

SAN LUIS VALLEY REGION STANDARDIZED DIGITAL TRUNK RADIO (DTR) PROTOCOLS

Version 1.2

Prepared by the San Luis Valley Exercise Design Team
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1.0 Purpose

1.1 The digital trunk radio (DTR) system is intended to improve and enhance voice communications between emergency response agencies within the San Luis Valley. It also provides effective communication links with other DTR users throughout the State of Colorado during periods of mutual aid.

1.2 These protocols provide a standardized and seamless method for all regional emergency response agencies to communicate and coordinate their actions, regardless of incident location. They are also in compliance with the “Standard Operational Procedures” published by the Consolidated Communications Network of Colorado, Inc. (CCNC). CCNC is a non-profit corporation organized exclusively for the purpose of managing the Statewide Digital Trunked Radio Network, under and by virtue of the laws of the State of Colorado.

2.0 Background

2.1 Each emergency response agency within the San Luis Valley has received digital trunk radios in the form of portable (hand held), mobile (vehicle mounted), and/or base station units. Each agency also has DTR user groups and channels specific to their organization to use during day-to-day operations.

2.2 Since there are dozens of different emergency response agencies within the San Luis Valley, it is impractical to expect each DTR user to be familiar with all other DTR user groups and channels. This wide array of different DTR groups and channels has created difficulty when multiple agencies respond to an incident and attempt to communicate with each other.

2.3 During incidents involving more than one agency, or agencies arriving from another county, it is imperative that all responding units have available a simple and common method to communicate with the Incident Commander and other responding units.

3.0 Reference Documents

3.1 Consolidated Communications Network of Colorado, Inc., “*Standard Operation Procedures*”, Revision 1, dated May 6, 2005. This document is available for viewing or downloading on the Internet at www.ccncinc.org

3.2 We also wish to acknowledge the Durango, Colorado Fire Department for providing the majority of radio procedures contained in these protocols.

4.0 Procedures

4.1 In accordance with the National Incident Command System (NIMS), all radio transmissions during an incident should be “in the clear”. This means users should avoid the use of “10” codes or jargon that other responders may not be familiar with.

4.2 When making a transmission with digital trunk radios (DTR), press and hold the oval shaped “press-to-talk” button on the left side of the radio, then listen for the short “chirp”. Once the “chirp” is complete, you are ready to make your radio transmission.

4.3 Standard reverse transmission protocols will be observed. When making a call, state the unit being called and then state your unit.

4.3.1 Example:

Saguache County Public Health one [this is] San Luis Valley Public Health one [calling]

4.4 There are two basic rules to follow to control communications:

4.4.1 Units must identify themselves in every transmission.

4.4.2 The receiver must acknowledge every message by repeating the essence of the message to the sender. This ensures that everyone understands the same message and terms.

4.4.2.1 Example:

Engine one, [this is] Command [calling]

Engine one

Engine one, I would like you to advance a two inch hose to the stairwell on side two

Engine one copy, we will advance a two inch hose to the stairwell on side two

4.4.3 If in doubt about terminology, say exactly what you mean. Listen before transmitting to make sure the channel is clear. Do not use airtime/DTR tower space with unimportant messages or details. Speak at a moderate rate and volume. Finish your sentence, don't trail off and hesitate after keying the microphone so you don't cut yourself off.

5.0 Mutual Aid Channels or “MAC” Channels

5.1 Each digital trunk radio in the State of Colorado has a number of common state-wide mutual aid channels (or MAC) programmed. Mutual aid channels are shown as MAC13 SW, MAC14 SW, etc. on the digital display screen on each DTR radio. These MAC channels correspond to geographical sector quadrants within the State of Colorado. Transmissions made on these MAC channels are routed through the DTR tower network located throughout the State of Colorado. Those common state-wide MAC channels are:

- 5.1.1 MAC 13 SW (southwest) through MAC 16 SW – The San Luis Valley region is in the Southwest sector of Colorado
- 5.1.2 MAC 17 NW (northwest) through MAC 20 NW
- 5.1.3 MAC 5 NE (northeast) through MAC 8 NE
- 5.1.4 MAC 9 SE (southeast) through MAC 12 SE
- 5.1.5 MAC 1 MET (metropolitan) through MAC 4 MET – Includes Boulder, Adams, Arapaho, Douglas, Jefferson, Broomfield and Denver counties

5.2 CCNC Standard Operation Procedures specify the following MAC 13 SW through MAC16 SW channel allocations:

- 5.2.1 MAC 13 SW – This talk group is not specified for a specific discipline by CCNC and will be assigned to hazardous materials agencies and/or coroners.
- 5.2.2 MAC 14 SW – This talk group has been allocated to fire agencies for mutual aid and coordination and communications.
- 5.2.3 MAC 15 SW – This talk group has been allocated to law enforcement agencies for mutual aid coordination and communications.
- 5.2.4 MAC 16 SW – This talk group has been allocated to emergency medical service (EMS) agencies for mutual aid coordination and communications.

5.3 Each DTR radio assigned to agencies within the San Luis Valley region also has the follow regional mutual aid channels (MAC) programmed:

- 5.3.1 ALA MAC – Alamosa County MAC
- 5.3.2 CON MAC – Conejos County MAC
- 5.3.3 COS MAC – Costilla County MAC
- 5.3.4 MIN MAC – Mineral County MAC
- 5.3.5 RG MAC – Rio Grande County MAC
- 5.3.6 SAG MAC – Saguache County MAC

5.4 If one or more of the MAC channels are unavailable, the Incident Commander on-scene will request, through the dispatch center serving the county in which the incident is located, a MAC channel assignment.

6.0 Simplex (SIMP) Mode

6.1 Each DTR radio in the State of Colorado also has five “simplex” channels programmed. These are shown as SIMP 1 through SIMP 5 on the digital display screen on each DTR radio. Simplex transmissions are only for radio-to-radio communications. Simplex transmissions do not utilize the DTR tower network. Therefore, simplex transmissions have a relatively short range (5-10 miles depending of geography and structures located between sending and receiving units).

6.1 CCNC Standard Operation Procedures specify the following simplex channel allocations:

- 6.1.1 Simplex 1 – This talk group has been allocated to fire agencies for mutual aid coordination and communications.

- 6.1.2 Simplex 2 – This talk group has been allocated to law enforcement agencies for mutual aid coordination and communications.
- 6.1.3 Simplex 3 – This talk group has been allocated to EMS agencies for mutual aid coordination and communications.
- 6.1.4 Simplex 4 – This talk group is not specified for a specific discipline by CCNC and will be allocated to hazardous materials agencies for mutual aid coordination and communications.
- 6.1.5 Simplex 5 – This talk group is not specified for a specific discipline by CCNC and will be allocated to coroners for mutual aid coordination and communications.

7.0 Concept of operations within the San Luis Valley region involving more than one agency

7.1 The Incident Commander (IC) will select the mutual aid channel (MAC) for the county in which the incident is located. Example – If the incident is located in or near San Luis, the IC will select COS MAC on his DTR radio.

7.2 Responding emergency response units will make initial contact with the IC using the county MAC channel. Unless directed to do otherwise by the IC, arriving emergency response units will then select the appropriate simplex channel to coordinate and communicate with other units within their discipline.

7.2.1 Example – Fire units will select simplex 1 on their DTR radios.

7.3 If simplex DTR transmissions are ineffective due to geography and/or structures, emergency response units will select the appropriate Southwest Sector state-wide MAC channel to coordinate and communicate with other units within their discipline.

7.3.1 Example – Law enforcement units will select MAC 15 SW on their DTR radio.

7.4 Attachment 1 to these protocols shows a San Luis Valley regional DTR communications algorithm chart.

8.0 Status Reporting (Non-Emergent)

Available	Ready to respond to calls; location is optional
Responding	Used to specify an apparatus movement to a specific location in response to an alarm (non-code)
In Quarters	Used to indicate that a resource is at station
In Service	Unit is operating, but not in response to a dispatch
Arrived	Used to announce apparatus arrival at a non-emergency location
Clear	Used to indicate a unit is released from a scene
Break	Used to indicate a unit still has control of the channel, but needs a break before continuing transmission
Same Traffic	Used when a unit has the same message as a preceding transmission and does not want to repeat same traffic

9.0 Status Reporting (Emergent)

Responding Emergent (location)	Used to specify an apparatus movement to a specific location in response to an alarm (code)
On Scene	Used when units arrive at the scene of an incident
Under Control	Used by Incident Command to denote when an incident is stabilized
Transporting Number	Used to designate how many patients medic units are transporting
Emergent	Used to designate if patient transport is a “code” run
Non-Emergent	Used to designate that patient transport is “non-code”
Evacuate	Used to designate removal of civilians
Cancel	Self-explanatory
Rescue	Used to mean civilians are in immediate danger and must be removed; firefighters have verified the location of the civilians
Search and Rescue	Used to mean civilians are endangered, but their location is unknown
Primary Search	Used to mean that there is not a known life safety problem (unknown if occupied)
All Clear	Used to mean that a primary search has been done or occupants have confirmed no civilians are in danger
Withdraw	Used to mean that an orderly, proactive removal of firefighters is necessary
Abandon	Used to mean that firefighters are in immediate danger; exit quickly by whatever means necessary; an audible alert of three air horn blasts should also be used
Emergency Break	Clear the channel for emergency traffic
Mayday	Used by firefighters to indicate that they are in trouble and in need of intervention; repeat three times; may also be used for developing emergent situations on any emergency scene
Intervention	Used to mean immediate and calculated removal of endangered firefighters whose location is known and verified by the teams’ supervisors and RIT; also actions taken by RIT to ensure safety and survival of members operating at any emergency scene
Command Terminated	Used to indicate the last unit is clear and the incident is terminated

10.0 Standard Replies

Affirmative	Yes
Negative	No
Can Handle	Used by first arriving unit to announce ability to manage an incident without further assistance
Copy	Used to acknowledge a message received

Disregard	Self-explanatory
Repeat	Request to repeat unclear or unintelligible radio traffic
Standby	Request to hold radio traffic momentarily
How Do You Copy	Request for report on transmission quality
Loud and Clear	Self-explanatory
Unreadable	Self-explanatory

11.0 Digital Trunk Radio Towers in the San Luis Valley Region

Tower Name	Site Number in Digital Trunk Radios
11.1 La Veta Pass	32
11.2 Pool Table Mountain (Aqua Ramon)	42
11.3 San Antonio Mountain	45
11.4 Methodist Mountain	50
11.5 Alamosa	52
11.6 Saguache Peak	54