**Northern Ireland
Fire & Rescue Service**

STANDARD OPERATING PROCEDURE NO 29

Operational Use of TETRA Radio System

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Prepared by: Operations Policy Unit

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NORTHERN IRELAND FIRE & RESCUE SERVICE

STANDARD OPERATING PROCEDURE NO 29

OPERATIONAL USE OF
*TETRA RADIO SYSTEM

INTRODUCTION

The TETRA Radio System is shared by the emergency services and other agencies in Northern Ireland. Although Northern Ireland Fire & Rescue Service (NIFRS) users normally remain separate from the other services, there is scope for the provision of inter-agency communications at emergency incidents.

The TETRA system allows groups of users within an assigned talkgroup to communicate with each other and with the Regional Control Centre (RCC). This Standard Operating Procedure (SOP) provides general information relating to the use of radio communications and guidance on how talkgroups should be utilised by operational personnel.

* TETRA – Terrestrial Trunked Radio

1 – SECTION A

1.1 MODES OF OPERATION

1.1.1 TRUNKED MODE OPERATION (TMO)

Radios operate using the TETRA network. They are used to communicate with the RCC and other users in a specified talkgroup.

1.1.2 DIRECT MODE OPERATION (DMO)

Radios operate independently from the TETRA network. They are used to communicate with other users for specific tasks and are limited to a range of approximately one mile.

1.2 TALKGROUPS

1.2.1 DISTRICT TALKGROUPS

1.2.1.1 District talkgroups are used to communicate with the RCC during mobilisation and at incidents. They are monitored by the RCC and used to update the status of resources. (District talkgroups replace the previous use of VHF radio channels 1-9.)

1.2.1.2 The 14 District talkgroups are used for:

- mobilising messages;
- informative, assistance and stop messages from the Incident Control Point (ICP);
- emergency alarms.

1.2.1.3 All appliances should normally have the relevant District talkgroup pre-selected for mobilising to incidents within their own Station area or District. Hand portable radios should have the relevant Station talkgroup selected (see 1.2.2).

1.2.1.4 For incidents in other Station areas or Districts, the relevant District talkgroup must be selected. It should be borne in mind that District talkgroups have a limited geographical range and this may need to be done whilst en route. TETRA radios can be set to scan other talkgroups, which may be useful when attending such incidents.

> **NOTE:** The radio will display *"Service Denied"* when not in range of a particular talkgroup.

1.2.2 STATION TALKGROUPS

1.2.2.1   Station talkgroups are used for "at incident" communications. They are not routinely monitored by the RCC. (Station talkgroups replace the previous use of VHF channels 10 and 11.)

1.2.2.2   Station talkgroups are used for:

- communication between the Incident Commander (IC) and crews at an incident;
- communication between the ICP and Sector Commanders.

1.2.2.3   Appliance hand portable radios should normally have their own Station talkgroup selected. When responding to incidents in another Station area, radios should be changed to the relevant Station talkgroup for the incident.

1.2.2.4   **For incidents in progress, personnel must report to the ICP to establish which talkgroups are to be used.**

1.2.3 DMO TALKGROUPS

1.2.3.1   DMO talkgroups are used for **additional** "at incident" communications as required, eg, use of aerial appliance, water relays or other functional tasks. (To be used at the discretion of the IC.)

1.2.3.2   DMO talkgroups have an operational range of approximately one mile. There is a possibility of interference with radios in use at other incidents or exercises within this range. The IC should make a test DMO transmission to establish if a specific talkgroup is in use.

1.2.3.3   **Operational use of DMO talkgroups will take precedence over training events or exercises.**

1.3   PRIVATE CALLS

1.3.1   Two types of private calls can be made between TETRA radios using the Individual Short Subscriber Number (ISSI).

1.3.1.1   FULL DUPLEX

The radio is used like a mobile phone with the call being made and ended by pressing the green and red buttons respectively. There is a limited duration of 5 minutes with this type of call.

1.3.1.2   HALF DUPLEX

The radio is used in the normal manner by pressing the Press To Talk (PTT) button.

NOTE: The RCC can make private calls to users (half duplex only). However, there is no facility for users to make a private call to the RCC.

Proper radio procedures should be used at all times, even when making private calls.

2 – SECTION B

2.1 "AT INCIDENT" COMMUNICATIONS

2.1.1 The IC is responsible for ensuring efficient communications at operational incidents. Dedicated communication links are essential, both between the ICP and RCC and within the operational area itself. Incidents will range from single appliance/single sector to multiple appliance/multi-sector scenarios.

2.1.2 The IC should consider the following when establishing communication links:

- number of talkgroups to be kept to a minimum;
- importance/priority attached to each talkgroup;
- level of Incident Command in use;
- special appliances in use;
- emergency procedures;
- use of DMO.

2.1.3 **The ISSI of each hand portable radio in use should be recorded on the nominal roll board to ensure that Sector/Functional Officers can be contacted if required.**

2.1.4 SINGLE APPLIANCE/SINGLE SECTOR INCIDENT

    2.1.4.1 The appliance maintains contact with the RCC via the District talkgroup.

    2.1.4.2 The IC uses the relevant Station talkgroup to communicate with appliances/crews.

    2.1.4.3 If more than one incident is in progress within the same Station area, the use of a spare Station talkgroup should be considered. DMO talkgroups may also be utilised at the discretion of the IC if all Station talkgroups are in use.

        NOTE: **Emergency alarms made while in DMO are not monitored by the RCC.**

2.1.5 MULTIPLE APPLIANCE/SINGLE SECTOR INCIDENT

    2.1.5.1 The appliance operating as ICP maintains link with the RCC on District talkgroup. This function may transfer to a dedicated Command Support Vehicle.

2.1.5.2   The IC should use the relevant Station talkgroup to communicate between the ICP and crews.

2.1.5.3   Crews attending from other Stations should report to the ICP and establish the correct Station talkgroup for use on the incident ground.

2.1.5.4   For incidents requiring the use of multiple talkgroups, eg, for aerial appliances or water relays, the IC should consider the use of spare Station talkgroups or DMO talkgroups.

2.1.6   MULTIPLE APPLIANCE/MULTI-SECTOR INCIDENT

2.1.6.1   Multiple appliance/multi-sector incidents are by their nature more complex, requiring appropriate levels of Incident Command. In the initial stages of such an incident, communications will be set up in a similar way to smaller incidents. The level of command may increase as an incident develops and additional resources arrive, bringing about an increasing need for communications. However, the IC should always endeavour to keep the number of communication links to a minimum, bearing in mind the span of control.

2.1.6.2   The ICP maintains a link with the RCC on District talkgroup.

2.1.6.3   The IC should use an appropriate combination of Station talkgroups and/or DMO to communicate with Sector Officers and Functional Officers.

2.1.6.4   Crews attending from other Stations should report to the ICP and establish the correct Station talkgroup for use on the incident ground.

2.2   MAJOR INCIDENT FOLDER TALKGROUPS

2.2.1   Additional talkgroups are available for use at larger or protracted incidents at the discretion of the IC.

2.2.2   Major Incident talkgroups are as follows:

- Incident Command talkgroup;
- Incident Operations talkgroup;
- Incident Support (A) talkgroup;
- Incident Support (B) talkgroup;
- Breathing Apparatus Main Control talkgroup;
- Hazmat talkgroup;
- Announce talkgroup.

2.2.3 **The use of Major Incident talkgroups is not mandatory and ICs should carefully assess the need to change communications links at any incident already in progress.**

2.2.4 **The Incident Command talkgroup may be used to maintain a communications link between the ICP and the Command Room. However, this is not routinely monitored by the RCC and special arrangements must be in place in order to utilise this facility.**

2.2.5 **The Announce talkgroup can be used to monitor and communicate with all other talkgroups within the Major Incident folder. However, these talkgroups may only communicate with the ICP and not with each other.**

2.2.6 The IC should also consider the following points before deciding to use Major Incident talkgroups:

2.2.6.1 The number and complexity of communications links available within the Major Incident talkgroup folder.

2.2.6.2 In keeping with the principles of "span of control", the IC must be certain that sufficient personnel are available at the ICP for the monitoring and recording of messages, before moving to Major Incident talkgroups.

2.2.6.3 The potential for users to be unaware of communications traffic on other talkgroups.

2.2.6.4 The need for greater levels of control and radio discipline by all users at the incident.

2.2.6.5 When migrating to Major Incident talkgroups, all relevant users of Station talkgroups should be directed to select "INC OPS talkgroup". This is necessary to ensure that all personnel can test communications to ICP before migrating to the relevant Major Incident talkgroup.

2.2.6.6 The ICP will be required to maintain up-to-date and relevant records of the talkgroups in use and the personnel using each talkgroup.

2.3 SPECIAL INCIDENTS

2.3.1 Talkgroups are also available for use at special incidents, ie:

- specialist rescue incidents;
- chemical, biological, radiological and nuclear (CBRN) incidents;
- air and marine incidents;
- training events;
- safety events;
- support events.

2.3.2 Special Incident talkgroups can be used by dedicated teams of personnel carrying out specific tasks at an incident. It is essential that ICs are aware of any Special Incident talkgroups that are in use and that communications are maintained between Specialist Team Leaders and the ICP at all times.

2.4 EMERGENCY ALARMS

2.4.1 All radios have the capability of initiating an emergency call by pressing the emergency button for 2 seconds. This will alert all other users on the talkgroup and the RCC. The radios will "hot-mic" for 10 seconds during which transmissions can be made without using the PTT key. After 10 seconds the radio will revert to PTT operation. However, the user will still have priority on the talkgroup and will over-ride any other transmission.

2.4.2 **If the emergency is actuated on a DMO talkgroup, this will not alert the RCC and the IC must report this actuation to the RCC via the District talkgroup.**

2.4.3 The emergency button is to be activated **ONLY** in an emergency situation. This feature is designed for operation in a "Firefighter Emergency", eg, crew members trapped under fallen brickwork or other unforeseen situation where the PTT cannot be pressed in the normal manner.

2.4.4 **The emergency button is not a substitute for a priority message, eg, "running call" or "assistance message".**

2.4.5 The RCC will give the actuation of the emergency alarm the highest priority and will normally respond within the 10 second "hot-mic" period if the emergency is initiated on a District talkgroup. Where the alarm is actuated on any other TMO talkgroup, there may be a delay whilst RCC personnel enable this talkgroup for their use.

2.4.6 When sending an emergency message, all users **MUST** prefix the message with the words *"Fire Emergency, Fire Emergency …"*, followed by their name, location (eg, "Sector 3 at incident in Main Street, N42") and stating the nature of the emergency, eg, wall collapse, Firefighters trapped.

2.4.7 When the situation has been resolved, the emergency must be cleared on the radio that instigated the call, by pressing the "EXIT" button. At any operational incident, this is the responsibility of the IC.

2.4.8 **In the event of the emergency button being activated accidentally, the person initiating the call must immediately inform the RCC that it is an accidental activation and the emergency should be cancelled immediately, using the "EXIT" button.**

2.4.9 **Following any actuation of the emergency button, the radio must not be switched to another talkgroup or powered down until contact has been established with the RCC.**

2.5 FALLBACK PROCEDURES

2.5.1 A high level of resilience is built into the TETRA network to ensure that coverage will still be provided, even if faults occur. Depending on the nature of the problem, users may find that hand-held radios do not function while appliance and base radios continue to operate normally.

2.5.2 LOCAL AREA SERVICE

2.5.2.1 **If "Local Area Service" (LAS) is displayed on the radio, this indicates that the network is operating on a limited basis. In this mode, users cannot communicate with the RCC.**

2.5.2.2 Users of hand portable radios will be aware that they are in LAS mode as the screen display will change from the usual blue colour to orange and will display "Local Area Service". Hand portables will continue to operate and users will still be able to communicate with each other within their local area, but not with the RCC. The radio will also produce an intermittent "beep". When in LAS mode, functionality of the radio will be limited to group calls, ie, individual calls and text messaging between radios will not be possible.

2.5.2.3 Some Fire Stations are LAS equipped, ie, able to act as a Communication Control Centre for the local area. These Stations will be manned so that messages can be relayed to Station base radio from the incident ground and forwarded to the RCC via telephone. This will be co-ordinated by the RCC, who will provide details of the procedures to be followed. **Users should stay on their allocated District talkgroup as normal.**

2.5.3   FAILURE OF RCC EQUIPMENT

2.5.3.1   If a failure of equipment within the RCC occurs, contact with the RCC on District talkgroups may be lost. In this scenario, a message will be broadcast on all District talkgroups, instructing all users to switch to the relevant Area Fallback talkgroup (one for each Area Command).

2.5.3.2   **When Area talkgroups are in use, radio traffic should be kept to an absolute minimum, as the RCC will be using fallback equipment which has limited functionality.**

2.6   INTEROPERABILITY

2.6.1   All TETRA radios have the capability of communicating with the other agencies who share the TETRA system using "INTEROP" talkgroups. Formal procedures are currently being developed and instructions will be circulated in due course.

2.7   SECURITY

2.7.1   To maintain the security of the TETRA system, NIFRS has adopted strict security procedures. TETRA radios are only issued to authorised NIFRS personnel who have received appropriate training.

2.7.2   When hand portables are used in a vehicle, the hands free car kit must be used. When not in use, radios must be powered off and if necessary, stored in a secure location. Radios must not be left in an unlocked officer's car, pool car or van. Additionally, when a vehicle is left unattended, radios must be stowed out of site - in the boot or glove compartment. Radios may be left unattended in appliances whilst on Station, provided they are powered off and secured in the charging cradle.

2.7.3   Regular checks must be carried out as follows to ensure that radios are correctly located:

- following all incidents;
- daily check at the commencement of every shift on Wholetime Fire Stations;
- weekly check on drill nights at Retained Fire Stations;
- weekly check for all non-uniformed users.

2.8 REPORTING PROCEDURES

2.8.1 Faulty or defective radios must be reported to the RCC and returned securely to the Communications Department, if required. The following details must be provided:

- name/role/department of person making the report;
- date of the record/report;
- time reported;
- ISSI number of radio;
- call sign allocated to radio.

2.8.2 **Lost, stolen or missing terminals <u>MUST</u> be reported to the RCC immediately.**

2.8.3 The following additional information must be provided:

- date terminal was last seen;
- circumstances – a brief description.

2.8.4 The Communications Department will authorise the RCC to arrange for the terminal to be stunned or killed, depending on circumstances, ie:

- **stun** – temporary removal of functionality from the radio;
- **kill** – permanent removal of functionality from the radio.

2.9 GENERAL

2.9.1 To assist with Incident Command, all attending appliances and officers should mark the ISSI number of their hand portable radios on the nominal roll board. This will assist the ICP at a major incident when contact is required with Sector or other Functional Officers, using the duplex or half duplex call facility.

2.9.2 At an operational incident, the scanning feature should be switched off on hand-held radios to prevent transmissions being made on the talkgroups in use at that incident.

2.9.3 <u>ALL</u> radio communications must be directed through the ICP when in operation. The use of the term "Control Point" should be maintained when communicating with the ICP at an incident. Terms such as Command Support Unit, Command Support Vehicle, Command Vehicle or any other variation should be avoided. This ensures continuity when moving from a pumping appliance as the Control Point to a Level 2 or 3 Command Vehicle.

2.9.4   Leave a short delay after PTT is activated before transmission of any messages. This will prevent loss of voice or "clipping" of the beginning of the message. There is scope for confusion and time wasting if the RCC or ICP deems it necessary to ask for repeat transmissions.

2.9.5   Care must be taken when inserting or removing the hand portable to or from the protective pouch, so that the emergency button will not be inadvertently pressed.

2.9.6   When removing a hand portable from the vehicle cradle, care should be taken so as not to inadvertently press the emergency button.

2.9.7   Appliance radios must be powered off prior to the appliance master switch being turned off, so that the radio can log off from the system.

NOTE: Provided contact is maintained with Sector Commanders, Safety Officers, relevant Functional Officers and the RCC, the IC can utilise specialist folders and talkgroups at his/her own discretion. All personnel who are within the risk area at any incident using radio communications should be aware of the relevant talkgroups that are in use and how they should maintain contact with the ICP during the incident.

3 – SECTION C

3.1   REFERENCE DOCUMENTS

3.1.1   Draft document/Operational Procedures 02/04/06: *"Radio Communications, Operational Radio Procedures". NIFRS Continuation Training and Development Programme 01/01/06.*

3.1.2   Standard Operating Procedure (SOP) No 1: "*Incident Command System".*

CONCLUSION

Good communications are an essential element in the smooth running of any operational incident, ensuring the maintenance of safe systems of work and the health and safety of operational personnel.

NIFRS has developed this SOP in order to reinforce the general principles of radio communications already in use by operational personnel and to assist in applying these principles to the TETRA radio system.

Kevin Synnott
Group Commander (Operations Policy)

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