio frequency (RF) energy is potentially hazardous near combustible or explosive materials. Mobile phones must be completely switched off, since incoming calls and automatic processes in the phone may still activate the mobile phone's transmitter, even if you are not making a call.	☐
• Do not operate a mobile phone in an aircraft under any circumstances, as the phone may interfere with aircraft navigation/communications and/or electronic control systems. The phone must be completely switched off.	☐
2.1.3 Satellite Telephones	**Comments**
• Satellite telephone equipment is most preferred for remote sites.	☐
• Satellite phones are portable but however can require the use of a 12-volt battery for power.	☐
• For best transmission, you should set up the equipment in a location with wide access to the sky, as you will not know the location of the satellite that picks up and transmits your call. A hilltop location will provide better transmission than a clearing in a forest of tall trees, a ravine or a valley.	☐
• Satellite phones provide private conversations.	☐

• There are many hand portable satellite telephones available and these will give greater mobility during traversing.	☐
2.1.4 Personal Use Emergency Locator Transmitters	**Comments**
These are also known as Personal Locator Beacons (PLBs), Emergency Position Indication Radio Beacons (EPIRBs) or Automatic Location Transmitters (ALTs).	☐
When working in very remote locations it may be required to equip employees with PLBs that tie in with governmental search and rescue operations. If your camp uses these, a protocol system **must** be set up with the government to avoid launching a full-scale search when a contract aircraft can reach the person in distress.	☐
2.1.5 Batteries	**Comments**
Because your communication equipment often depends on batteries, it is imperative that they are available when you need them.	☐
• Make certain you always have the correct battery chargers (to match batteries) and enough fully charged spare batteries available. Make sure that all batteries you take into remote areas are sufficiently charged. Carry spare batteries for emergency use.	☐
• Store batteries and power supply materials in a warm (not hot) area. Both very cold and hot temperatures rapidly deplete their charge.	☐
• Use only one type of battery to supply power to equipment; for example, do not use alkaline and zinc-carbon batteries together.	☐
• Replace all batteries at the same time.	☐
• Remember to dispose of batteries properly. Batteries may explode and eject chemicals if dismantled or placed in a fire.	☐

• **Follow the manufacturers instructions regarding the correct use of rechargeable batteries and rechargers**. Normally, you should try to discharge batteries fully prior to recharging, as this will prevent the batteries from developing a "memory". Then, recharge them fully, but do not leave them on the recharger longer than necessary. Do not top up the charge frequently or the battery will fail. If a battery develops a memory, it may not last a full day even though it has been fully charged. Follow directions and use the correct type of charger for each type of rechargeable battery.	☐
• When properly used, "Ni Cad" batteries should last through hundreds of recharging cycles. Rechargeable alkaline batteries may last for far fewer recharging cycles.	☐

3. EMERGENCY RESPONSE PLANS & SCHEDULED CALLS	**Comments**
All staff, contractors associated parties must lodge an emergency response plan for any fieldwork or international trip that takes them to a country of limited infrastructure. Further details of these requirements are in Global Standard for Emergency Response Plans. These plans are for YOUR own safeguard and welfare, and for the support of family in time of crisis as well as business considerations.	☐
Most Emergency Response Plans (ERPs) rely on good communications. Unfortunately, communication problems often occur during emergencies. Think up some worst-case emergency scenarios for your camp and area and figure out how to solve them. Test emergency communication plans to see if they work (seek advice from the BHP Billiton Asset Protection department, if necessary). Post operating instructions for the communications equipment and emergency frequencies at each communications station and in each vehicle. People often forget how to do the simplest things during an emergency.	☐
Plan should include:	☐
• Several forms of communication if possible.	☐

• Numbers to call for medical help: BHP Billiton ECC, hospital, health centre, BHP Billiton-Assist, local search and rescue organisation, local police detachment, your expediter, etc. Include whatever is applicable for your location. List the number of your expediter, as he or she may be able to arrange emergency assistance more quickly than someone in camp.	☐
• Location of the nearest medical facility where injured employees can be taken or treated. Know (list, if necessary) which facilities treat specific problems so that you don't evacuate a patient to the wrong facility. This may be especially important for injuries such as snakebite. Include a map to the nearest hospital/clinic.	☐
• Location and number of the nearest helicopter or fixed wing aircraft. Know how to contact them quickly in an emergency.	☐
• Police and any necessary government numbers	☐
• BHP Billiton personnel and contact telephone numbers	☐
When calling in an emergency from the field, state:	☐
1. Your name, and that your call is an emergency;	☐
2. Your location;	☐
3. Nature of the emergency; and,	☐
4. Type of assistance required.	☐
In some countries it may be required to call a designated communications coordinator on a regulated basis. This may be once or twice daily or as agreed for project. It is the job of the coordinator to lodge daily movements of staff working in remote locations. If a call is not received they may activate emergency response plan if required. You will have to supply details such as:	☐
1. Your current location;	☐
2. Daily work plan;	☐
3. Contact details (Vehicle number, phone numbers); and,	☐
4. Time of next call.	☐

4. PERMISSIONS	Comments
Obtain all necessary and appropriate licenses to operate communication equipment required. Some countries will not allow certain types of communication devices to be taken in. Check before entering as to what is allowed.	☐

5. TRAINING	Comments
The camp manager or project manager is responsible for training field employees to use communication equipment correctly. Proper training in the use of up-to-date equipment, radio protocols and radio techniques simplifies both normal and emergency communication routines.	☐
5.1 General Training	**Comments**
• Train field employees to correctly set up and operate the radio/communications equipment they will use in a field camp. Post operating instructions at the communications station in camp. Attach instructions for use to each unit.	☐
• Train and check out employees who use radio-equipped vehicles. Store clear, concise instructions for radio use and emergency frequencies in the glove box of all vehicles. Vehicles must be stationary while communication equipment is used.	☐
• Employees who do intermittent field work should ensure that they update their training in the current use of radio/communications equipment.	☐
• When a camp uses a satellite communication system, make sure the radio communications back-up system is fully functional. Also, make sure enough people in camp know how to operate it. Post concise, operating instructions for both systems.	☐
• When using a satellite communication system, locate the satellite dish so that people do not come within 3.5 metres (10 feet) during transmission.	☐

6. RADIO USE PROTOCOL	Comments
Users commonly share radio frequencies so it is important to keep traffic to a minimum and respect other users' time.	☐
• Use the correct language so that everyone understands your responses:	☐
"**Affirmative**" to confirm a message ("**yes**")	☐
"**Negative**" to deny a message ("**no**")	☐
"**Roger**" to acknowledge a message ("**OK**")	☐
• Say "**over**" at the end of each piece of traffic you transmit so that the receiver knows you have finished and he or she may proceed.	☐
• When your situation requires urgent action (but is not actual distress) you may interrupt another transmission as soon as possible by announcing "**PAN-PAN-PAN**". Proceed with your transmission when traffic clears. An urgent message has priority over all other messages except distress.	☐
• When you are threatened by serious and life-threatening danger requiring immediate assistance use "EMERGENCY-EMERGENCY-EMERGENCY". Never use "Emergency" unless the situation is imminently life threatening (e.g., a downed aircraft, a sinking boat, cardiac arrest, bear attack).	☐
• If transmission or reception is poor, you must speak clearly and slowly. Sometimes you must spell words out to ensure that your message is received correctly and understood. Learn and use the International Phonetic Alphabet.	☐

International Phonetic Alphabet

A	**Alpha**	**J**	**Juliet**	**S**	**Sierra**
B	**Bravo**	**K**	**Kilo**	**T**	**Tango**
C	**Charlie**	**L**	**Lima**	**U**	**Uniform**
D	**Delta**	**M**	**Mike**	**V**	**Victor**
E	**Echo**	**N**	**November**	**W**	**Whiskey**
F	**Fox-Trot**	**O**	**Oscar**	**X**	**X-Ray**
G	**Golf**	**P**	**Papa**	**Y**	**Yankee**
H	**Hotel**	**Q**	**Quebec**	**Z**	**Zulu**
I	**India**	**R**	**Romeo**		

7. ENVIRONMENT & COMMUNITY	**Comments**
All staff, contractors and associates must ensure that use of communication equipment does not interfere with the environment or local communities.	☐